

In the Matter of

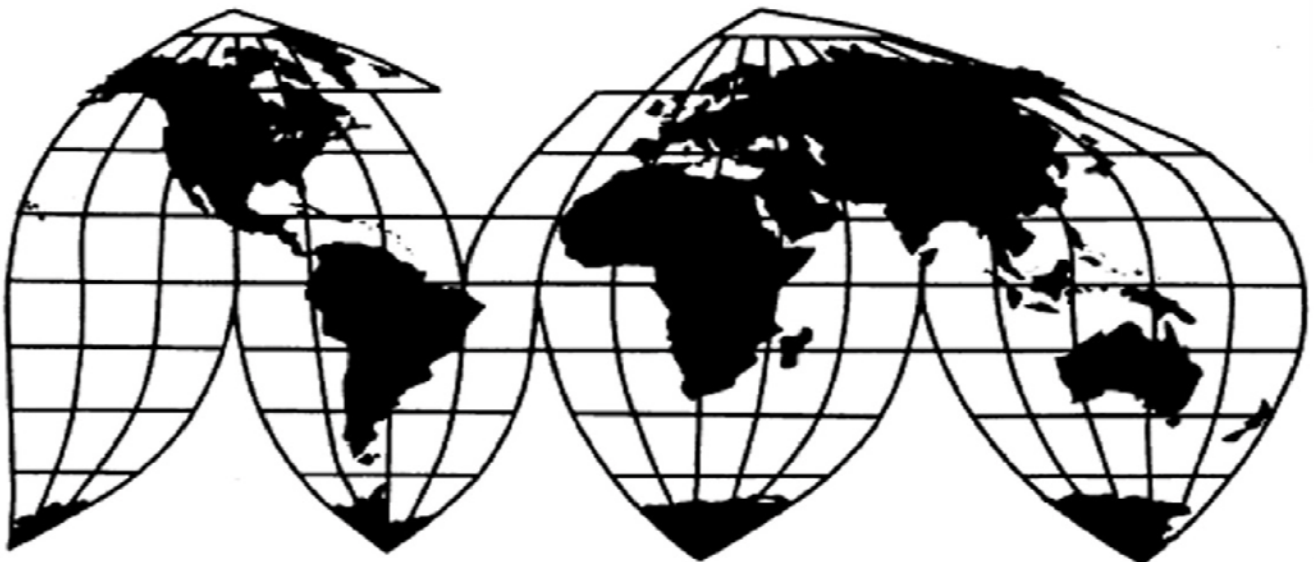
**Certain Baseband Processor Chips and
Chipsets, Transmitter and Receiver (Radio)
Chips, Power Control Chips, and Products
Containing Same, Including Cellular
Telephone Handsets**

Investigation No. 337-TA-543
Vol. 2 of 2

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U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

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(RADIO) CHIPS, POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS**

Inv. No. 337-TA-543

**INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND
RECOMMENDED DETERMINATION ON REMEDY AND BOND**

Administrative Law Judge Charles E. Bullock

(October 10, 2006)

Appearances:

For the Complainant Broadcom Corporation:

William F. Lee, Esq.; Richard O'Neill, Esq.; of Wilmer Hale of Boston, Massachusetts

James L. Quarles, III, Esq.; Michael D. Esch, Esq.; Wayne Stoner, Esq.; Thomas P. Olson, Esq.;
William McElwain, Esq.; Maria Vento, Esq.; of Wilmer Hale of Washington, D.C.

Robert A. Van Nest, Esq.; Ragesh K. Tangri, Esq.; Steven K. Taylor, Esq.; Daniel Purcell, Esq.;
Benedict Y. Hur, Esq.; of Kecker & Van Nest LLP of San Francisco, California

For the Respondent Qualcomm Incorporated:

Cecelia H. Gonzalez, Esq.; William K. West, Esq.; Rachel A. Adams, Esq.; Bert C. Reiser, Esq.;
Sonia Williams Murphy, Esq.; of Howrey LLP of Washington, D.C.

Peter J. Chassman, Esq.; Sashe D. Dimitroff, Esq.; of Howrey LLP of Houston, Texas

Christopher R. Kelley, Esq. of Howrey LLP of Menlo Park, California

Robert P. Taylor, Esq. of Howrey LLP of East Palo Alto, California

Henry C. Bunsow, Esq. of Howrey LLP of San Francisco, California

For the Commission Investigative Staff:

Lynn I. Levine, Esq., Director; Spence Chubb, Esq., Supervising Attorney; Karin Norton, Esq., Investigative Attorney; of the Office of Unfair Import Investigations, U.S. International Trade Commission, of Washington, D.C.

For the Intervenor Kyocera Wireless Corp.:

Don F. Livornese, Esq.; Roman Darmer, Esq.; of Howrey LLP of Washington, D.C.

For the Intervenor LG Electronics Mobilecomm U.S.A., Inc.:

Evelyn G. Heilbrunn, Esq.; Scott A. Elengold, Esq.; Timothy W. Riffe, Esq.; of Fish & Richardson P.C. of Washington, D.C.

For the Intervenor Motorola, Inc.:

Russell E. Levine, Esq.; Nyika O. Strickland, Esq.; of Kirkland & Ellis LLP, of Chicago, Illinois

For the Intervenor Samsung Electronics Co., Ltd.:

Gregory S. Arovas, Esq.; Todd M. Friedman, Esq.; of Kirkland & Ellis LLP, of New York, New York

For the Intervenor Sprint Nextel Corporation:

Oscar L. Alcantara, Esq.; Brian D. Fagel, Esq.; of Goldberg Kohn Bell Black Rosenbloom & Moritz, Ltd.; of Chicago, Illinois

For the Intervenor Cellco Partnership d/b/a Verizon Wireless:

Mark C. Hansen, Esq.; Reid M Figel, Esq.; Aaron M. Panner, Esq.; Rebecca A. Beynon, Esq.; Joseph S. Hall, Esq.; of Kellogg, Huber, Hansen, Todd, Evans & Figel, PLLC, of Washington, D.C.

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LIST OF ABBREVIATIONS

CDX	Complainants' demonstrative exhibit
CFF(R)	Complainants' proposed findings of fact (remedy)
CIB(R)	Complainants' initial post-hearing brief (remedy)
COIFFR	Complainants' objections to Intervenor's proposed findings of fact on remedy
CORFF	Complainants' objections to Respondent's proposed findings of fact
COSFF(R)	Complainants' objections to Staff's proposed findings of fact (remedy)
CPX	Complainants' physical exhibit
CRB(R)	Complainants' reply post-hearing brief (remedy)
CX	Complainants' exhibit
Dep.	Deposition
IFFR	Intervenor's findings of fact on remedy
IIBR	Intervenor's initial post-hearing brief on remedy
IOCFRR	Intervenor's objections to Complainant's proposed findings of fact on remedy
IOSFFR	Intervenor's objections to Staff's proposed findings of fact on remedy
IRBR	Intervenor's reply post-hearing brief on remedy
JX	Joint Exhibit
KX	Kyocera exhibit
LGX	LG exhibit
MX	Motorola exhibit
RDX	Respondent's demonstrative exhibit
RFF(R)	Respondent's proposed findings of fact
RIB(R)	Respondent's initial post-hearing brief (remedy)
ROCFF	Respondent's objections to Complainants' proposed findings of fact
ROSFF	Respondent's objections to Staff's proposed findings of fact
RPX	Respondent's physical exhibit

RRB(R)	Respondent's reply post-hearing brief (remedy)
R.Tr.	Remedy Transcript
RX	Respondent's exhibit
SAMX	Samsung exhibit
SFF(R)	Staff's proposed findings of fact (remedy)
SIB(R)	Staff's initial post-hearing brief (remedy)
SNX	Sprint exhibit
SOCFF(R)	Staff's objections to Complainants' proposed findings of fact (remedy)
SORFF	Staff's objections to Respondent's proposed findings of fact
SRB(R)	Staff's reply post-hearing brief (remedy)
Tr.	Transcript
VX	Verizon exhibit

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

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**CERTAIN BASEBAND PROCESSOR CHIPS AND
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(RADIO) CHIPS, POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS**

Inv. No. 337-TA-543

**INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND
RECOMMENDED DETERMINATION ON REMEDY AND BOND**

Administrative Law Judge Charles E. Bullock

(October 10, 2006)

Pursuant to the Notice of Investigation¹ and Rule 210.42(a) of the Rules of Practice and Procedure of the United States International Trade Commission, this is the Administrative Law Judge's Initial Determination in the matter of *Certain Baseband Processor Chips and Chipsets, Transmitter and Receiver (Radio) Chips, Power Control Chips, and Products Containing Same, Including Cellular Telephone Handsets*, Investigation No. 337-TA-543.

The Administrative Law Judge hereby determines that a violation of Section 337 of the Tariff Act of 1930, as amended, has been found in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain baseband processor chips and chipsets, transmitter and receiver (radio) chips, power control chips, and products

¹ 70 Fed. Reg. 35,707 (June 21, 2005).

containing same, including cellular telephone handsets in connection with claims 1, 4, 8, 9, and 11 of U.S. Patent No. 6,714,983, and that a violation of Section 337 has not been found in connection with claims 1-5, 7, 8, 13, 14, and 16-19 of U.S. Patent No. 6,374,311; claims 14 and 17-24 of U.S. Patent No. 6,714,983; and claims 33 and 35 of U.S. Patent No. 6,583,675. Furthermore, the Administrative Law Judge hereby determines that a domestic industry in the United States exists that practices U.S. Patent Nos. 6,374,311; 6,714,983; and 6,583,675.

DISCUSSION

I. Introduction

A. Procedural History

On May 19, 2005, Complainant Broadcom Corporation (“Broadcom”) filed a complaint with the Commission pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337. The complaint was supplemented on June 7 and 10, 2005. The complaint, as supplemented, asserts unfair methods of competition and unfair acts in violation of Section 337 by Respondent Qualcomm Incorporated (“Qualcomm”) in connection with the importation, sale for importation, and sale within the United States after importation of certain baseband processor chips and chipsets, transmitter and receiver (radio) chips, power control chips, and products containing same, including cellular telephone handsets.

The complaint, as supplemented, accuses Qualcomm’s products of infringing various claims of the following five U.S. Patents owned by Broadcom: claims 1-5, 7, 8, 13, 14, and 16-19 of U.S. Patent No. 6,374,311 (“the ‘311 patent”); claims 1, 4, 8, 9, 11, 14, and 17-24 of U.S. Patent No. 6,714,983 (“the ‘983 patent”); claim 2 of U.S. Patent No. 5,682,379 (“the ‘379 patent”); claims 8-11 and 13 of U.S. Patent No. 6,359,872 (“the ‘872 patent”); and claims 33, 35, and 38² of U.S. Patent No. 6,583,675 (“the ‘675 patent”). The complaint further alleges that there exists a domestic industry with respect to the patents-at-issue. Broadcom seeks, among other things, a limited exclusion order of the infringing chips, as well as all cellular telephones and other electronic devices that incorporate the infringing chips.

² Although the complaint alleges infringement of claim 38 of the ‘675 patent, the parties did not address claim 38 at all and is therefore waived and will not be discussed.

On June 16, 2005, the Commission issued a notice of investigation that was subsequently published in the Federal Register on June 21, 2005.³ On June 21, 2005, the undersigned set a fourteen-month target date for the investigation, or August 22, 2006.⁴ Respondent filed a response to the complaint and notice of investigation on July 11, 2005.

On October 12, 2005, Qualcomm filed a motion [543-002] to extend the target date, which was granted in part by Order No. 4, issued on October 26, 2005. That order extended the target date to fifteen months, or September 21, 2006.

On December 23, 2005, Broadcom filed a motion for summary determination [543-023] that Broadcom has satisfied the economic prong of the domestic industry requirement under 19 U.S.C. § 1337 (a)(3)(C) with respect to the asserted patents. On January 24, 2006, the undersigned issued an initial determination granting the motion.⁵ On February 17, 2006, the Commission issued a notice of its decision not to review the initial determination.

On February 14, 2006, Broadcom filed a motion [543-059] to withdraw its allegations of infringement regarding U.S. Patent Nos. 5,682,379 and 6,359,872 and to terminate this investigation in part as to those patents. On February 15, 2006, the undersigned issued an initial determination granting the motion.⁶ On February 24, 2006, the Commission issued a notice of its decision not to review the initial determination granting Complainant's motion to terminate the investigation in part.

On January 31, 2006, non-party Cellco Partnership d/b/a Verizon Wireless ("Verizon") filed a motion [543-035] to intervene, to amend the schedule for submission of certain materials, along

³ See Notice of Investigation, 70 Fed. Reg. 35,707 (June 21, 2005).

⁴ See Order No. 2 (June 21, 2005).

⁵ See Order No. 19 (January 24, 2006).

⁶ See Order No. 26 (February 15, 2006).

with a shortened response time. On February 2, 2006, non-party LG Electronics Mobilecomm U.S.A., Inc. (“LG”) filed a motion [543-046] to intervene, along with a request for shortened response time and expedited consideration. On February 3, 2006, non-party Kyocera Wireless Corp. (“Kyocera”) filed a motion [543-047] to intervene. On February 3, 2006, non-party Motorola, Inc. (“Motorola”) filed a motion [543-048] to intervene for the limited purpose of presenting evidence relating to remedy, along with a shortened response time. On February 8, 2006, non-party Sprint Nextel Corporation (“Sprint”) filed a motion [543-051] to intervene, to amend the schedule for submission of certain materials, along with a request for shortened response time. On February 10, 2006, non-party Samsung Electronics Co., Ltd. (“Samsung”) filed a motion [543-054] to intervene for the limited purpose of presenting evidence relating to remedy, along with a request for shortened response time. On February 15, 2006, the undersigned issued an initial determination granting the motions to intervene for the limited purpose of remedy, bifurcating the investigation for liability and remedy, and extended the target date to eighteen months, or December 21, 2006.⁷ On March 16, 2006, the Commission issued a notice of its decision not to review the initial determination.

On February 22, 2006, Verizon filed a motion [543-061] to intervene in the liability phase of this investigation and for suspension of the proceedings to afford Verizon an opportunity to prepare to participate in this phase, and (ii) to disqualify Wilmer Cutler Pickering Hale and Dorr, LLP (“Wilmer Hale”) as counsel for Broadcom. On March 9, 2006, the undersigned issued Order No. 29, denying the motion.⁸ On March 13, 2006, Verizon filed a request for leave to appeal the portion of Order No. 29, denying the motion to disqualify Broadcom’s counsel, Wilmer Hale. The

⁷ See Order No. 27 (February 15, 2006).

⁸ See Order No. 29 (March 9, 2006).

undersigned denied leave to appeal on March 28, 2006 in Order No. 30. On March 16, 2006, Verizon filed an application for review of Order No. 29, denying the motion to intervene in the liability phase. On May 24, 2006, the Commission issued a notice denying the application for review of Order No. 29.

The parties have stipulated as to certain material facts.⁹ Particular stipulated facts that are relevant to this Initial Determination are cited accordingly.

An evidentiary hearing on liability was conducted before the undersigned from February 14-22, March 1, and March 13-21, 2006. In support of its case-in-chief and rebuttal case, Broadcom called the following witnesses:

Dr. Ray Nettleton (Broadcom expert for the '983 and '311 patents) [RFF 44]	CX-1664C (Nettleton Direct)
	CX-1979C (Nettleton Rebuttal)
Steven Koenck (one of the named inventors of the '311 and '383 patents) [RFF 34]	CX-1339 (Koenck Direct)
Dr. Linda Milor (Broadcom expert for the '675 patent) [RFF 43]	CX-1662C (Milor Direct)
	CX-1978C (Milor Rebuttal)
Ramon Gomez (inventor of the '675 patent, Broadcom senior principal scientist in the RF and analog department) [RFF 19]	CX-1337C (Gomez Direct)

In support of its case-in-chief and rebuttal case, Qualcomm called the following witnesses:

⁹ See Joint Stipulation of Facts filed on January 27, 2006 as JX-121C, revised on April 3, 2006 (to eliminate references to MSM 6100, 6125, 6150, which relate to the Bluetooth patents that were terminated from this investigation), see Gonzalez, Tr. 2649 (3/21/06); and Joint Stipulation filed on July 11, 2006 as SX-16C.

Matthew Grob (Qualcomm senior vice president of technology in the corporate research and development division) [RFF 20]	RX-843C (Grob Direct)
	JX-24C (Grob Dep)
Ed Tiedemann (Qualcomm senior vice president of engineering) [RFF 61]	RX-830 (Tiedemann Direct)
Robbin Hughes (Qualcomm principal engineer) [RFF 27]	RX-832C (Hughes Direct)
Marie-Bernadette Pautet (fact witness regarding GSM) [RFF 46]	RX-828 (Pautet Direct) ¹⁰
Robert Fraser (fact witness regarding Mobitex) [RFF 15]	RX-846 (Fraser Direct)
James Hutchinson (vice president of technology for Qualcomm's CDMA Technologies division) [RFF 28]	RX-831C (Hutchinson Direct)
Robert Reeves (director of engineers for Qualcomm's CDMA Technologies division) [RFF 55]	RX-833C (Reeves Direct)
Jeremy Dunworth (manager in Qualcomm's RF analog group)	RX-844C (Dunworth Direct)
Dr. John Proakis (Qualcomm expert for the '983 and '311 patents) [RFF 54]	RX-838C (Proakis Direct)
	RX-922C (Proakis Rebuttal)
Dr. German Gutierrez (Qualcomm expert for the '675 patent) [RFF 24]	RX-839C (Gutierrez Direct)
	RX-923C (Gutierrez Rebuttal)

The following witness statements were also received into evidence, although the persons who

¹⁰ During the hearing, the parties stipulated that the following change should be made to the transcript during Madame Pautet's testimony at page 1790, lines 2-3: "It is not a mandatory feature. It would say 'sure'/'should' otherwise" is corrected to read "It is not a mandatory feature. It would say 'shall' otherwise." Gonzalez, Tr. 2590 (3/21/06). Apparently, when the change was discussed on March 21, 2006, the parties were working off the draft transcript, which referred to the above testimony as being on page 1789 of the transcript, rather than page 1790 of the transcript, and that the word "sure" in the draft was actually transcribed as "should" in the final transcript.

prepared those statements did not provide live testimony at the hearing:

Professor Jerry Gibson (Broadcom expert)	CX-1336C (Gibson Direct)
Scott Bibaud (Broadcom general manager of the wireless personal area networking business unit)	CX-1332 (Bibaud Direct)
Nelson Sollenberger (Broadcom senior director within the mobile communications business unit)	CX-1667C (Sollenberger Direct)
Raymond Hayes (Broadcom principal scientist in WLAN software group of the home and wireless networking business unit)	CX-1338C (Hayes Direct)
Sanjay Jha (president of Qualcomm's CDMA Technologies group) [RFF 31]	RX-827C (Jha Direct)
	JX-25C (Jha Dep)

In addition, the following deposition testimony was received into evidence in lieu of direct witness statements or live testimony:

Jaesung Ahn (Samsung senior software engineer) [RFF 9]	JX-12C & JX-123C (Ahn Dep)
Don Andrus (Qualcomm senior staff engineer) [RFF 10]	JX-14C (Andrus Dep)
James Anetsburger (director of device management and logistics at U.S. Cellular)	JX-15C (Anetsburger Dep)
Mark Brazeal (Broadcom vice president and deputy general counsel)	JX-60C (Brazeal Dep)
Gregory Bullard (Qualcomm employee)	JX-17C (Bullard Dep)
David Bush (senior vice president of sales at Qualcomm CDMA Technologies)	JX-19C (Bush Dep)
William Croughwell (Ericsson employee) [RFF 11]	JX-64C (Croughwell Dep)
Richard Dean (Qualcomm employee)	JX-20C (Dean Dep)
Matthew Delgiorno (Broadcom employee)	JX-65C & JX-66C (Delgiorno Dep)

Paul Dent (Ericsson employee)	JX-67C (Dent Dep)
Jeremy Dunworth (Qualcomm senior staff engineer manager in the RF analog group) [RFF 12]	JX-21C (Dunworth Dep)
Brian Finnerty (Sprint employee) [RFF 14]	JX-122C (Finnerty Dep)
Timothy Froehling (Motorola employee)	JX-23C (Froehling Dep)
Selvaraj Jaikumar (Qualcomm staff engineer) [RFF 30]	JX-119C (Jaikumar Dep)
Timothy Johnson (Motorola employee)	JX-26C (Johnson Dep)
Patrick Kinney (Kinney Consulting Limited employee, consultant for Broadcom) [RFF 32]	JX-69C (Kinney Dep)
Jay Kirchoff (Broadcom director of marketing for cable modems) [RFF 33]	JX-70C (Kirchoff Dep)
Steven Kohn (Motorola global category manager for semiconductors in the mobile devices group)	JX-28C (Kohn Dep)
Garish Konganda (Qualcomm senior staff engineer manager) [RFF 37]	JX-29C (Konganda Dep)
Wayshing Lee (senior director of engineering at Qualcomm CDMA Technologies division) [RFF 38]	JX-32C (W. Lee Dep)
Neil Levine (UTStarcom Personal Communications, LLC vice president of operations)	JX-33C (Levine Dep)
Marc Lubelski (Alaska Communication Systems employee) [RFF 39]	JX-34C (Lubelski Dep)
Louis Lupin (Qualcomm employee)	JX-35C (Lupin Dep)
Ronald Luse (Rockwell-Collins employee)	JX-118C (Luse Dep)
Vincent Maduakor (Alaska Communications Systems employee) [RFF 40]	JX-37C (Maduakor Dep)
Robert Meier (Cisco Systems employee) [RFF 41]	JX-71C (Meier Dep)
Hailu Mengistu (NEC America employee) [RFF 42]	JX-72C (Mengistu Dep)
Steven Mollenkopf (Qualcomm vice president of engineering)	JX-38C (Mollenkopf Dep)
Upendra Patel (formerly Qualcomm vice president of engineering) [RFF 45]	JX-40C (Patel Dep)

Louis Pineda (senior vice president of marketing and product management for Qualcomm CDMA Technologies division)	JX-41C (Pineda Dep)
Robert Rango (Broadcom senior vice president mobile and wireless)	JX-73C (Rango Dep)
Brian Redding (Motorola distinguished member of the technical staff)	JX-43C (Redding Dep)
Jim Reilly (Qualcomm director of applications engineering group)	JX-44C (Reilly Dep)
Ramin Rezaiifar (Qualcomm director of engineering) [RFF 57]	JX-45C (Rezaiifar Dep)
Hank Robinson (Qualcomm vice president of sales for the Americas)	JX-46C (Robinson Dep)
Roger Schultz (Velocita Wireless employee) [RFF 58]	JX-75C (Schultz Dep)
John Sherman (self employed)	JX-74C (Sherman Dep)
Sten Sjoberg (Ericsson employee) [RFF 59]	JX-76C (Sjoberg Dep)
Per-Erik Sundstrom (Mobitex Technology, Inc. employee) [RFF 60]	JX-77C (Sundstrom Dep)
Jim Tran (Qualcomm senior director of product management)	JX-50C (Tran Dep)
Simon Turner (director of engineering at Qualcomm CDMA Technologies) [RFF 61A]	JX-52C (Turner Dep)
Brett Walker (Qualcomm director of engineering for the power management group) [RFF 62]	JX-120C (Walker Dep)
Jonathan Weiser (Qualcomm vice president, division counsel)	JX-53C (Weiser Dep)
David Wilding (Qualcomm senior product manager)	JX-54C (Wilding Dep)
David Wood (Alltel Corporation employee) [RFF 63]	JX-124C (Wood Dep)
Thomas Zeran (Kyocera vice president of product management) [RFF 64]	JX-58C (Zeran Dep)

After the hearing, post-hearing briefs and reply briefs, together with proposed findings of

fact, conclusions of law and rebuttals to the same, were filed on April 3, 2006 and April 12, 2006, respectively.

An evidentiary hearing on remedy was conducted before the undersigned on July 6-11, 2006.

The following witnesses were called by Broadcom:

Carla Mulhern (Broadcom expert)	CX-2409C (Mulhern Direct)
	CX-2569C (Mulhern Rebuttal)
Dr. William Lehr (Broadcom expert)	CX-2408C (Lehr Direct)
	CX-2570C (Lehr Rebuttal)

The following witnesses were called by the Intervenors:

Jerry Hausman (LG/Motorola/Samsung expert)	SAMX-130C (Hausman Direct)
	SAMX-131C (Hausman Rebuttal)
Richard Lynch (Verizon executive vice president and chief technical officer)	VX-300C (Lynch Direct)
	JX-455C (Lynch Dep)
James Straight (Verizon vice president for product development and management)	VX-302C (Straight Direct)
Rosemary Garavaglia (Verizon director of device planning and strategy)	VX-299C (Garavaglia Direct)
	JX-454C (Garavaglia Dep)
Steven Smith (Verizon staff vice president of strategic and financial planning)	VX-301C (Smith Direct)
	JX-456C (Smith Dep)
Dennis Carlton (Verizon expert)	VX-327C (Carlton Direct)
	VX-331C (Carlton Rebuttal)
Mark Yarkowsky (Sprint director of CDMA access technology architecture)	SNX-53C (Yarkowsky Direct)
Steven Paisner (Sprint director in financial operations)	SNX-54C (Paisner Direct)

	SNX-84C (Paisner Rebuttal)
	JX-452C (Paisner Dep)
Chetan Sharma (Sprint expert)	SNX-51C (Sharma Direct)
	SNX-52C (Sharma Rebuttal)
Dan Gralak (LG vice president of sales)	LGX-135C (Gralak Direct)
	JX-269C (Gralak Dep)
Alan Sanders (Kyocera director of financial planning and analysis)	KX-183C (Sanders Direct)
	JX-245C (Sanders Dep)
Thomas Zeran (Kyocera vice president of product management)	KX-246C (Zeran Direct)
	KX-244C (Zeran Rebuttal)
	JX-259C & JX-264C (Zeran Dep)
Paul Meyer (Kyocera expert)	KX-245C (Meyer Direct)
	KX-226C (Meyer Rebuttal)

In addition, the following deposition testimony was received into evidence in lieu of direct witness statements or live testimony:

Jaesung Ahn (Samsung senior software engineer)	JX-328C (Ahn Dep)
William Alberth (Motorola employee)	JX-309C (Alberth Dep)
Liat Ben-Zur (Qualcomm field applications engineer)	JX-463C (Ben-Zur Dep)
Mark Brazeal (Broadcom in-house attorney)	JX-443C & JX-444C (Brazeal Dep)
David Bush (Qualcomm senior vice president of sales)	JX-459C (Bush Dep)
Bryan Chase (Broadcom senior marketing manager)	JX-206C (Chase Dep)
Yossi Cohen (Broadcom senior vice president and general manager for the mobile platform business unit)	JX-208C (Cohen Dep)

Brian Finnerty (Sprint employee)	JX-441C & JX-442C (Finnerty Dep)
Timothy Froehling (Motorola employee)	JX-447C (Froehling Dep)
Timothy Johnson (Motorola senior director of global commodity management)	JX-448C (Johnson Dep)
Jong Wan Kim (LG Electronics employee in charge of technical licensing research and development)	JX-279C (J. Kim Dep)
Kourosh Kohanteb (Broadcom senior director of financial planning and analysis)	JX-219C (Kohanteb Dep)
Chris Lambrecht (Sprint director of financial planning and analysis)	JX-440C (Lambrecht Dep)
Hakju Lee (Samsung senior manager in wireless division)	JX-334C (H. Lee Dep)
Victoria Lee (Qualcomm employee)	JX-445C (V. Lee Dep)
Dennis Olis (Motorola senior director of finance for the CDMA division)	JX-320C (Olis Dep)
Seung Joon Park (LG director of technology planning)	JX-282C (Park Dep)
Jose Piazza (Verizon director of business planning)	JX-465C (Piazza Dep)
Robert Rango (Broadcom senior vice president of the wireless connectivity group)	JX-221C (Rango Dep)
Brian Redding (Motorola employee)	JX-449C (Redding Dep)
Hank Robinson (Qualcomm vice president of sales for the Americas)	JX-460C (Robinson Dep)
Nelson Sollenberger (Broadcom senior director within the mobile communications business unit)	JX-242C (Sollenberger Dep)
Sung-Tae Song (LG international purchasing officer)	JX-284C (Song Dep)

After the remedy hearing, post-hearing remedy briefs and reply briefs, together with proposed findings of fact, conclusions of law and rebuttals to the same, were filed on July 21, 2006 and July 31, 2006, respectively.

On August 14, 2006, Broadcom filed a motion [543-096] to admit into evidence of intervenor Sprint's press release announcing launch of 4G data network. On August 24, 2006, Staff filed a response in support. On August 24, 2006, Sprint filed an opposition. Also on August 24, 2006, Qualcomm and various intervenors filed a joint opposition to the motion. Based on a review of the motion and oppositions thereto, the undersigned hereby denies the motion.

On August 15, 2006, the undersigned issued Order No. 53: Initial Determination extending the target date by fifty days, or until February 9, 2007. On August 18, the Commission issued a notice that it would not review the initial determination.

B. The Parties

1. Complainant

Complainant Broadcom Corporation ("Broadcom") is a California corporation with its principal place of business in Irvine, California.¹¹

2. Respondent

Respondent Qualcomm Incorporated ("Qualcomm") is a Delaware corporation with headquarters in San Diego, California.¹²

3. Intervenors

a. Manufacturer Intervenors

(1) Kyocera

Kyocera Wireless Corporation ("Kyocera") is a Delaware corporation with its principal place of business at 10300 Campus Point Drive, San Diego, California 92121.¹³

¹¹ CFF 6, CX-1332C (Bibaud Direct) at 2, 5.

¹² RFF 2, RX-872C (Jha Direct) at 1-2.

¹³ SX-16C, ¶ 2.

(2) LG

LG Electronics MobileComm USA (“LG”) is a California corporation with its principal place of business at 10101 Old Grove Road, San Diego, California 92131.¹⁴

(3) Motorola

Motorola Corporation (“Motorola”) is a Delaware corporation with its principal place of business at 1303 E. Algonquin Road, Schaumburg, Illinois 60196.¹⁵

(4) Samsung

Samsung Electronics Co., Ltd. (“Samsung”) is a Korean corporation with its principal place of business at Samsung Main Building, 250-2-Ka, Taepyung-Ro Chung-Ku, Seoul, Korea, 100-742.¹⁶

b. Wireless Network Operator Intervenors

(1) Sprint

Sprint Nextel Corporation (“Sprint”) is a Kansas corporation with its principal place of business at 2001 Edmund Halley Drive, Reston, Virginia 20191.¹⁷

(2) Verizon

Cellco Partnership d/b/a Verizon Wireless (“Verizon”) is a general partnership of Verizon Communication and Vodafone Group Plc organized under the laws of Delaware and having a principal place of business at One Verizon Way, Basking Ridge, New Jersey 07920.¹⁸

¹⁴ SX-16C, ¶ 5.

¹⁵ SX-16C, ¶ 3.

¹⁶ SX-16C, ¶ 4.

¹⁷ SX-16C, ¶ 6.

¹⁸ SX-16C, ¶ 7.

C. Overview of the Technology

At issue in this investigation are certain baseband processor chips and chipsets, transmitter and receiver (radio) chips, power control chips, and products containing same, including cellular telephone handsets. The technology at issue in the '311 and '983 patents relate to wireless telecommunications systems, which are radio data networks that facilitate communication between host computers and radio frequency (RF) terminals. Specifically, the '983 patent stems from research related to mobile device capabilities and power management, while the '311 patent addresses concerns of network integrity and optimal efficiency. The technology at issue in the '675 patent relates to "gain control in a phase lock loop, and more specifically to phase lock loop gain control using scaled unit current sources." A phase lock loop, or "PLL," is a closed loop feedback system in which a portion of the output is compared to a reference input in order to make the output phase identical to the reference phase and the output frequency identical to or a multiple of the reference frequency.

D. The Patents at Issue

1. The '311 Patent

The '311 patent is entitled "Communication Network having a Plurality of Bridging Nodes which Transmit a Beacon to Terminal Nodes in Power Saving State that it has Messages Awaiting Delivery" which was issued on April 16, 2002, based on Application Serial No. 09/060,287, filed on April 14, 1998. The named inventors are Ronald L. Mahany, Robert C. Meier, and Ronald E. Luse, and the patent was assigned to Intermec IP Corp. Broadcom is the current owner of the '311 patent by assignment. The '311 patent has a total of 31 claims. Two independent claims, claims 1

and 16, are at issue here. Also at issue are dependent claims 2, 3, 4, 5, 7, 8, 13, 14, 17, 18 and 19.¹⁹

2. The '983 Patent

The '983 patent is entitled "Modular, Portable Data Processing Terminal for use in a Communication Network" which was issued on March 30, 2004, based on Application Serial No. 08/513,658, filed on August 11, 1995. The named inventors are Steven E. Koenck, Patrick W. Kinney, Ronald L. Mahany, Robert C. Meier, and Phillip Miller. Broadcom is the owner of the '983 patent by assignment. The '983 patent has a total of 25 claims. Two independent claims, claims 1 and 14, are at issue here. Also at issue are dependent claims 4, 8, 9, 11, 17, 18, 19, 20, 21, 22, 23, and 24.²⁰

3. The '675 Patent

The '675 patent is entitled "Apparatus and Method for Phase Lock Loop Gain Control Using Unit Current Sources" which was issued on June 24, 2003, based on Application Serial No. 09/811,611, filed on March 20, 2001. The named inventor is Ramon A. Gomez. Broadcom is the owner of the '675 patent by assignment. The '675 patent has a total of 39 claims. One independent claim, claim 33, is at issue here. Also at issue is dependent claim 35.²¹

E. The Products at Issue

1. Broadcom's Products

Broadcom develops and supplies chips and related hardware and software applications for every major broadband communications market. In particular, Broadcom has emerged as an industry

¹⁹ See JX-3 ("the '311 patent"); JX-5 ("the '311 prosecution history").

²⁰ See JX-5 ("the '983 patent"); JX-10 ("the '983 prosecution history").

²¹ See JX-4 ("the '675 patent"); JX-9 ("the '675 prosecution history").

leader in the fields of Wireless Local Area Network (“WLAN”) and Bluetooth applications.²²

Broadcom asserts that the following products satisfy the technical prong of the domestic industry requirement for the asserted patents:

the ‘311 patent ²³	BCM4317 Single-Chip transceiver for an IEEE 802.11b (Wi-Fi) system that incorporates low power design. ²⁴
	BCM4318E Second-generation WLAN solution that combines a high-performance 2.4GHz radio and front end, an IEEE 802.11a/g baseband processor, and medium access controller (MAC) on a single chip. ²⁵
	BCM4320 “System-on-a-chip” (SOC) wireless LAN solution that can be used as a wireless card that connects to a device through a cable. ²⁶
	BCM4712 Microprocessor chip and memory, specifically for the router market that supports IEEE 802.11 wireless and Ethernet capability. ²⁷
the ‘983 patent ²⁸	BCM2132 “Single-Chip” baseband processors that supports GSM, GPRS, and EDGE, and includes direct interfaces for a microphone, speaker, display, and keypad. ²⁹
	BCM2121 Single-Chip baseband processor that contains processing functions for GSM and GPRS, but does not contain processing functions for EDGE. ³⁰

²² CFF 7, CX-1332C (Bibaud Direct) at 3-4.

²³ CIB 5.

²⁴ CX-1338C (Hayes Direct) at 4; CX-1268C.

²⁵ CX-1338C (Hayes Direct) at 7; CX-1513C.

²⁶ CX-1338C (Hayes Direct) at 7; CX-1521C.

²⁷ CX-1338C (Hayes Direct) at 8; CX-1623C.

²⁸ CIB 4-5.

²⁹ CX-1667C (Sollenberger Direct) at 4, 9; CX-1219C; CX-332C; CX-1613C.

³⁰ CX-1667C (Sollenberger Direct) at 8.

	BCM2133 Same functions as BCM2132, but is smaller, faster, and consumes less power. ³¹
	BCM2140 Wideband code division multiple access baseband (w-CDMA) baseband chip. ³²
the '675 patent ³³	BCM3440 Digital satellite tuner chip that is found in the digital receiver and decoder of a set-top box in satellite television systems. ³⁴

2. Qualcomm's Products

Qualcomm develops, manufactures, and sells integrated circuits and integrated circuit products, including "Mobile Station Modem" (MSM) cell phone baseband processors, radio chips, and power management chips (which can be sold individually or in combination as chipsets).³⁵

Broadcom accuses the following Qualcomm chips of infringing the asserted patents:

the '311 patent	MSM5500, MSM6500, MSM6550, MSM6800, and MSM7500 ³⁶
the '983 patent	MSM6200, MSM6225, MSM6245, MSM6250, MSM6255, MSM6260, MSM6275, MSM6280, MSM6300, MSM6500, MSM6550, MSM6800, and MSM7500 ³⁷
the '675 patent	RFT6100, RFT6102, RFT6120, RFT6150, RFT6170, RTR6200, RTR6250, and RTR6300 ³⁸

3. Intervenor's Products

The products at issue in the remedy phase of this investigation include downstream telephone

³¹ CX-1667C (Sollenberger Direct) at 4, 9; CX-1219C; CX-332C; CX-1613C.

³² CX-1667C (Sollenberger Direct) at 9; CX-1712C.

³³ CIB 4.

³⁴ CX-1662C (Milor Direct) at 4; CX-1290C at 3; CX-1337C at 11; Gomez, Tr. 951.

³⁵ CFF 12, RX-827C (Jha Direct) at 2, 6.

³⁶ CIB 93; CRIB 9-10.

³⁷ CIB 76-77; CRIB 9-10.

³⁸ CRIB 10.

handsets that incorporate at least an accused baseband processor or radio chip, but does not include converged devices (*i.e.* PDAs and Smartphones) or data cards.³⁹

II. Jurisdiction and Importation

Section 337 confers subject matter jurisdiction on the International Trade Commission to investigate, and if appropriate, to provide a remedy for, unfair acts and unfair methods of competition in the importation of articles into the United States. In order to have the power to decide a case, a court or agency must have both subject matter jurisdiction, and jurisdiction over either the parties or the property involved.⁴⁰

A. Subject Matter Jurisdiction

The complaint alleges that Qualcomm has violated Subsection 337(a)(1)(A) and (B) in the importation and sale of products that infringe the asserted patent. Broadcom and Qualcomm have stipulated that Qualcomm has imported into the United States, has sold to third parties who later imported into the United States, and/or has sold within the United States after importation the following accused chips or chipsets manufactured by or on behalf of Qualcomm: MSM6200, MSM6225, MSM6250, MSM6255, MSM6275, MSM6280, MSM6300, MSM6500, MSM6550, MSM6800, MSM7500, RFT6100, RFT6102, RFT6120, RFT6150, RFT6170, RTR6200, RTR6250, and RTR6300.⁴¹ Accordingly, the Commission has subject matter jurisdiction over Qualcomm in this investigation.⁴²

³⁹ CRIB 1, 9-10.

⁴⁰ 19 U.S.C. § 1337; *also see Certain Steel Rod Treating Apparatus and Components Thereof*, Inv. No. 337-TA-97, Commission Memorandum Opinion, 215 U.S.P.Q. 229, 231 (1981) (“*Steel Rod*”).

⁴¹ JX-121C at ¶ 2.

⁴² *See Amgen, Inc. v. U.S. Int’l Trade Comm’n*, 902 F.2d 1532, 1536 (Fed. Cir. 1990) (“*Amgen*”).

B. Personal Jurisdiction

Qualcomm has responded to the complaint and notice of investigation, participated in the investigation, including participating in discovery, made an appearance at the hearing, and submitted post-hearing briefs, thereby submitting to the personal jurisdiction of the Commission.⁴³

III. Relevant Law

A. Claim Construction

Analyzing whether a patent is infringed “entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device or process accused of infringing.”⁴⁴ The first step is a question of law, whereas the second step is a factual determination.⁴⁵ Concerning the first step of claim construction, “[i]t is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.”⁴⁶

“In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to ‘particularly point

⁴³ See *Certain Miniature Hacksaws*, Inv. No. 337-TA-237, U.S.I.T.C. Pub. No. 1948, Initial Determination (unreviewed by Commission in relevant part) at 4, 1986 WL 379287 (U.S.I.T.C., October 15, 1986) (“*Miniature Hacksaws*”).

⁴⁴ *Dow Chem. Co. v. United States*, 226 F.3d 1334, 1338 (Fed. Cir. 2000) (“*Dow Chemical*”), citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996) (“*Markman*”).

⁴⁵ *Markman*, *supra*.

⁴⁶ *Bell Atlantic Network Serv., Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001) (“*Bell Atlantic*”). See also *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-17 (Fed. Cir. 2005) (“*Phillips*”), *cert. denied*, 126 S.Ct. 1332.

[] out and distinctly claim [] the subject matter which the patentee regards as his invention.”⁴⁷

“Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms.”⁴⁸ Usage of a term in both the asserted and unasserted claims is “highly instructive” in determining the meaning of the same term in other claims.⁴⁹ “Furthermore, a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent.”⁵⁰

“While not an absolute rule, all claim terms are presumed to have meaning in a claim.”⁵¹ If the claim language is not clear on its face, “[t]hen we look to the rest of the intrinsic evidence, beginning with the specification and concluding with the prosecution history, if in evidence” for the purpose of “resolving, if possible, the lack of clarity.”⁵²

There is a “heavy presumption” that claim terms are to be given “their ordinary and accustomed meaning as understood by one of ordinary skill in the art,” and in aid of this interpretation, “[d]ictionaries and technical treatises, which are extrinsic evidence, hold a ‘special place’ and may sometimes be considered along with the intrinsic evidence when determining the ordinary meaning of claim terms.”⁵³ Caution must be used, however, when referring to non-

⁴⁷ *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001) (“*Interactive Gift Express*”), citing 35 U.S.C. § 112, ¶ 2.

⁴⁸ *Phillips*, 415 F.3d at 1314 citing *Vitronics Corp. v. Conceptoronic Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 2003) (“*Vitronics*”).

⁴⁹ *Id.*

⁵⁰ *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) (“*Rexnord*”) citing *Phonometrics Inc. v. Northern Telecom Inc.*, 133 F.3d 1459, 1465 (Fed. Cir. 1998) (“*Phonometrics*”).

⁵¹ *Innova/Pure Water, Inc. v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1119 (Fed. Cir. 2004) (“*Innova*”).

⁵² *Id.*

⁵³ *Bell Atlantic*, 262 F.3d at 1267-68.

scientific dictionaries “lest dictionary definitions . . . be converted into technical terms of art having legal, not linguistic significance.”⁵⁴

The presumption in favor of according a claim term its ordinary meaning is overcome “(1) where the patentee has chosen to be his own lexicographer, or (2) where a claim term deprives the claim of clarity such that there is ‘no means by which the scope of the claim may be ascertained from the language used.’”⁵⁵ In this regard, “[t]he specification acts as a dictionary ‘when it expressly defines terms used in the claims or when it defines terms by implication.’”⁵⁶

The specification is considered “always highly relevant” to claim construction and “[u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term.”⁵⁷ The prosecution history is also examined for a claim’s scope and meaning “to determine whether the patentee has relinquished a potential claim construction in an amendment to the claim or in an argument to overcome or distinguish a reference.”⁵⁸

“[I]f the meaning of the claim limitation is apparent from the intrinsic evidence alone, it is improper to rely on extrinsic evidence other than that used to ascertain the ordinary meaning of the claim limitation. [citation omitted] However, in the rare circumstance that the court is unable to determine the meaning of the asserted claims after assessing the intrinsic evidence, it may look to additional evidence that is extrinsic to the complete document record to help resolve any lack of clarity.”⁵⁹

⁵⁴ *Id.* at 1267 (internal quotation marks omitted).

⁵⁵ *Id.* at 1268.

⁵⁶ *Id.* See also *Phillips*, 415 F.3d at 1316.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.* at 1268-69.

“Extrinsic evidence consists of all evidence external to the patent and prosecution history”⁶⁰ It includes “such evidence as expert testimony, articles, and inventor testimony.”⁶¹ But, “[i]f the intrinsic evidence resolves any ambiguity in a disputed claim, extrinsic evidence cannot be used to contradict the established meaning of the claim language.”⁶² “What is disapproved of is an attempt to use extrinsic evidence to arrive at a claim construction that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.”⁶³

In interpreting particular limitations within each claim, “adding limitations to claims not required by the claim terms themselves, or unambiguously required by the specification or prosecution history, is impermissible.”⁶⁴ Usually, a patent is not limited to its preferred embodiments in the face of evidence of broader coverage by the claims.⁶⁵ A claim construction that excludes the preferred embodiment in the specification of a patent, however, is “rarely, if ever, correct.”⁶⁶

On the other hand, “there is sometimes ‘a fine line between reading a claim in light of the

⁶⁰ *Markman*, 52 F.3d at 980.

⁶¹ *Bell Atlantic*, 262 F.3d at 1269.

⁶² *DeMarini Sports, Inc. v. Worth, Inc.*, 239 F.3d 1314, 1322-23 (Fed. Cir. 2001) (“*DeMarini*”).

⁶³ *Markman*, 52 F.3d at 979.

⁶⁴ *Dayco Prod., Inc. v. Total Containment, Inc.*, 258 F.3d 1317, 1327 (Fed. Cir. 2001) (“*Dayco Products*”), citing *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed. Cir. 1998) (“*Laitram*”) (“a court may not import limitations from the written description into the claims”).

⁶⁵ *Acromed Corp. v. Sofamor Danek Group, Inc.*, 253 F.3d 1371, 1382-83 (Fed. Cir. 2001) (“*Acromed*”); *Electro Med. Sys. S.A. v. Cooper Life Sci., Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994) (“*Electro Med*”) (“particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments”).

⁶⁶ *Vitronics*, 90 F.3d at 1583-34.

specification, and reading a limitation into the claim from the specification.”⁶⁷ In order to negotiate this “fine line,” one guideline is that features of embodiments in the specification do not restrict patent claims “unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’”⁶⁸ Another guideline is that features of an embodiment in the specification do not restrict claims unless the specification defines the claim terms “by implication” as may be “found in or ascertained by a reading of the patent documents.”⁶⁹ For the specification to limit the claims, there must be “a clear case of the disclaimer of subject matter that, absent the disclaimer, could have been considered to fall within the scope of the claim language.”⁷⁰

Claims amenable to more than one construction should, when it is reasonably possible to do so, be construed to preserve their validity.⁷¹ A claim cannot, however, be construed contrary to its plain language.⁷² Claims cannot be judicially rewritten in order to fulfill the axiom of preserving

⁶⁷ *Bell Atlantic*, 262 F.3d at 1270.

⁶⁸ *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (“*Liebel-Flarsheim*”).

⁶⁹ *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) (“*Irdeto*”).

⁷⁰ *Liebel-Flarsheim*, 358 F.3d at 907. The Federal Circuit “has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.” *Liebel-Flarsheim, supra*, 358 F.3d at 906 (emphasis added); also see, e.g., *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1331 (Fed. Cir. 2004) (“*Golight*”); *Bio-Technology General Corp. v. Duramed Pharmaceuticals, Inc.*, 325 F.3d 1356, 1362 (Fed. Cir. 2003) (“*Bio-Technology*”) (aspects of only embodiment described in specification not read into claims). The *Liebel-Flarsheim* panel further held that even where a patent describes only a single embodiment, claims will not be “read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’” *Id.*

⁷¹ *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1384 (Fed. Cir. 2001) (“*Karsten*”).

⁷² See *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999) (“*Rhine*”).

their validity; “if the only claim construction that is consistent with the claim’s language and the written description renders the claim invalid, then the axiom does not apply and the claim is simply invalid.”⁷³

Pursuant to 35 U.S.C. § 112, ¶ 6, “[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” An applicant may therefore “claim an element of a combination functionally, without reciting structures for performing those functions.”⁷⁴ To invoke this rule, “a claim limitation that actually uses the word ‘means’ will invoke a rebuttable presumption that § 112 ¶ 6 applies. By contrast, a claim term that does not use ‘means’ will trigger the rebuttable presumption that § 112 ¶ 6 does not apply.”⁷⁵ In general, the words “circuit” and “circuitry” connote sufficient structure in and of themselves so as not to be deemed as “means-plus-function” elements.⁷⁶

B. Infringement

1. Literal Infringement

Literal infringement is a question of fact.⁷⁷ Literal infringement requires the patentee to prove that the accused device contains each limitation of the asserted claim(s). Each element of a

⁷³ *Id.*

⁷⁴ *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1371 (Fed. Cir.), *cert. denied*, 540 U.S. 1073 (2003) (“*Apex*”).

⁷⁵ *Linear Technology Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1319 (Fed. Cir. 2004) (“*Linear*”).

⁷⁶ *See Linear, supra; Apex*, 325 F.3d at 1374.

⁷⁷ *Tegal Corp. v. Tokyo Electron Am., Inc.*, 257 F.3d 1331, 1350 (Fed. Cir. 2001) (“*Tegal*”), *cert. denied*, 535 U.S. 927 (2002).

claim is considered material and essential, and in order to show literal infringement, every element must be found to be present in the accused device.⁷⁸ If any claim limitation is absent from the accused device, there is no literal infringement of that claim as a matter of law.⁷⁹

2. Indirect Infringement

To establish a claim for induced infringement, a complainant must show that a respondent has actively induced a person to make, use, or sell a product or use a method that falls within the scope of the claims of the patent at issue.⁸⁰ The required elements of a claim of induced infringement are: “(1) an act of direct infringement; (2) the accused infringer actively induced a third party to infringe the patent; and (3) the accused infringer knew or should have known that his actions would induce infringement.”⁸¹

Under 35 U.S.C. § 271(c), a seller of a component of an infringing product can be held liable for contributory infringement if: “(1) there has been an act of direct infringement by a third party; (2) the accused contributory infringer knows that the combination for which its component was made was both patented and infringing; and (3) there are no substantial non-infringing uses for the component part, *i.e.*, the component is not a ‘staple article’ of commerce.”⁸²

⁷⁸ *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) (“*London*”).

⁷⁹ *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000) (“*Bayer*”).

⁸⁰ 35 U.S.C. § 271(b).

⁸¹ *Certain Flash Memory Circuits and Products Containing Same*, Inv. No. 337-TA-382, U.S.I.T.C. Pub. 3046, Commission Opinion on the Issues Under Review and on Remedy, the Public Interest, and Bonding, at 16, 1997 WL 817778 (U.S.I.T.C., July 1997) (“*Flash Memory*”) citing *Manville Sales Corp. v. Paramount Sys. Inc.*, 917 F.2d 544, 553 (Fed. Cir. 1990) (“*Manville*”). See also *Certain Headboxes and Papermaking Machine Forming Sections for the Continuous Production of Paper, and Components Thereof*, Inv. No. 337-TA-82, USITC Pub. No. 1138 at 18-19 (1981) (“*Headboxes*”).

⁸² *Flash Memory*, Commission Opinion at 9-10.

C. Domestic Industry - Technical Prong

In a patent-based complaint, a violation of Section 337 can be found “only if an industry in the United States, relating to the articles protected by the patent . . . concerned, exists or is in the process of being established.”⁸³ This “domestic industry requirement” has an “economic” prong and a “technical” prong.

A complainant in a patent-based Section 337 investigation must demonstrate that it is practicing or exploiting the patents at issue.⁸⁴ In order to find the existence of a domestic industry exploiting a patent at issue, it is sufficient to show that the domestic industry practices any claim of that patent, not necessarily an asserted claim of that patent.⁸⁵ Fulfillment of this so-called “technical prong” of the domestic industry requirement is not determined by a rigid formula, but rather by the articles of commerce and the realities of the marketplace.⁸⁶

The test for claim coverage for the purposes of the technical prong of the domestic industry requirement is the same as that for infringement.⁸⁷ “First, the claims of the patent are construed.

⁸³ 19 U.S.C. § 1337(a)(2).

⁸⁴ See 19 U.S.C. § 1337(a)(2) and (3); also see *Certain Microsphere Adhesives, Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Commission Opinion at 8, 1996 WL 1056095 (U.S.I.T.C., January 16, 1996) (“*Microsphere Adhesives*”), *aff'd sub nom. Minnesota Mining & Mfg. Co. v. U.S. Int'l Trade Comm'n*, 91 F.3d 171 (Fed. Cir. 1996) (Table) (“*3M*”); *Certain Plastic Encapsulated Integrated Circuits*, Inv. No. 337-TA-315, U.S.I.T.C. Pub. No. 2574 (November 1992), Commission Opinion at 16, 1992 WL 813959 (“*Encapsulated Circuits*”).

⁸⁵ *Microsphere Adhesives*, Commission Opinion at 7-16.

⁸⁶ *Certain Diltiazem Hydrochloride and Diltiazem Preparations*, Inv. No. 337-TA-349, U.S.I.T.C. Pub. No. 2902, Initial Determination at 138, 1995 WL 945191 (U.S.I.T.C., February 1, 1995) (unreviewed in relevant part) (“*Diltiazem*”); *Certain Double-Sided Floppy Disk Drives and Components Thereof*, Inv. No. 337-TA-215, 227 U.S.P.Q. 982, 989 (Commission Opinion 1985) (“*Floppy Disk Drives*”).

⁸⁷ *Certain Doxorubicin and Preparations Containing Same*, Inv. No. 337-TA-300, Initial Determination at 109, 1990 WL 710463 (U.S.I.T.C., May 21, 1990) (“*Doxorubicin*”), *aff'd*, Views of the Commission at 22 (October 31, 1990).

Second, the complainant's article or process is examined to determine whether it falls within the scope of the claims."⁸⁸ As with infringement, the first step of claim construction is a question of law, whereas the second step of comparing the article to the claims is a factual determination.⁸⁹ To prevail, the patentee must establish by a preponderance of the evidence that the domestic product practices one or more claims of the patent either literally or under the doctrine of equivalents.⁹⁰

D. Validity

A patent is presumed valid.⁹¹ The party challenging a patent's validity has the burden of overcoming this presumption by clear and convincing evidence.⁹² Since the claims of a patent measure the invention at issue, the claims must be interpreted and given the same meaning for purposes of both validity and infringement analyses. As with an infringement analysis, an analysis of invalidity involves two steps: the claim scope is first determined, and then the properly construed claim is compared with the prior art to determine whether the claimed invention is anticipated and/or rendered obvious.⁹³

1. Anticipation, 35 U.S.C. §§ 102 (a), (b) and (e)

A patent may be found invalid as anticipated under 35 U.S.C. § 102(a) if "the invention was known or used by others in this country, or patented or described in a printed publication in this country, or patented or described in a printed publication in a foreign country, before the invention

⁸⁸ *Id.*

⁸⁹ *Markman*, 52 F.3d at 976.

⁹⁰ *See Bayer*, 212 F.3d at 1247.

⁹¹ 35 U.S.C. § 282; *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1480 (Fed. Cir. 1997) ("*Richardson-Vicks*").

⁹² *Richardson-Vicks Inc., supra; Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044 (Fed. Cir.) ("*Uniroyal*"), *cert. denied*, 488 U.S. 825 (1988).

⁹³ *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) ("*Amazon.com*").

thereof by the applicant for patent.” 35 U.S.C. § 102(a). A patent may be found invalid as anticipated under 35 U.S.C. § 102(b) if “the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.”⁹⁴ Anticipation is a question of fact.⁹⁵

Under the foregoing statutory provision, a claim is anticipated and therefore invalid when “the four corners of a single, prior art document describe[s] every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation.”⁹⁶ To be considered anticipatory, the prior art reference must be enabling and describe the applicant’s claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention.⁹⁷ But, the degree of enabling detail contained in the reference does not have to exceed that contained in the patent at issue.⁹⁸

Further, the disclosure in the prior art reference does not have to be express, but may anticipate by inherency where the inherency would be appreciated by one of ordinary skill in the art.⁹⁹ To be inherent, the feature must necessarily be present in the prior art.¹⁰⁰ Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from

⁹⁴ 35 U.S.C. § 102(b).

⁹⁵ *Texas Instruments, Inc. v. U.S. Int’l Trade Comm’n*, 988 F.2d 1165, 1177 (Fed. Cir. 1993) (“*Texas Instruments II*”).

⁹⁶ *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 904 (2001) (“*Advanced Display Systems*”).

⁹⁷ *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000) (“*Helifix*”); *In re Paulsen*, 30 F.3d 1475, 1478 (Fed. Cir. 1994) (“*Paulsen*”).

⁹⁸ *Paulsen*, 30 F.3d at 1481 n.9.

⁹⁹ *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir.), *cert. denied*, 516 U.S. 988 (1995) (“*Glaxo*”).

¹⁰⁰ *See Finnigan Corp. v. U.S. Int’l Trade Comm’n*, 180 F.3d 1354, 1365-66 (Fed. Cir. 1999) (“*Finnigan*”).

a given set of circumstances is not sufficient. If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient. This modest flexibility in the rule that “anticipation” requires that every element of the claims appear in a single reference accommodates situations where the common knowledge of technologists is not recorded in the reference; that is, where technological facts are known to those in the field of the invention, albeit not known to judges.¹⁰¹

2. Anticipation, 35 U.S.C. § 102(g)

Section 102(g) provides that a person is not entitled to a patent if “before such person’s invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it.” An inventor can establish that she was the first to invent under §102(g) by demonstrating either that she was the first to reduce the invention to practice or that she was the first to conceive of the invention and then, prior to the other party’s conception, exercised reasonable diligence in reducing the invention to practice.¹⁰² “To prove actual reduction to practice, an inventor must establish that he actually prepared the composition and knew it would work.”¹⁰³ Priority of invention under 102(g) and its constituent issues of conception and reduction to practice are questions of law predicated on subsidiary factual findings.¹⁰⁴

¹⁰¹ See *Cont’l Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268-69 (Fed. Cir. 1991) (“*Continental Can*”); *Finnigan*, 180 F.2d at 1365.

¹⁰² *Union Carbide Chemicals & Plastics Technology Corp. v. Shell Oil Co.*, 308 F.3d 1167 (Fed. Cir. 2002) (“*Union Carbide*”); *Griffin v. Bertina*, 285 F.3d 1029, 1032 (Fed. Cir. 2002) (“*Griffin*”).

¹⁰³ *Estee Lauder Inc. v. L’Oreal, S.A.*, 129 F.3d 588, 592, (Fed. Cir. 1997) (“*Estee Lauder*”).

¹⁰⁴ *Singh v. Brake*, 317 F.3d 1334, 1340 (Fed. Cir. 2003) (“*Singh*”), citing *Brown v. Barbacid*, 276 F.3d 1317, 1332 (Fed. Cir. 2002) (“*Brown*”); *Hitzeman v. Rutter*, 243 F.3d 1345, 1353 (Fed. Cir. 2001) (“*Hitzeman*”).

3. Obviousness, 35 U.S.C. § 103 (a)

Under 35 U.S.C. § 103(a), a patent is valid unless “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”¹⁰⁵ The ultimate question of obviousness is a question of law, but “it is well understood that there are factual issues underlying the ultimate obviousness decision.”¹⁰⁶

Once claims have been properly construed, “[t]he second step in an obviousness inquiry is to determine whether the claimed invention would have been obvious as a legal matter, based on underlying factual inquiries including : (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art ; and (4) secondary considerations of non-obviousness” (also known as “objective evidence”).¹⁰⁷ In order to prove obviousness, the patent challenger must demonstrate, by clear and convincing evidence, that “there is a reason, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the references, and that would also suggest a reasonable likelihood of success.”¹⁰⁸ When an obviousness determination relies on the combination of two or more references, “[t]he suggestion to combine may be found in explicit or implicit teachings within the references

¹⁰⁵ 35 U.S.C. § 103(a).

¹⁰⁶ *Richardson-Vicks Inc.*, 122 F.3d at 1479; *Wang Lab., Inc. v. Toshiba Corp.*, 993 F.2d 858, 863 (Fed. Cir. 1993) (“*Wang Laboratories*”).

¹⁰⁷ *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1354 (Fed. Cir. 1999) (“*Smiths Industries*”), citing *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (“*Graham*”).

¹⁰⁸ *Smiths Industries*, 183 F.3d at 1356; also see *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1564 (Fed. Cir. 1997) (“*U.S. Surgical*”), cert. denied, 522 U.S. 950 (1997); *Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, Commission Opinion at 18 (August 3, 1993) (“*Integrated Circuit Telecommunication Chips*”).

themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved . . . the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.”¹⁰⁹

A single reference can render a claim obvious. Motivation to combine, however, is still required when obviousness is based upon a single reference.¹¹⁰ The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved.¹¹¹ In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references.¹¹² The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.¹¹³ Broad conclusory statements, standing alone, are not “evidence.”¹¹⁴

“Secondary considerations,” also referred to as “objective evidence of non-obviousness,” such as “commercial success, long felt but unsolved needs, failure of others, etc.” may be used to understand the origin of the subject matter at issue, and may be relevant as indicia of obviousness or non-obviousness.¹¹⁵ Secondary considerations may also include copying by others, prior art

¹⁰⁹ *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1355 (Fed. Cir. 1999) (“*WMS Gaming*”).

¹¹⁰ *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000) (“Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference.”) (“*Kotzab*”). See also *B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) (“*B.F. Goodrich*”).

¹¹¹ *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (“*Dembiczak*”).

¹¹² *WMS Gaming*, 184 F.3d at 1355.

¹¹³ *In re Keller*, 642 F.2d 413, 425 (Fed. Cir. 1981) (“*Keller*”).

¹¹⁴ *Dembiczak*, 175 F.3d at 999.

¹¹⁵ *Graham*, 383 U.S. at 17-18.

teaching away, and professional acclaim.¹¹⁶

Evidence of “objective indicia of non-obviousness,” also known as “secondary considerations,” must be considered in evaluating the obviousness of a claimed invention, but the existence of such evidence does not control the obviousness determination. A court must consider all of the evidence under the *Graham* factors before reaching a decision on obviousness.¹¹⁷ In order to accord objective evidence substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention, and a *prima facie* case is generally made out “when the patentee shows both that there is commercial success, and that the thing (product or method) that is commercially successful is the invention disclosed and claimed in the patent.”¹¹⁸ Once the patentee has made a *prima facie* case of nexus, the burden shifts to the challenger to show that the commercial success was caused by “extraneous factors other than the patented invention, such as advertising, superior workmanship, etc.”¹¹⁹

4. Enablement/Written Description, 35 U.S.C. § 112

Section 112, ¶ 1 of Title 35 requires that the specification describe the manner and process of making and using the invention “in such full, clear, concise, and exact terms as to enable any

¹¹⁶ See *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 894 (Fed. Cir. 1984) (“*Perkin-Elmer*”), *cert. denied*, 469 U.S. 857 (1984); *Avia Group Int'l, Inc. v. L.A. Gear California*, 853 F.2d 1557, 1564 (Fed. Cir. 1988) (“*Avia*”) (copying by others); *In re Hedges*, 783 F.2d 1038, 1041 (Fed. Cir. 1986) (“*Hedges*”) (prior art teaching away; invention contrary to accepted wisdom); *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565 (Fed. Cir. 1986) (“*Kloster*”), *cert. denied*, 479 U.S. 1034 (1987) (wide acceptance and recognition of the invention).

¹¹⁷ *Richardson-Vicks Inc.*, 122 F.3d at 1483-84.

¹¹⁸ *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995) (“*GPAC*”); *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988), *cert. denied*, 488 U.S. 956 (1988) (“*Demaco*”); *Certain Crystalline Cefadroxil Monohydrate*, Inv. No. 337-TA-293, Commission Opinion (March 15, 1990), 15 U.S.P.Q.2d 1263, 1270 (“*Crystalline Cefadroxil Monohydrate*”).

¹¹⁹ *Id.* at 1393.

person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.”

The issue of whether a disclosure is enabling is a matter of law.¹²⁰ “To be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’”¹²¹ “Patent protection is granted in return for an enabling disclosure of an invention, not for vague, intimations of general ideas that may or may not be workable.”¹²² Although a specification need not disclose minor details that are well known in the art, “[i]t is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement,” and in so doing the specification cannot merely provide “only a starting point, a direction for further research.”¹²³ On the other hand, “[i]t is not fatal if some experimentation is needed, for the patent document is not intended to be a production specification.”¹²⁴ “Undue experimentation” is “a matter of degree” and “not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed”¹²⁵

It is well-settled that in order to be enabling under Section 112, “the patent must contain a

¹²⁰ *Applied Materials, Inc. v. Advanced Semiconductor Materials America, Inc.*, 98 F.3d 1563, 1575 (Fed. Cir. 1996) (“*Applied Materials*”).

¹²¹ *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (“*Genentech*”).

¹²² *Id.* at 1366.

¹²³ *Id.*

¹²⁴ *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 941 (Fed. Cir. 1990) (“*Northern Telecom*”).

¹²⁵ *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1564 (Fed. Cir. 1996) (“*PPG Industries*”).

description sufficient to enable one skilled in the art to make and use the full scope of the claimed invention.”¹²⁶ Section 112 requires that the scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to such persons.¹²⁷

IV. The ‘311 Patent

A. Claim Construction

1. Asserted Claims

Independent claim 1 and dependent claims 2-5, 7, 8, 13, and 14, as well as independent claim 16 and dependent claims 17-19 are asserted, and read as follows (with the disputed terms highlighted in bold):

1. A communication network supporting wireless communication of messages, said communication network comprising:
 - a first terminal **node having a wireless receiver operable in a normal state**;
 - a second terminal **node having a wireless receiver operable in a power saving state**;
 - an access point that **attempts to immediately deliver messages** destined for the first terminal node;
 - the access point attempts to deliver messages destined for the second terminal node by transmitting at **predetermined intervals beacons** that identify that a message awaits delivery;
 - the second terminal node **synchronizes operation of its wireless receiver** to receive the **beacons** from the access point; and
 - the second terminal node determines from the received **beacons** that it has a message

¹²⁶ *United States v. Teletronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988) (“*Teletronics*”); see also *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1213 (Fed. Cir. 1991) (“*Chugai*”) (inventor’s disclosure must be “sufficient to enable on skilled in the art to carry out the invention commensurate with the scope of his claims”).

¹²⁷ *Application of Fischer*, 427 F.2d 833, 839 (C.C.P.A. 1970) (“*Fischer*”).

awaiting delivery and **directs further operation of its wireless receiver** to receive the message.

2. The communication network of claim 1 wherein the first terminal node selectively operates in one of the normal mode and a power saving state and while operating in the power saving state the first terminal node synchronizes operation of its wireless receiver to receive the **beacons** from the access point.
3. The communication network of claim 1 wherein the second terminal node directs further operation of its receiver to receive the message during a time period that follows one of the received **beacons**.
4. The communication network of claim 3 wherein the time period immediately follows the one of the received **beacons**.
5. The communication network of claim 3 wherein the time period follows the one of the received **beacons** during an awake time window.

* * *

7. The communication network of claim 3 wherein the second terminal node has a wireless transmitter that is used to request the message awaiting delivery.
8. The communication network of claim 5 wherein the second terminal node has a wireless transmitter that is used to request that the message awaiting delivery be delivered during the awake time window.

* * *

13. The communication network of claim 3 wherein the second terminal node synchronizes operation of its wireless receiver to receive the **beacons** from the access point even when one or more of the **beacons** from the access point have not been received.
14. The communication network of claim 1 wherein the second terminal node comprises a battery-powered, roaming device.

* * *

16. A communication network supporting wireless communication of messages, said communication network comprising:

a first terminal node operating in a first state;

a second terminal node operating in a **second state in which attempts are made to minimize power consumption by the wireless receiver**

a bridging node having a wireless transceiver to support wireless communication to the first and second terminal nodes;

the bridging node attempts to deliver messages destined for the second terminal node by transmitting at **predetermined intervals beacons** that identify a message awaiting delivery;

the second terminal node **synchronizing operation of its wireless receiver** to receive the **beacons** from the bridging node and determining from the received **beacons** that it has a message awaiting delivery and responding to an awaiting message by directing further operation of its wireless receiver to receive the message; and

the bridging node delivering messages to the first terminal node without requiring the first terminal node to determine from the **beacons** that it has messages awaiting delivery.

17. The communication network of claim 16 wherein the second terminal node **directs further operation of its receiver** to receive the message during a time period that follows one of the received **beacons**.
18. The communication network of claim 17 wherein the time period immediately follows the one of the received **beacons**.
19. The communication network of claim 17 wherein the time period follows the one of the received **beacons** during an awake time window.

2. Disputed Claim Terms and Their Interpretation

There are a total of seven disputed claim terms in the asserted claims, discussed in detail below.

- a. **“first terminal node having a wireless receiver operable in a normal state” and “second terminal node having a wireless receiver operable in a power saving state”**

The disputed phrases “first terminal node having a wireless receiver operable in a normal state” and “second terminal node having a wireless receiver operable in a power saving state” are

recited in claim 1. According to Staff, these phrases require claim 1 to comprise “a first terminal node in which the wireless receiver is capable of receiving messages at full power and a second terminal node in which the wireless receiver is powered down but still capable of receiving beacons at periodic intervals.”¹²⁸ Broadcom construes these phrases as referring to a first terminal node in which the wireless receiver is powered on, and a second terminal node in which the wireless receiver is powered off.¹²⁹ Qualcomm construes these phrases as referring to a first terminal node that continuously monitors transmissions from an access point without ever sleeping, and a second terminal node that spends at least part of the time not monitoring transmission from the access point.¹³⁰

In advocating their proposed constructions for the disputed phrases, the parties have raised three central issues which are detailed in sections (1)-(3) below. The first issue is whether the terms “normal” and “power saving” refer to the state of the “terminal node” or the “wireless receiver.” The second issue is the definition of “normal” and “power saving” state. The third issue is whether claim 1 requires each terminal node to be in two different immutable states, *i.e.*, “normal” or “power saving,” or whether proper construction of claim 1 allows the terminal node to cycle between the “normal” and “power saving” state.

(1) “normal” and “power saving” refer to the state of the “terminal node,” not the “wireless receiver”

Broadcom and Staff assert that “normal” and “power saving” refer to the state of the wireless receiver. Although Staff concedes that the specification does not describe the power state of the

¹²⁸ SIB 61.

¹²⁹ CIB 48.

¹³⁰ RIB 38-39.

wireless receiver but instead describes differences between a sleeping versus non-sleeping terminal node, Staff, as well as Broadcom, argue that the plain language of the claim uses “normal” and “power saving” in reference to the state of the wireless receiver, not the terminal node.¹³¹ Broadcom further argues that an opposite construction, in which “normal” or “power saving” refers to the state of the terminal node, would effectively read out the term “wireless receiver” from the claim thereby “depriving express claim language of any meaning.”¹³² Under Broadcom’s and Staff’s construction, claim 1 requires a first terminal node having a wireless receiver that is in a “normal” state, and a second terminal node having a wireless receiver that is in a “power saving” state.

Qualcomm asserts that “normal” and “power saving” refer to the state of the terminal node, not the wireless receiver, and argues that the language of dependent claims 2 and 10 supports its assertion. Qualcomm points to the explicit language of dependent claim 2, which states that the first terminal node selectively operates in a normal or power saving state, and the explicit language of dependent claim 10, which states that the second terminal node operates in a power saving state. Thus, under Qualcomm’s construction, claim 1 requires a first terminal node in a “normal” state and a second terminal node in a “power saving” state, wherein each terminal node has a wireless receiver.

The undersigned finds that the terms “normal” and “power saving” refer to the state of the terminal node, not the wireless receiver. The undersigned finds that the language of claims 2 and 10 is highly persuasive in determining that these states refer to the terminal node. “Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as

¹³¹ SIB 61-62.

¹³² CRB 18-19.

to the meaning of a claim term.”¹³³ As highlighted in bold underline below, the first limitation recited in claim 2 (“first terminal node selectively operates in one of the normal mode and power saving state”) states that the first terminal node, not the wireless receiver, operates in either a “normal” or “power saving” state. The second limitation recited in claim 2 (“while operating in the power saving state the first terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point”) further clarifies that the first terminal node, not the wireless receiver, operates in the “power saving” state.

2. The communication network of claim 1 wherein the **first terminal node selectively operates in one of the normal mode and power saving state** and **while operating in the power saving state the first terminal node** synchronizes operation of its wireless receiver to receive the beacons from the access point.

In addition, claim 10 also recites a limitation (“whether the second terminal node operates in the power saving state”) confirming that “power saving” refers to the terminal node’s state of operation.

10. The communication network of claim 1 wherein the second terminal node communicates to the access point an **indication of whether the second terminal node operates in the power saving state**.

Therefore, the undersigned finds that adopting a construction in which the terms “normal” and “power saving” refer to the state of the terminal node, and not the wireless receiver, is consistent with the language and context of dependent claims 2 and 10.

Furthermore, the undersigned’s construction is also consistent with the way in which terminal nodes are claimed in asserted independent claim 16 (“a first terminal node operating in a first state” and “a second terminal node operating in a second state”), unasserted independent claim 20 (“said second node selectively entering and remaining in a low power state”), and unasserted independent

¹³³ See *Phillips*, 415 F.3d at 1314 citing *Vitronics*, 90 F.3d at 1582.

claim 26 (“said second node synchronizing with the timed intervals to selectively enter and remain in a low power state”). The undersigned’s construction is also consistent with the way “normal” and “power saving” are used to describe the state of a terminal node in the claims of related U.S. Patent No. 5,740,366 (“the ‘366 patent”). The ‘366 patent is related to the ‘311 patent as a parent continuation application,¹³⁴ and the two patents share the same written description. Independent claim 5 of the ‘366 patent, and its dependent claims 6 and 12, refer to a terminal node, not a wireless receiver, as being in a “normal” or “power saving” state. These claims are provided below and the relevant limitations are highlighted in bold underline:

5. A communication network supporting wireless communication of messages, said communication network comprising:

a plurality of terminal nodes each having a wireless receiver operable in a normal state or in a power saving state;

a plurality of bridging nodes each having a wireless transceiver to support wireless communication to the plurality of terminal nodes;

the plurality of bridging nodes attempt to immediately deliver messages destined for those of the plurality of **terminal nodes that operate in the normal state;**

each of the plurality of bridging nodes attempt to deliver messages destined for those of the plurality of **terminal nodes that operate in the power saving state** by transmitting at predetermined intervals beacons that identify those of the plurality of wireless **terminal nodes operating in the power saving state** that have a message awaiting delivery;

those of the plurality of wireless **terminal nodes that**

¹³⁴ See JX-3 (the ‘311 patent) at BCMITC238394 (priority information reported in the Certificate of Correction of the ‘311 patent).

operate in the power saving state synchronize operation of their receivers to receive the beacons from at least one of the plurality of bridging nodes; and

each of those of the plurality of wireless terminal nodes operating in the power saving state that determines from the received beacons that it has a message awaiting delivery directs further operation of its receiver to receive the message.

6. The communication network of claim 5 wherein at least one of the plurality of terminal nodes communicate to at least one of the plurality of bridging nodes an indication of whether the at least one of the plurality of terminal nodes operates in the power saving state.

12. The communication network of claim 9 wherein at least one of those of the plurality of wireless terminal nodes that operate in the power saving state synchronize operation of their receivers to receive the beacons from the at least one of the plurality of bridging nodes even when one or more of the beacons from the at least one of the plurality of bridging nodes have not been received.

Although the '366 patent is not at issue in the present case, construing the terms “normal” and “power saving” in a manner consistent with both the '311 and '366 patents is appropriate because the same terms appear in the claims of both patents, the patents are related, and they share the same written description.¹³⁵ The fact that the claims of the '366 patent use the terms “normal” and “power saving” to refer to the terminal node and not the wireless receiver further bolsters the

¹³⁵ See *Arthur A. Collins, Inc. v. Northern Telecom Ltd.*, 216 F.3d 1042, 1044 (Fed. Cir. 2000) (“*Collins*”) (because two patents “share the same written description,” and the second patent “is a continuation of” the first patent, a district court “determined that a common construction of” a limitation in the claims of the two patents “was appropriate.”); see also *AbTox, Inc. v. Exitron Corp.*, 131 F.3d 1009, 1010 (Fed. Cir. 1997) (“*AbTox*”), modifying 122 F.3d 1019 (Fed. Cir. 1997) (“In the parent application, [claims directed to different embodiments] both ... used the term ‘gas-confining chamber.’ As issued, both sets of claims still use this term. Although these claims have since issued in separate patents, it would be improper to construe this term differently in one patent than another, given their common ancestry.”) (footnote omitted).

undersigned's construction.

Moreover, this construction is supported by the '311 patent specification. As pointed out by Staff, the specification does not describe the power state of a wireless receiver. Instead, the specification describes two different powered states of a terminal node, an energy saving "sleeping" state, and an energy expending "awake" state.¹³⁶

Accordingly, the undersigned finds that "normal" and "power saving" refer to the state of the "terminal node," not the "wireless receiver."

(2) "power saving" does not refer to a powered off state, but instead refers to a powered down, energy saving state

The second issue regarding the parties' proposed constructions is the definition of "normal" and "power saving." Broadcom asserts that "power saving" refers to the receiver being in a powered off state to conserve power.¹³⁷ Focusing on the term "operable" within the phrase "a wireless receiver operable in a power saving state," Broadcom argues that the disputed phrase only requires the wireless receiver to be capable of being turned off.¹³⁸ Broadcom cites the specification and prosecution history as alleged support for its contention that the wireless receiver transitions between a powered off state, and a powered on state to receive signals from access points.¹³⁹

Staff and Qualcomm reject Broadcom's construction. Staff argues that Broadcom's

¹³⁶ See, e.g., JX-3 (the '311 patent) at col. 19:19-25 ("The use of the seed, and pseudo random offset generation, allows the terminal to 'sleep' (enter an energy and CPU saving mode) between HELLO message and be able to 'wake up' (dedicate energy and CPU concentration on RF reception) and stay awake for the minimal time needed to receive the next HELLO message." (emphasis added)).

¹³⁷ CIB 49-50.

¹³⁸ CRB 20.

¹³⁹ CRB 19. See JX-3 (the '311 patent) at col. 15:45-47 ("A SLEEPING node can power-down with an active timer interrupt to wake it just before the next expected hello message."); see also JX-8 (the '311 prosecution history) at BMITC71415 of Appendix C.

construction fails to properly consider the term “operable,” emphasizing that under Broadcom’s construction, the receiver would have to be operable (*i.e.*, able to receive RF transmissions) when powered off. Staff argues that Broadcom’s construction is not supported by the specification, which fails to describe a receiver capable of operating without power.¹⁴⁰ Staff also cites the testimony of Dr. Proakis, in which he stated that a receiver which has no power cannot receive messages or beacons.¹⁴¹

Qualcomm argues that Broadcom’s construction should not be adopted because if the wireless receiver is interpreted as being powered off when in a power saving state, it would not be able to perform all the required functions of a terminal node in a power saving state as recited in claim 1, *i.e.*, synchronizing operation of its wireless receiver to receive beacons from an access point, determining from the received beacons that a message is awaiting delivery, and directing further operation of its wireless receiver to receive messages.

Staff asserts that “power saving” refers to the receiver being in a powered down state so that the receiver is in a sleep cycle in which the receiver alternates between sleeping and periodically awakening to listen for beacons.¹⁴² Staff cites the following passage of Dr. Proakis’ testimony as alleged support for its construction:

- Q. But the one thing we can agree is, the claims themselves tell us that a single terminal can have two modes, at least; correct?
- A. Well, I don’t know about “at least,” but certainly it would have two modes, one mode corresponding to fully powered and the other mode corresponding to the power-saving mode.¹⁴³

¹⁴⁰ SRB 21.

¹⁴¹ Proakis, Tr. 2198-99.

¹⁴² SRB 23.

¹⁴³ Proakis, Tr. 2099.

Qualcomm asserts that “power saving” refers to the terminal node being in a powered down state in which it sleeps and periodically awakens to listen for beacons. Qualcomm contends that its construction of “power saving” is consistent with the specification which associates the term “power saving” with sleeping terminals. Qualcomm cites the following passages from the specification to support its contention that “power saving” should be interpreted as a cyclical state in which the terminal node alternates between periods of active monitoring of RF transmissions and periods of inactivity.¹⁴⁴

- A SLEEPING node can power-down with an active timer interrupt to wake it just before the next expected hello message,¹⁴⁵
- “SLEEPING terminals can power down for a large percentage of the expected propagation delay before waking up to receive the response message,¹⁴⁶ and
- “The use of the seed, and pseudo rand offset generation, allows the terminal to ‘sleep’ (enter an energy and CPU saving mode) between HELLO messages and be able to ‘wake up’ (dedicate energy and CPU concentration on RF reception) and stay awake for the minimal time needed to receive the next HELLO message.¹⁴⁷

As additional support, Qualcomm cites the following passage of Dr. Proakis’ testimony in which he explained that a power saving terminal turns on its receiver to receive beacons and “does so in synchronization with the time at which the beacon transmission is expected”:¹⁴⁸

- Q. Do any of the other claims shed light on whether Dr. Nettleton’s construction is plausible?
- A. Yes. Claim 2 states that “while operating in the power saving state the first terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point.”

¹⁴⁴ RRB 24.

¹⁴⁵ JX-3 (the ‘311 patent) at col. 15:45-47 (emphasis added).

¹⁴⁶ JX-3 (the ‘311 patent) at col. 17:13-15 (emphasis added).

¹⁴⁷ JX-3 (the ‘311 patent) at col. 19:20-21 (emphasis added).

¹⁴⁸ RIB 39.

If that passage refers to operating the receiver, which I think it plainly does, Dr. Nettleton's construction cannot be correct. Dr. Nettleton tries to save his construction by arguing that this claim refers only to setting a timer which will cause the terminal to power on at a later time and to turn on its receiver, but if that was the intent, this claim language is a very poor way to say that. A much more normal way to read this passage is that a "power saving" terminal turns on its receiver to receive beacons and does so in synchronization with the time at which the beacon transmission is expected.¹⁴⁹

Regarding the definition of "normal" state, Broadcom and Staff assert that "normal" refers to the wireless receiver being in a powered up state so that it is awake and capable of receiving messages.¹⁵⁰ Qualcomm asserts that "normal" refers to the terminal node being in a powered up state in which it continuously monitors transmissions to receive messages from the access point without ever sleeping.¹⁵¹

As a first note, the undersigned has previously determined that the terms "normal" and "power saving" refer to the state of the terminal node and not the wireless receiver. Under all of the proposed constructions for the term "normal," the parties agree at least to "normal" as referring to a fully powered state so that RF transmissions (including beacons and messages) can be received. Therefore, the undersigned finds that the disputed phrase "a first terminal node having a wireless receiver operable in a normal state" means that the first terminal node, with a wireless receiver, is capable of operating in a powered state sufficient for the receiver to receive beacons and messages.

With regard to "power saving," the undersigned finds that the language of the claims contravenes Broadcom's construction in which "power saving" refers to a powered off state because

¹⁴⁹ RX-922C (Proakis Rebuttal) at 1-2.

¹⁵⁰ CIB 49; SIB 61.

¹⁵¹ RIB 39.

a powered off terminal node is not able to receive beacons or messages. Claim 1 requires the second terminal node in a “power saving” state to receive beacons from an access point; claim 1 recites “the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point...” and “the second terminal node determines from the received beacons that it has a message awaiting delivery...”¹⁵² The inability of a powered off receiver to operate and receive beacons is corroborated by Dr. Proakis’ testimony in which he stated:

Q. Would you tell the Court if it is the terminal node or the receiver that must be operable in a normal state and in a power saving state?

A. It is, yes, the elements of the first two elements of claim 1 are addressed to two different terminal nodes, the first terminal node and second terminal node. And the first is -- so there are two terminal nodes that are described there in this claim and the first terminal node is operable in a normal mode and the second terminal node is operable in a power saving mode. That's my interpretation of it, that there are two separate nodes, not two separate states. That it is not one terminal operating in two separate states. It is two different terminal nodes, one of which operates in a normal state and the second one operates in a power saving state. Did I answer your question? I'm not sure if that answers your question.

Q. In the second element of claim 1 of the '311 patent, is the receiver in the second terminal node in a power-saving state?

A. The receiver is operating so as to save power, so that that receiver in my interpretation of the claim is that that receiver is, will turn itself off for a period of time and save power. And when it needs to wake up to receive a signal, it will then power up.

Q. And in the first element of claim 1 of the '311 patent, is the receiver in a normal state?

A. The receiver is in a normal state, yes.

Q. Can a receiver operate if it has no power?

¹⁵² Emphasis added.

- A. The receiver can shut down. It would be -- it would not be operating if it were completely shut down, no.
- Q. Can a receiver receive messages if it has no power?
- A. No, ma'am, it cannot.¹⁵³

In addition, dependent claims 2, 3, and 13 also recite limitations in which a terminal node that is in a “power saving” state receives beacons. Provided below are the claims with the relevant limitations in bold underline:

2. The communication network of claim 1 wherein the first terminal node selectively operates in one of the normal mode and a power saving state and **while operating in the power saving state the first terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point.**
3. The communication network of claim 1 wherein the **second terminal node directs further operation of its receiver to receive the message** during a time period that follows one of the received beacons.
13. The communication network of claim 3 wherein the **second terminal node synchronizes operation of its wireless receiver to receive the beacons** from the access point even when one or more of the beacons from the access point have not been received.

The specification does not describe a powered off terminal node or receiver that is capable of receiving beacons or messages. Contrary to Broadcom’s assertion that the ‘311 prosecution history describes a powered off receiver that is capable of receiving messages, this document instead contains the following passage which states that a *sleeping* terminal node can receive saved messages by examining a message list:

A terminal learns that **it must request unsolicited saved message** by examining the pending message list in the HELLO response packet. This implementation enables **SLEEPING terminals to receive unsolicited messages** and relaxes the timing

¹⁵³ Proakis, Tr. 2197-99.

constraints for transaction oriented messages.¹⁵⁴

The undersigned construes the term “power saving” as referring to a terminal node being in an energy saving, powered down state. Although the term “power saving” state (and “normal” state for that matter) is not mentioned anywhere in the ‘311 patent specification, the specification does describe a sleeping terminal node as being in an “energy and CPU saving mode” or capable of being “powered down.”¹⁵⁵ The undersigned declines, however, to incorporate the features and functions described in the specification of a sleeping terminal node into the definition of a “power saving” terminal node because the claims do not include any such limitations. Because a sleeping terminal is merely an embodiment of a terminal node in a “power saving” state, including all the features and functions described in the specification of a sleeping terminal node into the definition of a terminal node in a “power saving” state is unduly limiting.

Accordingly, the disputed phrase “a first terminal node having a wireless receiver operable in a normal state” means that the first terminal node, with a wireless receiver, is capable of operating in a powered state sufficient for the receiver to receive beacons and messages.

¹⁵⁴ JX-8 (the ‘311 prosecution history) at BCMITC0000071415 (emphasis added).

¹⁵⁵ See JX-3 (the ‘311 patent):

- “The use of the seed, and pseudo random offset generation, allows the *terminal to ‘sleep’ (enter an energy and CPU saving mode)* between HELLO messages and be able to ‘wake up’ (dedicate energy and CPU concentration on RF reception) and stay awake for the minimal time needed to receive the next HELLO message.” (col. 19:19-25) (emphasis added);
- “A *SLEEPING node can power-down* with an active timer interrupt to wake it just before the next expected hello message.” (col. 15: 45-47) (emphasis added); and
- “*SLEEPING terminals can power down* for a large percentage of the expected propagation delay before waking up to receive the response message.” (col. 17:13-15) (emphasis added).

(3) claim 1 does not require the terminal node to immutably be in either a “normal” or “power saving” state

Qualcomm contends that claim 1 requires two terminal nodes wherein each is in a different immutable mode of operation, *i.e.*, “normal” or “power saving” state. According to Qualcomm, claim 1 requires a first terminal node in a “normal” state that continuously monitors transmissions from the access point without ever sleeping, and a second terminal node in a “power saving” state that spends at least part of the time not monitoring transmissions from the access point. Under Qualcomm’s construction of claim 1, the first terminal node is immutably in a “normal” state and cannot cycle between the “normal” and “power saving” states.¹⁵⁶

Staff and Broadcom disagree that claim 1 requires two fixed states for the terminal nodes, and argue that Qualcomm’s construction imports limitations not recited in the claims. Staff and Broadcom contend that claim 1 only requires at any given time, there be one terminal node in a normal state and another terminal node in a power saving state.¹⁵⁷ Thus, Staff and Broadcom contend that claim 1 does not prohibit a terminal node from alternating between the normal and power saving states.

Looking first to the claims, the undersigned finds that the plain language of claim 1 does not require the first terminal node to solely exist in a “normal state.” Claim 1 does not expressly exclude embodiments in which a terminal node spends some time in a “normal” state, and other periods in a “power saving” state. Claim 1 only requires that the network comprise a terminal node in a normal state at some point in time, not necessarily at all times. The undersigned’s interpretation is further bolstered by dependent claim 2, which states that the first terminal node can selectively

¹⁵⁶ RIB 38-39.

¹⁵⁷ SRB 23; SIB 62; CRB 19.

operate in either the “normal” or “power saving” state. Broadcom’s construction requiring the first terminal node in a “normal state” to continuously monitor transmissions from the access point *without ever sleeping* is rejected.

Accordingly, the phrase “a first terminal node having a wireless receiver operable in a normal state” simply requires that, at some point in time, the first terminal node be in a “normal” state and have an operable wireless receiver while the node is in the “normal” state. Likewise, the phrase “a second terminal node having a wireless receiver operable in a “power saving” state only requires that, at some point in time, the second terminal node be in a “power saving” state and have an operable wireless receiver while the node is in a “power saving” state. Therefore, the undersigned finds that claim 1 does not require the terminal node to immutably be in either a “normal” or “power saving” state.

b. “access point that attempts to immediately deliver messages destined for the first terminal node”

Broadcom contends that the disputed phrase requires the access point to merely try, but not necessarily be successful in delivering messages to the first terminal node at the earliest opportunity possible. Under Broadcom’s construction, actual delivery need not occur immediately so long as the attempt to deliver messages occurs immediately.¹⁵⁸ Broadcom cites various passages in the ‘311 specification,¹⁵⁹ to support its contention that even when a network entity stores a message prior to actual delivery, it still satisfies the “attempt[s] to immediately deliver messages” limitation because

¹⁵⁸ CIB 51; CRB 21. *See* JX-3 (‘311 patent) at col. 15:46-52.

¹⁵⁹ CIB 51 citing JX-3 (the ‘311 patent) at col. 7:29-38; CIB 52 citing JX-3 (the ‘311 patent) at col. 7:42-47; CIB 52 citing JX-8 (the ‘311 prosecution history) at BCMITC71403, BCMITC71411, BCMITC71418-19 of Appendix C, which is cited in the ‘311 patent at col. 19: 41-45; CRB 21 citing JX-3 (the ‘311 patent) at col. 15:51-52.

storage prior to delivery is but one task performed within a network protocol to ensure delivery at the first available opportunity:

The network entity in base station nodes can store messages for SLEEPING nodes and transmit them immediately following the hello messages. This implementation enables SLEEPING terminals to receive unsolicited messages. (Note that the network layer always tries to deliver messages immediately, before storing them.) Retries for pending messages are transmitted in a round-robin order when messages are pending for more than one destination.¹⁶⁰

Broadcom further argues that for a terminal node that has its receiver powered off, the “access point must wait until the next time the wireless receiver is powered up before attempting delivery,”¹⁶¹ and this mandatory waiting period is yet another task performed within a network protocol to ensure the message is delivered to a powered off receiver at the first available opportunity. Therefore, according to Broadcom, the access point can perform any task(s) consistent within a network protocol to ensure delivery of a message at the first available opportunity and still satisfy the “immediacy” element in the term “attempts to immediately deliver messages.”

Qualcomm contends that the term “immediately deliver” prohibits the access point from adding deliberate delays, except for those inherent in wireless communication, when delivering a message to the terminal node.¹⁶² According to Qualcomm, the term “immediately deliver” excludes network protocols which store a message prior to delivery for the sake of transmitting it later in time, such as “store and forward” network protocols, because such storage intentionally delays transmission of the message thereby failing to satisfy the “immediacy” element in the disputed phrase.¹⁶³ Qualcomm contends that “immediate delivery” should only be used in reference to

¹⁶⁰ JX-3 (the ‘311 patent) at col. 15:47-52 (emphasis added).

¹⁶¹ CIB 50.

¹⁶² RIB 40.

¹⁶³ RIB 41; RRB 26.

messages bound for a “normal” terminal node that has a fully powered receiver, and not in reference to a “power saving” terminal node which must store the message until after a beacon is transmitted. Qualcomm argues that the specification supports a contextual distinction in the way “immediate delivery” is used because the following passages in the specification distinguish between a message that is delivered immediately and a message that is saved because it cannot be delivered immediately, such as when delivery is made to a sleeping terminal node. In support of its contention, Qualcomm cites to the specification:

- The bridging layer provides a service for storing packets for SLEEPING terminals. Packets which cannot be delivered immediately can be saved by the bridging entity in a parent node for one or more HELLO times;¹⁶⁴
- The network layer provides a service for storing messages for SLEEPING terminals. Messages which cannot be delivered immediately can be saved by the network entity in a parent node for one or more hello times;¹⁶⁵
- Note that the network layer always tries to deliver messages immediately, before storing them;¹⁶⁶ and
- When the DLC layer reports a failure to deliver a message to the network layer, the network layer can 1) save messages for SLEEPING terminals for later attempts, or 2) DETACH the node from the spanning tree.¹⁶⁷

Staff appears to take no position regarding whether “immediately deliver” excludes steps by the network protocol to store a message prior to delivering it to a sleeping terminal node until after a beacon is transmitted. But Staff disagrees with Qualcomm’s proposal that the specification excludes certain types of scheduling tasks, particularly “first-in first-out” queues, performed by the

¹⁶⁴ JX-3 (the ‘311 patent) at col. 9:47-51.

¹⁶⁵ JX-3 (the ‘311 patent) at col. 10:32-36.

¹⁶⁶ JX-3 (the ‘311 patent) at col. 15:51-52.

¹⁶⁷ JX-3 (the ‘311 patent) at col. 17:24-27.

network protocol.¹⁶⁸

The undersigned finds that the term “attempts to immediately deliver messages” does not include storing a message prior to delivery because the network’s act of storing the message intentionally delays transmission and thus, fails to meet the immediacy element recited in the disputed phrase. First, claim 1 distinguishes between immediate delivery of messages bound for a first terminal node in a normal state (“access point that attempts to immediately deliver messages destined for the first terminal node”) versus delivery of messages bound for a second terminal node in a power saving state (“access point attempts to deliver messages destined for the second terminal node”). Taken in context with the specification’s teaching that messages destined for a sleeping terminal are saved prior to delivery, and considering that sleeping terminals are embodiments of “power saving” terminal nodes, the undersigned finds that storing a message prior to delivery is included in “attempts to deliver” messages to the “power saving” second terminal node, but not included in “attempts to immediately deliver” messages to the “normal” first terminal node.¹⁶⁹ Furthermore, with respect to Broadcom’s citation to documents in the prosecution history as alleged support for its construction, the undersigned notes that these documents do not state that the network layer must perform certain tasks prior to delivery in order to achieve “immediate delivery.”¹⁷⁰ Instead, these documents describe beneficial tasks, *e.g.*, bridging layer routing, polling schemes, and queuing of message, that may be performed to achieve optimal transmission of messages throughout the network. In sum, the term “immediately deliver” does not include the act of storing a message

¹⁶⁸ SIB 65.

¹⁶⁹ See JX-3 (the ‘311 patent) at cols. 9:46-51, 10:32-37, 13:38-41, 14:15-18, 15:47-52, 17:23-28.

¹⁷⁰ CIB 52. See JX-8 (the ‘311 prosecution history) at BMITC71403, BMITC71411, BMITC71418, and BMITC71419 of Appendix C.

prior to delivery to a first terminal node in a “normal” state.

Accordingly the term “immediately deliver” is construed as prohibiting the access point from adding deliberate delays, except for those inherent in wireless communication, when delivering a message to the terminal node.

c. “beacons”

The disputed term “beacon” is recited in the context of the phrase “access point attempts to deliver messages destined for the second terminal node by transmitting at predetermined intervals beacons that identify that a message awaits delivery” in claim 1. Staff and Broadcom propose that the term “beacons” generically refers to signals, and the phrase “beacons that identify that a message awaits delivery” refers to a signal that indicates there is a message to be delivered.¹⁷¹ Qualcomm proposes that “beacons” means “messages transmitted regularly by a wireless network access point for the purpose of identifying the presence of a base station to any mobile device that may be within its radio coverage.”¹⁷²

Staff and Broadcom argue that the claim language and the context in which “beacons” is used in the claim supports their proposition that “beacons” refers to any generic signal. Broadcom argues that while “[t]he word ‘beacon’ standing alone has no single meaning in the field of wireless communications. . . . the proper meaning of ‘beacon’ is clear from the context of claim 1, which states that the function of a ‘beacon’ is to alert the second terminal node that a message is awaiting delivery.”¹⁷³

Qualcomm contends that the term “beacons” means more than just signals. Qualcomm

¹⁷¹ CIB 53; SIB 66.

¹⁷² RIB 42.

¹⁷³ CIB 53.

asserts that the claim language, specification, prosecution history, and extrinsic evidence support the proposition that “beacons,” like HELLO messages described in the specification, are messages transmitted regularly to identify the presence of a base station to any mobile device that may be within radio coverage. First, Qualcomm argues that “beacons” cannot only mean “signals” because the two words are not synonyms and cannot be presumed to have the same meaning. Second, Qualcomm cites to the specification¹⁷⁴ as alleged support for the notion that terminals rely on beacons “to be apprised of which base stations are accessible” in addition to being notified that the terminal has a message awaiting delivery. Qualcomm further notes that the specification discloses “significant advantages from combining the functions of notifying a mobile terminal of the presence of a base station and notifying the terminal of a message.”¹⁷⁵

Qualcomm also turns to the prosecution history of the parent application of the ‘311 patent in which the Examiner added, by way of Examiner’s amendment, claims 30-57 which recite the term “beacons.”¹⁷⁶ Qualcomm argues that because the added claims use the term “beacons” and because those claims were subsequently found to be allowable over the prior art of record,¹⁷⁷ a construction which defines “beacons” as meaning “signals” without further limitations violates the presumption that the Examiner’s amendment was performed for “substantial reasons related to patentability.” In

¹⁷⁴ RIB 42. “Typically, the RF terminal is attached to the bridge closest to the host computer. However, RF terminals are constantly listening for HELLO and polling messages from other bridges and may attach to, and then communicate with, a bridge in the table of bridges that is close to the particular RF terminal.” JX-3 (the ‘311 patent) at col. 7: 3-8.

¹⁷⁵ RIB 42.

¹⁷⁶ The parent application of the ‘311 patent is U.S. application serial no. 08/395,555, which issued as U.S. Patent No. 5,740,366. Claims 30-57 of the 08/395,555 application corresponds to issued claims 5-32 of U.S. Patent No. 5,740,366. Qualcomm cites RX-638 (the ‘555 application prosecution history) at QBE001689.

¹⁷⁷ See RX-638 (the ‘555 application prosecution history) at QBE001689, Examiner’s comments in Interview Summary.

support of this argument, Qualcomm cites *Schoenhaus v. Genesco Inc.*¹⁷⁸

In addition, Qualcomm further argues that in accordance with various extrinsic references, including the 1997 version of a IEEE 802.11 technical dictionary, the term “beacons” was known to one of ordinary skill in the art of wireless communication as having a specific purpose of “identifying each basic service set and the access point that are accessible to each wireless device.”¹⁷⁹

The undersigned finds that within the context of the language of claim 1, the term “beacons” refers to a generic signal. First, the undersigned notes that “beacons” appears in the following phrases of claim 1 (highlighted in bold):

- “**beacons** that identify that a message awaits delivery”;
- “**beacons** from the access point”; and
- “**beacons** that it has a message awaiting delivery”.

Additionally, independent claim 16 recites the following phrases:

- “**beacons** that identify a message awaiting delivery”;
- “**beacons** from the bridging node”; and
- “**beacons** that it has a message [or messages] awaiting delivery.”

The explicit language of independent claims 1 and 16, and its dependent claims, do not require a specific function(s) to be read into the meaning of “beacons” because, as illustrated above, the term “beacons” is followed by modifying phrases within the claim that explicitly indicate the source and function of the “beacons.” That is, the word “beacons” generically refers to signals, and without any

¹⁷⁸ *Schoenhaus v. Genesco Inc.*, 440 F.3d 1354, 1359 (Fed. Cir. 2006) (“*Schoenhaus*”) (quoting *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 32-33 (1997) (“*Warner-Jenkinson*”)).

¹⁷⁹ RIB 44.

modifying phrases or limitations, “beacons” can refer to signals from any source and having any function. Because “beacons” must be construed in context with the modifying phrases explicitly recited in the claim, the undersigned finds that the disputed phrase does not encompass any type of signal, but is instead concerned with a particular type of signal, *i.e.*, those that are transmitted from an access point that identify to the second terminal node that a message is awaiting delivery.

The specification fails to provide any mention, let alone definition, for the term “beacons.” The specification describes HELLO messages and HELLO packets, which the parties concede as being exemplary of “beacons.” The undersigned declines, however, to require the features and/or functions of HELLO messages and/or HELLO packets into the definition of “beacons” because doing so would improperly import limitations described in the specification not present in the claim language. As noted by Qualcomm, the specification discloses advantages in employing HELLO messages and/or HELLO packets, which in addition to notifying a mobile terminal that a message awaiting delivery, also notifies a mobile terminal about the presence of a base station. These advantages, however, are present in the exemplary HELLO messages and/or HELLO packets, but are not required features of “beacons.”

Regarding the prosecution history, the undersigned notes that the term “beacons” first appears in claims added by Examiner’s amendment in U.S. Application Serial No. 08/395,555 (issued as U.S. Patent No. 5,740,366),¹⁸⁰ which is the immediate parent of the ‘311 patent. In this amendment, the Examiner added 27 new claims (corresponding to then pending claims 30-57) which was

¹⁸⁰ See RX-638 (the ‘555 application prosecution history) at QBE001693- QBE001703, Examiner’s Amendment of June 20, 1997.

authorized by the then applicant during a telephonic interview.¹⁸¹ In the Interview Summary (which is allocated to describing the nature of any agreement reached between Applicant and the Examiner), the following comments were made by the Examiner:

The difference between the claimed invention and the references were discussed. Applicant agreed to cancel claims 21-29 without prejudice and reserve the right to file the same claims in another application if so desire [sic] in order to expediate [sic] the prosecution of this application. **Applicant has also allow [sic] examiner to add claims 30-57 in an examiner's amendment which are allow [sic] over prior art of record.**¹⁸²

Beyond the general comment that claims 30-57 are allowable over the prior art of record, the Examiner did not provide any specific reasons for allowing these claims. The prosecution history does not reveal why these claims were added by the Examiner, let alone what, if any, significance was attached to the term “beacons” when allowing these claims. Thus, Qualcomm’s argument that the Examiner would not have found these claims allowable over the prior art if the term “beacons” was intended to mean generic signals is speculative at best and unsupported by the sparse, general, and ambiguous comments made by the Examiner in the prosecution history.

Qualcomm’s citation to *Warner-Jenkinson*, which addresses the scope of equivalents surrendered as a consequence of claim amendments made by a patent applicant during the course of prosecution, is not instructive in the present claim construction dispute. *Warner-Jenkinson* held that where the file history does not reveal the reason why a claim was amended in a particular fashion, “the court should presume that the patent applicant had a substantial reason related to patentability for including the limiting element added by amendment. In those circumstances, *prosecution history*

¹⁸¹ See RX-638 (the ‘555 application prosecution history) at QBE001691, Notice of Allowability.

¹⁸² See RX-638 (the ‘555 application prosecution history) at QBE001689, Interview Summary (emphasis added).

estoppel would bar the application of the doctrine of equivalents as to that element.”¹⁸³ Here, the issue does not pertain to the scope of equivalents falling under the term “beacons”, but whether the meaning of “beacons” should include further limitations described in the specification but not recited in the claims.

Testimony from experts of both parties corroborate that one of skill in the art would understand that HELLO messages are exemplary of, but not equivalent to, “beacons.” Dr. Proakis stated “[t]he specification of the ‘311 patent describes *‘HELLO messages’ that perform a beaconing function.*”¹⁸⁴ Additionally, Dr. Nettleton stated “[a]s the passage at column 12, lines 11-13 and 36-39 specifies, these *beacons take the form of ‘hello’ messages* that contain, among other information, a list of the terminal nodes with pending messages.”¹⁸⁵ While both experts agree that the specification describes HELLO messages as exemplary forms of “beacons,” the statements above indicate that these experts do not believe HELLO messages to be equivalent to “beacons.”

Although various references, including the IEEE 802.11 technical dictionary, were proffered by Dr. Proakis to advocate that one of skill in the WiFi art in 1997 would adopt Qualcomm’s construction for the term “beacons,” the proffered extrinsic evidence does not establish that one of skill in the art would understand the term “beacons” to mean anything more than “signals” when reading the language of the claims as a whole, and in particular, when considering the context in which the term “beacons” is used with the recited modifying phrases surrounding the term in the claims. Moreover, as noted in *Phillips*, the Court “ha[s] viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms” because,

¹⁸³ *Warner-Jenkinson*, 520 U.S. at 33 (emphasis added).

¹⁸⁴ RX-838C (Proakis Direct) at 13 (emphasis added).

¹⁸⁵ CX-1664C (Nettleton Direct) at 81 (emphasis added).

in part, “there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question.”¹⁸⁶ Dr. Proakis’ proffered references, including the IEEE 802 technical dictionary, fall within the category of unreliable extrinsic evidence and are therefore rejected.

Accordingly, the term “beacons” is construed as a generic signal.

d. “predetermined intervals”

The term “predetermined intervals” is recited within the phrase “the access point attempts to deliver messages destined for the second terminal node by transmitting at predetermined intervals beacons that identify that a message awaits delivery.”¹⁸⁷

Qualcomm proposes that “predetermined intervals” means time intervals that are determined in advance by using a known algorithm.¹⁸⁸ Qualcomm’s proposed construction is premised on the notion that “beacons” should contain the features and limitations of HELLO messages described in the specification. According to Qualcomm, the term “predetermined intervals” should be construed as a “time interval that is determined in advance by using a known algorithm” because the specification states that HELLO messages are transmitted in time intervals called “hello slots”, which are calculated using well known randomization algorithms.

In contrast, Broadcom argues that “predetermined intervals” does not require use of a known algorithm, and that the claim only requires “beacons” to be transmitted at “regular times.”¹⁸⁹

First, the language of the claims does not require that “predetermined intervals” be calculated

¹⁸⁶ *Phillips*, 415 F.3d at 1318.

¹⁸⁷ Emphasis added.

¹⁸⁸ RIB 45.

¹⁸⁹ CRB 24.

using a known algorithm. Additionally, the specification does not mention, let alone define, the term “predetermined intervals.” Instead, the specification describes exemplary HELLO messages and HELLO packets being transmitted or broadcasted at “calculated intervals” or “calculated time intervals” called “hello slots.”¹⁹⁰ Hello slots, as well as the algorithms used to calculate the hello slots, are not required features of “predetermined intervals” but are instead exemplified embodiments of “calculated intervals” or “calculated time intervals.” Furthermore, the prosecution history does not provide any comments or amendments relating to the term “predetermined intervals.” Thus, the intrinsic evidence does not provide guidance in construing the term “predetermined intervals.”

Turning then to the plain and ordinary meaning, the undersigned finds that the term “predetermined intervals” means intervals determined in advance, which may or may not be calculated using particular algorithms. Within the context of the claim, the plain reading indicates that the intervals are determined prior to transmission of the “beacons.” Although this determination can involve calculations which employ algorithms, the undersigned finds that the plain and ordinary meaning of the word “predetermined” does not require the use of a particular calculation or algorithm.

Accordingly, the term “predetermined intervals” is construed as intervals determined in advance, which may or may not be calculated using particular algorithms.

e. “the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point”

The disputed phrase “the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point” is recited in claim 1 and dependent claim 13.

¹⁹⁰ See JX-3 (the ‘311 patent) at cols. 12:13-56, 15:18-19.

Staff asserts that plain meaning of the disputed phrase dictates a construction in which the second terminal node, with its receiver in the “power saving” state, times the sleep-wake cycles of the receiver to be awake in order to receive every expected beacon from the access point.¹⁹¹ Thus, under Staff’s construction, the term “synchronizes operation” refers to timing the sleep-wake cycles of the receiver. Staff’s construction requires the second terminal node to synchronize its receiver to receive *every* expected beacon and, in support of this limitation, Staff cites the following sentence from the specification:

A SLEEPING node can power-down with an active timer interrupt to wake it just before the *next expected hello message*.¹⁹²

According to Staff, the word “expected” in “next expected hello message” indicates that the second terminal node cannot decide to skip certain hello messages but instead, is obliged to time its receiver to be awake for every expected hello message.

Broadcom construes the disputed phrase to mean that the second terminal node determines for itself when to transition its wireless receiver from the “power saving” to the “normal” state to receive beacons from the access point. Under Broadcom’s construction, the term “synchronizes operation” refers to the transitioning of the wireless receiver from a “power saving” to “normal” state. Broadcom argues that the word “its” in “synchronizes operation of its wireless receiver” implies that the terminal node is intelligent and can decide on its own when to transition the state of the wireless receiver. Broadcom contends that the language of claim 13, which states that the second terminal nodes synchronizes operation of its wireless receiver even when one or more of the beacons have not been received, reinforces a construction in which the second terminal node can

¹⁹¹ SIB 69-70.

¹⁹² JX-3 (the ‘311 patent) at col. 15:45-47 (emphasis added).

decide on its own which beacons will be received and which beacons will be missed.¹⁹³ Thus, according to Broadcom's construction, the second terminal node is not obliged to time its receiver to be awake for every incoming transmission. Broadcom cites the same sentence in the specification highlighted by Staff in support of its construction, but contrary to Staff's interpretation, Broadcom argues that this sentence means that the terminal node is intelligent and can determine for itself when to switch the state of wireless receiver because the terminal node is able to set its own timer interrupt. For additional support, Broadcom cites to the specification, which purportedly describes calculations used by the terminal node to decide when to transition the power state of the wireless receiver.¹⁹⁴

Broadcom's construction is rejected by Staff and Qualcomm on two grounds. First, Staff and Qualcomm argue that nothing in the claims or specification suggests that the second terminal node can choose on its own which beacons the receiver will be awake for and which beacons it will remain asleep through.¹⁹⁵ Second, Staff argues that Broadcom's construction is inconsistent with the second element of claim 1 requiring "a second terminal node having a wireless receiver operable in a power saving state" because "the only way for the terminal not to miss beacons would be to remain continuously awake or in other words *not* enter the power-saving state."¹⁹⁶ Staff dismisses Broadcom's contention that the specification¹⁹⁷ supports its construction because Staff argues that the $i+1$ calculation is an algorithm supplied by the access point, not the terminal node.

¹⁹³ CIB 55-56.

¹⁹⁴ JX-3 (the '311 patent) at col. 15:55-56 ("Note that a child node that misses i hello messages, can calculate the time of the $i+1$ hello messages.")

¹⁹⁵ SRB 27-28.

¹⁹⁶ SRB 27.

¹⁹⁷ JX-3 (the '311 patent) at col. 15:55-56 ("Note that a child node that misses i hello messages, can calculate the time of the $i+1$ hello messages.")

Qualcomm construes the disputed phrase as meaning that the second terminal node uses “its receiver to monitor radio communications from the access point at the time that the terminal knows that beacons will be transmitted.”¹⁹⁸ Under Qualcomm’s construction, the term “synchronizes operation” refers to monitoring of radio communications by the wireless receiver. Qualcomm also cites the same sentence in the specification highlighted by Broadcom and Staff to support its construction, and agrees with Staff in interpreting the word “next” in “next expected hello message” as meaning that the terminal node cannot decide on its own to intentionally miss beacons. Qualcomm’s construction, however, allows the terminal node to accidentally, but not intentionally, miss a beacon due to a faulty radio frequency connection, for example.

Qualcomm’s construction is rejected by Staff and Broadcom on the same grounds. Both contend that the express claim language requires the second terminal node to do more than merely monitor radio communications under the term “synchronizes operation,” as Qualcomm proposes. Staff and Broadcom argue that Qualcomm’s construction fails to give any meaning to the term “synchronizes.”¹⁹⁹

For the reasons discussed below, the undersigned finds that “the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point” refers to the second terminal node, while in a “power saving” state, coordinating its wireless receiver in a manner sufficient to facilitate reception of incoming beacons from the access point. Thus, the undersigned finds that “synchronizes operation” refers to coordination of the wireless receiver by the second terminal node to receive incoming beacons.

¹⁹⁸ RIB 45.

¹⁹⁹ CRB 25; SRB 28.

The undersigned's construction is supported by the plain language of the claims. None of the claims, asserted or unasserted, require the second terminal node to do anything more than coordinate its wireless receiver to receive beacons under the term "synchronizes operation." As discussed previously in section (a)(2) above, the undersigned declines to extend the limitations described in the specification of a sleeping terminal node into the definition of a "power saving" terminal node. Therefore, the undersigned declines to adopt Staff's construction in which "synchronizes operation" refers to the second terminal node interrupting the sleep-wake cycles of its sleeping wireless receiver because Staff's construction adds limitations that are appropriate only when considering embodiments where the "power saving" terminal node is a sleeping terminal node.

The undersigned also rejects Broadcom's proposition that "synchronizes operation" refers to the transitioning of the wireless receiver from a "power saving" to "normal" state. The disputed phrase does not require the wireless receiver to actually receive the incoming beacons; instead, the claim language only requires the second terminal node to coordinate its wireless receiver in a manner sufficient to facilitate reception of the incoming beacons. Because actual reception of incoming beacons is not required and because the second terminal node can coordinate its wireless receiver to receive incoming beacons without having to transition the wireless receiver to a "normal" state, Broadcom's construction is rejected as being unduly limiting in light of the plain claim language.

With regard to whether the second terminal node can decide on its own to intentionally miss some beacons, the undersigned finds that the disputed phrase does not require the second terminal node to choose which beacons will be received and which beacons will not be received. Contrary to Broadcom's assertion, the undersigned finds that the word "its" in "second terminal node synchronizes operation of its wireless receiver" does not imply or suggest that a terminal node, of

its own volition, can receive some beacons and miss other beacons. Moreover, the undersigned also rejects Staff's proposition that the second terminal node is required to receive each and every incoming beacon. The plain language of the disputed phrase merely requires the second terminal node to coordinate its wireless receiver in a manner sufficient to receive at least one beacon, but not necessarily every incoming beacon.

The undersigned also rejects Qualcomm's proposition that the term "synchronizes operation" refers to monitoring of incoming beacons by the wireless receiver because mere monitoring, without performing any other task, is insufficient to facilitate reception of incoming beacons by a terminal node in a "power saving" state. The claim language makes clear that the second terminal node must "synchronize[] operation" of its wireless receiver, not just monitor for incoming beacons. To construe the term "synchronizes operation" as meaning monitoring would effectively read out "synchronizes" from the construction of the disputed phrase.

Accordingly, the term "the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point" refers to the second terminal node, while in a "power saving" state, coordinating its wireless receiver in a manner sufficient to facilitate reception of incoming beacons from the access point.

f. "the second terminal node... directs further operation of its wireless receiver to receive the messages"

The disputed phrase is recited in claim 1 in the context of "the second terminal node determines from the received beacons that it has a message awaiting delivery and directs further operation of its wireless receiver to receive the message."

Staff argues that plain meaning dictates that the disputed phrase refers to the second terminal

node, after being notified by a beacon that a message awaits delivery, directs the wireless receiver to wake from its power-saving sleep state in order to receive the forthcoming message. According to Staff, the term “directs further operation” requires the second terminal node to direct its receiver to cease operation in the “power saving” state and initiate operation in a continuously-on “normal” state until the message is received.

Qualcomm argues that the plain meaning of “directs further operation” only requires the second terminal node to use its wireless receiver to receive an incoming message. According to Qualcomm, the following passage in the specification supports its construction:

The network entity in base station nodes can store messages for SLEEPING nodes and transmit them immediately following the hello messages. This implementation enables SLEEPING terminals to receive unsolicited messages.²⁰⁰

Qualcomm’s construction of the disputed phrase is rejected by Staff on the grounds that it fails to add any meaning to “directs further operation” above that of the other recited claim elements. Staff argues that under Qualcomm’s construction, the wireless receiver passively receives the messages without needing to perform any steps. Broadcom rejects Qualcomm’s construction on similar grounds, arguing that the express claim language of “directs further operation” requires the second terminal node to do more than simply monitor beacons and receive them when they come in.

Broadcom asserts that the term “directs further operation” within the disputed phrase refers to the process of the wireless receiver transitioning from a “power-saving” state to a “normal” state in order to receive an incoming message. Arguing that the “structure of the claim compels Broadcom’s construction,” Broadcom contends that the disputed phrase means that the second terminal node, after receiving a beacon indicating a message awaits, transitions its wireless receiver

²⁰⁰ JX-3 (the ‘311 patent) at col.15:47-51.

from a “power-saving” state to a “normal” state in order to receive an incoming message. Broadcom cites the following passage from the ‘311 prosecution history in support of its construction:

A terminal learns that it must request unsolicited saved messages by examining the pending message list in the HELLO response packet. This implementation enables SLEEPING terminals to receive unsolicited messages and relaxes the timing constraints for transaction oriented messages.²⁰¹

Broadcom’s construction is rejected by Qualcomm on the grounds that the claim language does not require the second terminal node to transition between a “power saving” and “normal” state. Staff also rejects Broadcom’s construction of “directs further operation” on the grounds that it fails to add any meaning above its proposed construction of “synchronizes operation” because Broadcom’s construction does not require the second terminal node to do anything besides continue its operation, *i.e.*, maintain the wireless receiver in a powered on state, to receive the incoming message.

The undersigned finds that the disputed phrase refers to the second terminal node, while in a “power saving” state and after receiving the incoming beacons, initiating transition from a “power saving” to a “normal” state in order for its wireless receiver to receive incoming messages. Thus, the undersigned finds that the term “directs further operation” refers to transitioning from a “power saving” to a “normal” state by the second terminal node.

First, the undersigned notes that none of the claims, asserted or unasserted, expressly state that the second terminal node transitions the power state of its wireless receiver under the term “directs further operation.” Turning to the specification, the following passages confirm that in order for a sleeping terminal to receive an incoming message, its receiver must be awake:

SLEEPING terminals can power down for a large percentage of the expected

²⁰¹ JX-8 (the ‘311 prosecution history) at BCMITC71415 of Appendix 3.

propagation delay *before waking up to receive the response message.*²⁰²

The use of the seed, and pseudo random offset generation, allows the terminal to “sleep” (enter an energy and CPU saving mode) between HELLO messages and *be able to “wake up” (dedicate energy and CPU concentration on RF reception) and stay awake for the minimal time needed to receive the next HELLO message.*²⁰³

In light of undersigned’s previous finding that “normal” refers to the terminal node being in an awake, powered up state and that a sleeping terminal node is an embodiment of a “power saving” terminal node, the above passages teach that a terminal node in a “power saving” state must transition its wireless receiver to a “normal” state in order to receive incoming messages. This teaching corroborates the undersigned’s construction that “directs further operation of its wireless receiver” refers to the second terminal node transitioning from a “power saving” to a “normal” state so that its wireless receiver can receive incoming messages.

The undersigned rejects Qualcomm’s proposition that “directs further operation” refers to the second “power saving” terminal node doing no more than using its wireless receiver to receive an incoming message. As noted from the teachings of the specification provided above, a terminal node in a “power saving” state, such as a sleeping node, is not able to receive incoming messages. The sleeping terminal node must wake up, and therefore transition from a “power saving” to “normal” state, in order for its receiver to receive incoming messages.

Accordingly, the term “directs further operation” is construed as referring to transitioning from a “power saving” to a “normal” state by the second terminal node.

²⁰² JX-3 (the ‘311 patent) at col. 17:13-15 (emphasis added).

²⁰³ JX-3 (the ‘311 patent) at col. 19:19-25 (emphasis added).

g. “second state in which attempts are made to minimize power consumption by the wireless receiver”

The disputed phrase is recited in independent claim 16 within the context of “second terminal node operating in a second state in which attempts are made to minimize power consumption by the wireless receiver.”

Staff and Qualcomm submit that the plain meaning of the claim dictates a construction in which the second terminal node operating in a second state is the same as the “power saving” state in claim 1. They contend that interpreting the “second” state as being equivalent to the “power saving” state is consistent with the specification which only describes two states relating to a terminal node, either sleeping or non-sleeping.²⁰⁴ Staff’s and Qualcomm’s construction is rejected by Broadcom as being contrary to the express language of the disputed phrase, arguing that the claims explicitly distinguish the “second” from the “power saving” state.²⁰⁵

Broadcom asserts that the context of the claim refers to “second” state as being a state in which attempts are made to reduce power consumption by the wireless receiver to an extent consistent with desired operation, and that the amount of power consumed by a wireless receiver varies depending on the operation that is being performed.²⁰⁶ Broadcom contends that the specification discloses embodiments in which the wireless receiver is in various different power modes, such as a default mode, power saving mode, delivery mode, or sleeping mode. Broadcom argues that within the context of the teaching of the specification, one of ordinary skill would understand that “minimize” refers to the wireless receiver reducing power consumption to an extent

²⁰⁴ SIB 71-72; RIB 46.

²⁰⁵ CRB 26.

²⁰⁶ CIB 58-59.

consistent with a desired operation.

Broadcom's construction is rejected by Staff as lacking support in the specification. Staff argues that "there is no description or suggestion in the '311 specification or prosecution history of a terminal node reducing the power used by the receiver in any manner other than by 'SLEEPING.'"²⁰⁷

The undersigned finds that the term "second state" within the disputed phrase is not the same as "power saving" state recited in claim 1. Equating "second state" to "power saving state" contradicts the express language of independent claim 16 ("a second terminal node operating in a second state") and independent claim 1 ("a second terminal node... operable in a power saving state"), which explicitly refers to each state of the second terminal node by a different name. Likewise, independent claims 20 and 26 refer to the second terminal node being in a "low power state," which, by virtue of express claim language, is also distinguishable from the "second" and "power saving" states. In contrast to claim 1, in which the term "power saving" stands alone, the term "second" state recited in independent claim 16 is followed by the phrase "in which attempts are made to minimize power consumption by the wireless receiver" that describes the nature of the "second" state. Whereas "power saving" refers to a terminal node that already is in an energy saving, powered down state, the "second" state is one in which the terminal node is *attempting* to be in an energy saving, powered down state by minimizing the amount of power consumed by the wireless receiver.

Accordingly, the term "second terminal node operating in a second state in which attempts are made to minimize power consumption by the wireless receiver" is not the same as "power

²⁰⁷ SRB 29.

saving” state recited in claim 1; rather it is construed as a state in which the terminal node is *attempting* to be in an energy saving, powered down state by minimizing the amount of power consumed by the wireless receiver.

B. Infringement

Broadcom alleges induced and contributory infringement of claims 1-5, 7, 8, 13, 14, and 16-19 (collectively referred to as the “asserted claims”) of the ‘311 patent by Qualcomm in connection with the incorporation of MSM6500, MSM 6550, MSM6800, and MSM7500 chipsets (collectively referred to as the “accused chipsets”) into handsets that operate on an evolution data only or evolution data optimized (“EV-DO”) wireless network. Broadcom further asserts that Qualcomm directly infringes by building and using test networks that infringe the asserted claims.

1. Products at Issue

The accused chipsets comprise a receiver chip, a transmitter chip, and a power management chip.²⁰⁸ The accused chipsets are incorporated into certain handsets, including

] Samsung’s MM-A920, A900, and A940, [], and Motorola’s RZR V3C. Handsets containing the accused chipsets are compatible for use on domestic networks that comply with a wireless communication standard called “EV-DO,” which stands for “evolution-data only” or “evolution-data optimized.” Broadcom alleges that networks operating under the EV-DO standard (referred to as “EV-DO networks”) directly infringe the asserted network claims of the ‘311 patent.

Qualcomm initiated development of the EV-DO standard in 1996.²⁰⁹ The EV-DO standard

²⁰⁸ CIB 93.

²⁰⁹ RX-843C (Grob Direct) at Q. 9.

was designed to facilitate more rapid and efficient transmission of data in comparison to previous cellular standards.²¹⁰ EV-DO networks allow users of cellular phones that contain the accused chipsets to receive internet web pages and send and receive data files, such as email, pictures, and video clips.²¹¹ The EV-DO standard was adopted by the Telecommunications Industry Association under the name “TIA/EIA/IS-856” or “IS-856” standard.²¹² The IS-856 standard was later revised, and renamed as the “TIA-856-A” or “TIA-856 Draft A,” standard to provide for improved voice transmission and enhanced data transmission over the EV-DO networks. Specifications for the IS-856 and the TIA-856-A standards are published, and was entered into evidence as CX-1705 and RX-600, respectively.

Summarized herein are uncontested portions of Matthew Grob’s testimony regarding the requirements of the EV-DO standard relevant to the infringement issues in this investigation. First, the EV-DO standard is based upon a “CDMA” (code division multiple access) system, in which traffic and control channels are carried at the same time on a shared frequency range.²¹³ Under the EV-DO standard, traffic channels only facilitate voice and data transmissions from the network to an “access terminal,” *i.e.*, a handset containing the accused chipset, whereas the network exclusively sends signals, pages, and non-data or non-voice transmissions to an access terminal through control channels.²¹⁴ While in a “connected state” to the network, the EV-DO standard requires the access terminal to be active on a traffic channel to send or receive data from the network.²¹⁵ After a certain

²¹⁰ RX-843C (Grob Direct) at Q. 13.

²¹¹ CFF 28.

²¹² RX-843C (Grob Direct) at Q. 10-12.

²¹³ RX-843C (Grob Direct) at Q. 17.

²¹⁴ RX-843C (Grob Direct) at Q. 18.

²¹⁵ RX-843C (Grob Direct) at Q. 20, 24.

period of inactivity in which the access terminal neither transmits nor receives data in the connected state, the access terminal is released from the traffic channel and enters into an “idle state.”²¹⁶ While in the idle state, the access terminal only monitors the control channel (and not the traffic channel), but does not do so continuously.²¹⁷ Instead, the access terminal monitors the control channel at certain time intervals which correspond to the particular access terminal’s “control channel slot.”²¹⁸ The access terminal is considered to be in a “monitor state” while monitoring the control channel in the idle state, and in a “sleep state” when not monitoring the control channel in the idle state. In order for the network to transmit data to an access terminal that is in an idle state, the network must first send a “page” to the access terminal over the control channel to alert the access terminal that a voice or data transmission is awaiting delivery.²¹⁹ In response to the received page, the access terminal transitions from the idle to the connected state.²²⁰ Once the access terminal is in a connected state, it can receive the voice or data transmission from the network through an assigned traffic channel.²²¹

2. Legal Standards and Analysis for Infringement

Listed below are Broadcom’s various allegations of infringement by Qualcomm. Following a brief summary of the required legal showing in order for Broadcom to prevail under each asserted theory, the undersigned’s determination on each of Broadcom’s infringement assertions is discussed in each respective section.

²¹⁶ RX-843C (Grob Direct) at Q. 24.

²¹⁷ RX-843C (Grob Direct) at Q. 24.

²¹⁸ RX-843C (Grob Direct) at Q. 28, 32.

²¹⁹ RX-843C (Grob Direct) at Q. 24.

²²⁰ RX-843C (Grob Direct) at Q. 24.

²²¹ RX-843C (Grob Direct) at Q. 24.

a. Direct Infringement

Broadcom alleges that Qualcomm directly infringed the asserted claims by operating devices that incorporate the accused chipsets on certain “test networks” compliant with the EV-DO standard.²²² As proof that these “test networks” directly infringe the asserted claims, Broadcom proffers evidence including a press release,²²³ testimony from Mr. Grob,²²⁴ and results from Qualcomm’s testing on a 1x EV-DO network.²²⁵ Broadcom further alleges, in one cursory sentence, that the accused chipsets “when used in handsets operating on a 1x EV-DO wireless network” infringe the asserted claims literally and/or under the doctrine of equivalents.²²⁶

Qualcomm and Staff contend that Broadcom has failed to bring forth evidence demonstrating that Qualcomm’s test networks infringe each element of the asserted claims. In particular, Qualcomm and Staff emphasize that the press release (CX-1654) proffered by Broadcom fails to show whether any of the handsets in the test networks operated in a “power saving” mode, as required by the disputed claim phrase “a second terminal node having a wireless receiver operable in a power saving state,” or whether the referenced test included the slotted sleep feature.²²⁷

The complainant has the burden of demonstrating infringement by a preponderance of the evidence.²²⁸ In order to prove direct infringement, “the patentee must show that the accused device

²²² CIB 107.

²²³ CX-1654 (press release) at BMITC314221 and BMITC314222.

²²⁴ JX-24C (Grob Dep) at 61-63; Grob, Tr. 996-97, 1001-02.

²²⁵ CX-1660C (results).

²²⁶ CIB 93.

²²⁷ SRB 37-38; RRB 45-46.

²²⁸ *Carroll Touch, Inc. v. Electro Mech. Sys., Inc.*, 15 F.3d 1573, 1578 (Fed. Cir. 1993) (“*Carroll Touch*”) (“The burden is on the patent owner to prove infringement by a preponderance of the evidence.”).

meets each claim limitation, either literally or under the doctrine of equivalents.”²²⁹ An accused device literally infringes a patent claim if it meets every limitation recited in the claim.²³⁰ Where literal infringement is not found, infringement nevertheless can be found under the doctrine of equivalents.²³¹ In order to show that the accused device is equivalent to the claim element, the complainant must show that the differences between the two are insubstantial, or show that the accused device performs substantially the same function, in substantially the same way, with substantially the same result as the claim element.²³²

In order to prevail on direct infringement, Broadcom must show by a preponderance of the evidence that Qualcomm’s test network meets, literally or under the doctrine of equivalents, each and every limitation of the asserted claims. Based on the evidence presented, the undersigned finds that Broadcom has failed to meet its burden on infringement. First, with regard to literal infringement, Broadcom has not presented any specific direct evidence regarding testing of Qualcomm’s test network in a manner that infringes all the asserted claim limitations. In particular, there is no evidence that Qualcomm’s test networks contain “a second terminal node having a wireless receiver operable in a power saving state,” as recited in claim 1, or “a second terminal node operating in a second state in which attempts are made to minimize power consumption by the wireless receiver,” as recited in independent claim 16. The press release proffered by Broadcom

²²⁹ *Liquid Dynamics Corp. v. Vaughan Co.*, 355 F.3d 1361, 1367 (Fed. Cir. 2004) (“*Liquid Dynamics*”).

²³⁰ *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1454 (Fed. Cir. 1998) (“any deviation from the claim precludes a finding of literal infringement”) (“*Litton Sys.*”). See also *Tex. Instruments, Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1563 (Fed. Cir. 1996) (“*Tex. Instruments*”) (“To literally infringe, the accused device or process must contain every limitation of the asserted claim.”).

²³¹ *Comark Commc ’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1188 (Fed. Cir. 1998).

²³² *Warner-Jenkinson Co. v. Hilton-Davis Chem. Co.*, 520 U.S. 17, 40 (1997).

lacks any disclosure demonstrating that the test networks employed handsets containing the accused chipsets which operate in a “power saving” state. In addition, the testimony of Mr. Grob does not include evidence that the above two claim limitations are met. Accordingly, the undersigned finds that Broadcom has not satisfied its burden in establishing that Qualcomm’s test networks literally infringe each element of the asserted claims.

Second, with regard to infringement under the doctrine of equivalents, the undersigned finds that Broadcom has also failed to meet its burden. A single cursory sentence alleging that the accused chipsets in handsets infringe under the doctrine of equivalents is insufficient as Broadcom has failed to identify particular features of Qualcomm’s test networks that function in the substantially the same way with substantially the same result as each element of the asserted claims, as required under *Warner-Jenkinson*. Accordingly, the undersigned finds that Broadcom has not satisfied its burden in establishing that Qualcomm’s test networks infringe each element of the asserted claims under the doctrine of equivalents.

b. Induced Infringement

Broadcom alleges that EV-DO networks operated by third-party carriers and used by its subscribers directly infringe the asserted claims. Broadcom alleges that Qualcomm induced subscribers of the EV-DO networks to infringe the asserted claims through various acts including the creation and promotion of the EV-DO standard,²³³ promotion of the EV-DO standard to network carriers,²³⁴ promotion of services supported by the EV-DO standard to network subscribers,²³⁵

²³³ CIB 108.

²³⁴ CIB 108.

²³⁵ CIB 108.

marketing and sale of the accused chipsets to mobile phone manufacturers,²³⁶ promotion and sale of EV-DO compatible chipsets to base station manufacturers,²³⁷ and development of design partnerships with EV-DO network carriers, handset manufacturers, and base station manufactures that involve system design to ongoing support technical field support.²³⁸

Staff alleges that the record evidence demonstrates that at least Sprint's EV-DO network directly infringes the asserted claims.²³⁹ In addition, Staff further alleges that Qualcomm induces infringement of the asserted claims through acts including urging and supporting development and adoption of networks that use the EV-DO standard,²⁴⁰ partnering with handset manufacturers and network providers to ensure that the function of certain features on the accused chipsets result in direct infringement of the asserted claims,²⁴¹ establishing partnerships with vendors during the design process of a new phone to ensure that the accused chipsets are correctly designed into products,²⁴² collaborating with network providers to choose functions and features for mobile phone handsets, and providing support services to vendors and network providers,²⁴³ such as (i) field testing to ensure that the accused chipsets are compliant with EV-DO standard,²⁴⁴ (ii) providing software that allows the accused chipsets to implement functions required by the EV-DO standard,²⁴⁵ (iii) providing software and updates for the accused chipsets,²⁴⁶ (iv) making personnel available to answer questions

²³⁶ CIB 109.

²³⁷ CIB 109.

²³⁸ CIB 109.

²³⁹ SRB 39 citing SIB 88-89.

²⁴⁰ SIB 89.

²⁴¹ SIB 90.

²⁴² SIB 90.

²⁴³ SIB 90.

²⁴⁴ SIB 90.

²⁴⁵ SIB 90.

²⁴⁶ SIB 90.

regarding the accused chipsets,²⁴⁷ and (v) providing troubleshooting services to network providers and telephone manufacturers to identify and solve problems relating to phones using the accused chipsets.²⁴⁸

Qualcomm argues that Broadcom cannot prevail under a theory of induced infringement because Broadcom has failed to show at least one specific instance of direct infringement, as required under *Dynacore Holdings Corp. v. U.S. Phillips Corp.*²⁴⁹ Qualcomm contends that Broadcom has not shown that compliance with the EV-DO standard necessarily results in infringement of the asserted claims. Specifically, Qualcomm contends that the EV-DO standard does not require handsets to operate in a “power saving” state. In addition, Qualcomm contends that pages sent from the network to notify the access terminal that a voice or data transmission is awaiting delivery, as required under the EV-DO standard, does not meet Qualcomm’s proposed construction of “beacons.”

Furthermore, Qualcomm asserts that Broadcom has failed to show that at least one EV-DO network as actually operated by a third party carrier, directly infringes every element of the asserted claims. In particular, Qualcomm argues that Sprint’s EV-DO network does not have a paging channel and therefore does not meet the “beacons” limitation recited in independent claims 1 and 16.²⁵⁰ In addition, Qualcomm argues that Broadcom has not brought forth evidence showing whether the prioritized routing schedule used in [] EV-DO networks would meet the “immediate

²⁴⁷ SIB 90.

²⁴⁸ SIB 90.

²⁴⁹ RRB 46; *Dynacore Holdings Corp. v. U.S. Phillips Corp.*, 363 F.3d 1263 (Fed. Cir. 2004) (“*Dynacore*”).

²⁵⁰ RRB 48.

delivery” of messages limitation, as required in claim 1.²⁵¹

A finding of induced infringement requires a showing of direct infringement and a showing of intent.²⁵² The Federal Circuit has historically required a showing of either general or specific level of intent.²⁵³ Intent does not necessarily need to be proven through direct evidence, but rather, can be shown through circumstantial evidence.²⁵⁴

In order to prevail on induced infringement, Broadcom must show by a preponderance of the evidence that (1) Qualcomm had general or specific intent to induce network carriers or subscribers of network carriers to make, use, or sell a network that infringes the asserted claims, and (2) compliance with the EV-DO standard necessarily results in a EV-DO network that directly infringes, or that at least one EV-DO network as actually made, used, or sold by a third party carrier directly infringes the asserted claims. With regard to intent, Broadcom must show that Qualcomm’s acts were directed at inducing carriers or subscribers to infringe the asserted claims. Thus, Broadcom will not be able to prove the requisite intent if it merely shows that Qualcomm induced carriers to operate a network under a standard that doesn’t require each and every limitation of the asserted claims to be practiced.

²⁵¹ RRB 48.

²⁵² *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 385 F.3d 1360, 1377 (Fed. Cir. 2004) (“*Insituform*”).

²⁵³ *Fuji Photo Film Co., Ltd. v. Jazz Photo Corp.*, 394 F.3d 1368, 1377 (Fed.Cir. 2005) (“*Fuji Photo Film*”) (citing *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1469 (Fed. Cir.1990) (“*HP*”) (“[P]roof of actual intent to cause the acts which constitute the infringement is a necessary prerequisite to finding active inducement.”), and citing *Manville*, 917 F.2d at 553 (“The plaintiff has the burden of showing that the alleged infringer’s actions induced infringing acts and that he knew or should have known his actions would induce actual infringements.”)).

²⁵⁴ *See Water Techs. v. Calco, Ltd.*, 850 F.2d 660, 668 (Fed. Cir.1988) (“*Water Techs*”) (noting that “circumstantial evidence may suffice” in proving intent).

(1) **Certain Third-Party EV-DO Networks Directly Infringe**

(a) **Claim 1 (disputed claims)**

The undersigned finds that Broadcom's proffered evidence is insufficient to prove, by a preponderance of the evidence, that compliance with the EV-DO standard alone necessarily results in direct infringement of the two asserted independent claims. The undersigned does find, however, that Broadcom has met its burden in proving that certain EV-DO networks, as actually operated by certain third party carriers, directly infringe independent claim 1.

Discussed below are the three claim limitations disputed among the parties in relation to infringement.

- i) **“a first terminal node having a wireless receiver operable in a normal state; a second terminal node having a wireless receiver operable in a power saving state”**

Broadcom argues that handsets containing the accused chipsets operate its wireless receiver in a powered on “normal” state when: (1) monitoring control channels in the “idle state” or (2) in the “connected state” (*i.e.*, while receiving or transmitting data on traffic channels).²⁵⁵ Broadcom further argues that handsets containing the accused chipsets operate its wireless receiver in a powered down “power saving” state when in a “sleep state” of the “idle state” (*i.e.*, not monitoring control channels).²⁵⁶ In support of its contention, Broadcom proffers, in part, the following excerpts from Matthew Grob's testimony on cross-examination:

[

]

²⁵⁵ CIB 94-95.

²⁵⁶ *Id.*

[

] ²⁵⁷

Staff alleges that, under the EV-DO standard, networks have at least one telephone handset with a wireless receiver in a fully powered “normal” state and another telephone handset with a wireless receiver in a powered-down “power-saving” state.²⁵⁸ In support of its contention, Staff proffers, in part, the following testimony:

[

] ²⁵⁹

²⁵⁷ Grob, Tr. 982-85.

²⁵⁸ SIB 87.

²⁵⁹ JX-124C (Wood Dep) at 43.

2) Deposition of Brian Finnerty of Sprint Nextel:

[

]²⁶⁰

Qualcomm argues that the “connected state” and “idle state” under the EV-DO standard differ from their proposed construction of the claim terms “normal” and “power saving” states, respectively, because Qualcomm’s construction requires the wireless receiver of the terminal node to be capable of receiving messages while in both the “normal” and “power saving” states, whereas the EV-DO standard does not allow a terminal node to receive messages while in the “idle state.”²⁶¹ Further, Qualcomm argues that because the EV-DO standard does not specify whether a particular terminal node is immutably operating either the “normal” or “power saving” state, as required under Qualcomm’s proposed construction, the EV-DO standard does not meet the limitations of “normal or “power saving.”

Additionally, Qualcomm argues that the EV-DO standard does not meet the limitation of “a second terminal node having a wireless receiver operable in a power saving state” recited in claim 1 or “a second terminal node operating in a second state in which attempts are made to minimize power consumption by the wireless receiver” recited in independent claim 16.²⁶² Qualcomm argues that the EV-DO standard optionally allows, but does not require, a handset in the idle state to power down its receiver.

First, the undersigned finds that the EV-DO standard requires networks to have, at some

²⁶⁰ JX-122C (Finnerty Dep) at 155.

²⁶¹ RIB 76.

²⁶² RRB 47.

point in time, at least one terminal node in a powered-up “normal” state in which a handset in a connected state actively sends or receives voice or data files to the network, which is supported by the deposition designations from David Wood at Alltel Corp. and Brian Finnerty at Sprint Nextel.²⁶³

Secondly, the undersigned finds that certain manufacturers of EV-DO compliant handsets, notably Samsung, LG and Motorola, utilize battery saving protocols in addition to the EV-DO standard which meet the limitation of “a second terminal node having a wireless receiver operable in a power saving state.”²⁶⁴ The undersigned finds Matthew Grob’s testimony persuasive in establishing that, while not required by the EV-DO standard to do so, at least some third party networks follow a protocol in which handsets power down its receiver while the handset is in the sleep state:

[

] ²⁶⁵

The undersigned finds, however, that compliance with the EV-DO standard alone does not necessarily result in a network that meets the limitation of “a second terminal node having a wireless receiver operable in a power saving state” since Broadcom has failed to show that the EV-DO standard requires use of a battery saving protocol.

²⁶³ See JX-124C (Wood Dep) at 43; JX-122C (Finnerty Dep) at 155.

²⁶⁴ See Grob, Tr. 983.

²⁶⁵ Grob, Tr. 981 (emphasis added).

The undersigned rejects Qualcomm's proposed construction that a wireless receiver must be able to receive messages while in the "power saving" state. According to the claim construction set forth by the undersigned, a terminal node in a "power saving" state is only required to be capable of receiving beacons. Therefore, the fact that the EV-DO standard does not allow a terminal to receive messages while in the idle state but does allow a terminal to receive "pages", which is exemplary of beacons, is consistent with the undersigned's construction of "second terminal node having a wireless receiver operable in a power saving state."

With respect to Qualcomm's argument that the EV-DO standard does not specify the existence of two separate terminal nodes operating in either the "normal" or "power saving" state, the undersigned has already determined that the immutable existence of two separate states is not required under the undersigned's construction of "normal" and "power saving" states. Moreover, the depositions of [] and Brian Finnerty from Sprint Nextel illustrate that, irrespective of whether the EV-DO standard specifies such an existence, these networks have at any given time at least one terminal node in a "connected state" and at least another terminal node in an "idle state."

- ii) **"access point that attempts to immediately deliver messages destined for the first terminal node"**

Broadcom contends that the EV-DO standard meets this claim limitation because the EV-DO standard requires the access point to immediately deliver a message addressed to a handset that is in the connected state, which corresponds to a terminal node in a powered-up "normal" state. Broadcom further argues that even when the first step of delivery involves placing the message into a prioritized routing schedule, the attempt to immediately deliver starts when the message is placed

into the routing schedule. As support, Broadcom cites to Mr. Grob and Dr. Nettleton's testimony.²⁶⁶

Staff also cites Dr. Nettleton's testimony in support of its contention that the EV-DO standard requires the access point to immediately deliver messages to a terminal node that is in a connected state, *i.e.*, when traffic channels are opened to facilitate transmission between the handset and the access point.²⁶⁷ Thus, Staff argues that the limitation of "access point that attempts to immediately deliver messages destined for the first terminal node" is met by the EV-DO standard.

Qualcomm argues that the EV-DO standard does not meet the limitation of "an access point that attempts to immediately deliver messages destined for the terminal node" recited in claim 1 because the EV-DO standard does not require a message to be "immediately delivered." Instead, Qualcomm argues that network carriers set their own prioritized routing schedule, deciding on their own whether transmission of certain messages to certain handsets will be intentionally delayed.²⁶⁸ Additionally, Qualcomm argues that Broadcom has failed to bring forth evidence proving that any particular EV-DO network operating under its routing schedule meets the "immediately delivered" limitation.

The undersigned finds that because the requirements of the EV-DO standard meet the limitation of "attempts to immediately deliver messages destined for the first terminal node," third party networks that are compliant with the EV-DO standard necessarily meet that limitation as well. According to the undersigned's construction, "attempts to immediately deliver messages" does not include acts by the network to intentionally delay transmission of a message. As summarized in Dr. Nettleton's testimony, the EV-DO standard requires the base station to try to immediately deliver

²⁶⁶ See Grob, Tr. 995-96; Nettleton, Tr. 2556-57; CX-1664C (Nettleton Direct) at 91-94.

²⁶⁷ SIB 88 citing CX-1664C (Nettleton Direct) at 91-92.

²⁶⁸ RRB 46.

messages to an access terminal that is in the powered-up connected state:

That in the 1xEV-DO networks in which the MSM6500 chipset is especially adapted to operate, access points will attempt to immediately deliver messages destined for an MSM6500 enabled mobile phone when its wireless receiver is operating in the normal state. Subscribers to 1xEV-DO networks who use the MSM6500 chipset in their mobile phone, and thereby take beneficial advantage of the 1xEV-DO network access points, directly infringe this claim element.

[. . .]

As noted above, an access point is a network element that transmits and receives RF signals. Terminal nodes are a final node or element in a communication network. In contrast to a terminal node, an access point is not, therefore, a final node in a communication network. As discussed in the claim construction section, an access point that attempts to deliver messages immediately means that the access point attempts to deliver messages for the first terminal at the first opportunity consistent with the protocols utilized by the communication network.

Base stations operating on 1xEV-DO networks meet this limitation with respect to MSM6500 enabled mobile phones. This is demonstrated in the TIA-856 standard's discussion of the Default Connected State Protocol, which appears at pages BCMITC000300397-000300405 of Exhibit CX-1671. As these passages require, if a 1x-EV-DO base station transmits a first message to an MSM6500 enabled phone, the base station and the phone transition to the Default Connected State Protocol. In the Default Connected State, a traffic channel is opened between the mobile phone and the base station. This traffic channel will remain open for a period of time after completion of the transmission. If a second message is transmitted prior to the traffic channel being closed, the transmission will occur "right away," without any handshaking between the access point and the terminal node. During the course of the transmission of the first and second messages, the wireless receiver will remain powered to receive the transmissions, and will not revert to the Default Idle State Protocol. (CX-1671 at BCMITC000300000-301087).²⁶⁹

The undersigned rejects Qualcomm's argument that the EV-DO standard does not meet the "immediately deliver" limitation because a network carrier, not the EV-DO standard, determines whether delivery of a message is intentionally delayed according to a prioritized routing schedule. The claim limitation only requires *attempts* be made to immediately deliver the message, and not that

²⁶⁹ CX-1664C (Nettleton Direct) at 91-92.

the messages actually be delivered immediately. Therefore, even though Broadcom failed to show that a particular EV-DO network which utilizes its particular priority routing schedule meets the “immediately delivered” limitation, the portions of Dr. Nettleton’s testimony cited by Broadcom are sufficient to show that the EV-DO standard alone meets the “immediately delivered” limitation.²⁷⁰ Thus, the undersigned finds that networks compliant with the EV-DO standard will meet the “immediately delivered” limitation because the requirements of the EV-DO standard itself meet that limitation.

iii) “beacons that identify that a message awaits delivery”

Broadcom and Staff argue that the limitation “beacons that identify that a message awaits delivery” is met by the EV-DO standard, which requires the access point to send pages to a sleeping access terminal in order to notify that a message awaits delivery.²⁷¹ Specifically, Broadcom argues that the paging messages sent to an access terminal in a sleeping state falls within the meaning of “beacons.” Broadcom and Staff proffer the testimony of Mr. Grob, Dr. Nettleton, Dr. Proakis, and Mr. Lee in support of its assertion that networks compliant with the EV-DO standard meet the “beacons” limitations.²⁷² Broadcom further argues that even if the paging message are not literally covered by “beacons,” the limitation would be covered under the doctrine of equivalents.

Qualcomm argues that the pages used in the EV-DO standard do not meet the “beacons” limitation because the pages do not fall under its proposed construction of “beacons”, which is a signal that identifies an available network to a terminal and also identifies that a message awaits

²⁷⁰ CX-1664C (Nettleton Direct) at 91-92.

²⁷¹ CIB 97-99; SIB 88-89.

²⁷² Grob. Tr. 986-89; CX-1664C (Nettleton Direct) at 95; RX-838C (Proakis Direct) at 17-18; JX-32C (W. Lee Dep) at 83.

delivery.²⁷³

In light of the undersigned's construction that the term "beacons" refers to any generic signal without any additional limitations, the undersigned finds that the paging messages required by the EV-DO standard that notify a sleeping access terminal that a message awaits delivery meet the "beacons" limitation. Thus, the undersigned finds that any network compliant with the EV-DO standard necessarily meets the "beacons" limitation. Broadcom's argument that paging messages are equivalent to "beacons" is moot in light of the undersigned's finding that this term is literally infringed.

Discussed below are the remaining claim elements which Broadcom and Staff assert as being met by the EV-DO standard, and these assertions are uncontested by Qualcomm.

(b) Claim 1 (undisputed claim) "the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point; and the second terminal node determines from the received beacons that it has a message awaiting delivery and directs further operation of its wireless receiver to receive the message"

As summarized above from Mr. Grob's testimony, the EV-DO standard requires an access point to transmit pages to an access terminal that is in the idle state in order to notify the terminal that a message awaits delivery. Under the EV-DO standard, the access terminal monitors the control channel at certain predetermined time slots to receive incoming pages from the access point. For example, Sprint Nextel set its EV-DO network according [

] ²⁷⁴ Thus, the EV-DO standard meets the

²⁷³ RIB 77.

²⁷⁴ JX-122C (Finnerty Dep) at 111-13.

limitation of “the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point” as construed by the undersigned. Accordingly, networks compliant with the EV-DO standard also meet the “the second terminal node synchronizes operation of its wireless receiver to receive the beacons from the access point” limitation.

Also summarized above from Mr. Grob’s testimony, is that the EV-DO standard requires the access terminal to transition from the idle state to the connected state after receiving a page in order to receive a voice or data transmission through a traffic channel. Thus, the EV-DO standard meets the limitation of “directs further operation of its wireless receiver to receive the message” as construed by the undersigned. Accordingly, networks compliant with the EV-DO standard also meet the “directs further operation of its wireless receiver to receive the message” limitation.

In sum, the undersigned finds that the EV-DO standard alone does not meet all of the limitations of claim 1 because the EV-DO standard does not require “a second terminal node having a wireless receiver operable in a power saving state.” Broadcom has presented evidence sufficient to show, however, that certain handset manufacturers, notably Samsung and LG, utilize a battery saving protocol in addition to the EV-DO standard, and when employed together the resulting network directly infringes the asserted claims. Therefore, the undersigned finds that certain EV-DO networks, as actually operated by particular third-party carriers, do directly infringe the asserted claims.

(2) Broadcom failed to show that Qualcomm had the requisite intent to induce infringement by others

In addition to proving direct infringement, Broadcom must show that Qualcomm intended to induce third party carriers or its subscribers to infringe the asserted claims in order to prevail on

a theory of induced infringement. Broadcom must bring forth evidence showing that Qualcomm did more than induce others to practice the EV-DO standard because compliance with the requirements of the EV-DO standard alone does not necessarily result in infringement of the asserted claims. After reviewing the evidence proffered by Broadcom and Staff, the undersigned finds that Broadcom has not sufficiently met its burden in proving that Qualcomm had the requisite intent to induce others to infringe.

Broadcom alleges that Qualcomm induced subscribers of EV-DO networks to infringe through the following acts, including creation and promotion of the 1x EV-DO standard, promotion of the 1x EV-DO standard to network carriers, promotion of services supported by the 1x EV-DO standard to network subscribers, marketing and sale of the accused chipsets to mobile phone manufacturers, promotion and sale of 1x EV-DO compatible chipsets to base station manufacturers; and, development of design partnerships with 1x EV-DO network carriers, handset manufacturers, and base station manufactures that involve system design to ongoing support technical field support.²⁷⁵

Staff alleges that Qualcomm induced infringement of the asserted claims through the following acts including: urging and supporting development and adoption of networks that use the 1x EV-DO standard, partnering with handset manufacturers and network providers to ensure that the function of certain features on the accused chipsets result in direct infringement of the asserted claims, establishing partnerships with vendors during the design process of a new phone to ensure that the accused chipsets are correctly designed into products, collaborating with network providers to choose functions and features for mobile phone handsets, and providing support services to

²⁷⁵ CIB 108-09.

vendors and network providers.²⁷⁶

After reviewing those portions of the record evidence proffered by Broadcom and Staff, the undersigned finds that there is insufficient proof to show that Qualcomm intended to induce infringement of the particular asserted claims. The undersigned finds that the above acts by Qualcomm's were directed towards complying with the EV-DO standard.²⁷⁷ As discussed above, the undersigned found that compliance with the EV-DO standard itself does not necessarily result in infringement of the asserted claims. Broadcom's and Staff's proffered evidence, particularly those pertaining to Qualcomm's design partnerships with third party carriers and handset manufacturers, do not prove by a preponderance that Qualcomm's acts were directed to anything more than assisting and ensuring that the networks and handsets comply with the requirements of the EV-DO standard.²⁷⁸ Because the undersigned finds that Broadcom has failed to bring forth evidence demonstrating that Qualcomm exhibited the requisite intent, the undersigned accordingly finds that Broadcom has not established its *prima facie* case of induced infringement.

c. Contributory Infringement

Broadcom alleges, through one cursory sentence, that Qualcomm contributed to infringement of the asserted claims by others.²⁷⁹

Qualcomm and Staff contend that Broadcom failed to set forth any substantive arguments

²⁷⁶ SIB 89-91.

²⁷⁷ See Grob, Tr. 996-99, 1003-04, 1011, 1021-22; JX-122C (Finnerty Dep) at 79-80, 84-87; RX-838C (Proakis Direct) at 16.

²⁷⁸ See Grob, Tr. 1002-04; JX-122C (Finnerty Dep) at 80, 82-85; CX-1675C (Press Release) at BMITC314212; RX-838C (Proakis Direct) at 16.

²⁷⁹ CIB 108-09, particularly at 108 ("Qualcomm also has induced and contributed to infringement of the '311 patent by others, including EV-DO network subscribers.")

advocating contributory infringement.²⁸⁰ In particular, Qualcomm argues that Broadcom has failed to show that the accused chips have no substantial non-infringing uses, as is required under *Alloc v. I.T.C.*²⁸¹

A seller of a component of an infringing product can be held liable for contributory infringement under 35 U.S.C. §271(c) if: (1) there is an act of direct infringement by another person; (2) the accused contributory infringer knows its component is included in a combination that is patented and infringing; **and** (3) there are no substantial non-infringing uses for the accused component part.²⁸²

Although Broadcom has presented arguments to establish that certain carriers or subscribers make, use, or sell a network that directly infringes the asserted claims (such as LG and Samsung, as discussed above in the induced infringement section), Broadcom has not presented arguments or proffered any evidence to establish that Qualcomm knew or should have known that the accused chipsets are incorporated into handsets that are used on a network that infringes the asserted claims or that there are no substantial non-infringing uses for the accused chipsets. Accordingly, the undersigned accordingly finds that Broadcom has not established its *prima facie* case of contributory infringement.

C. Domestic Industry

1. Economic Prong

The undersigned has previously granted Broadcom's motion for partial summary

²⁸⁰ SRB 40; RRB 50.

²⁸¹ *Alloc, Inc. v. U.S. Int'l Trade Comm'n*, 342 F.3d 1361, 1374 (Fed. Cir. 2003) ("*Alloc*").

²⁸² *Id.*

determination that economic prong was satisfied for all of the asserted patents.²⁸³

2. Technical Prong

Broadcom and Staff agree that Broadcom practices claim 1 of the '311 patent. Broadcom further asserts that it also practices claims 2-4, 7, 13, and 14 of the '311 patent. Qualcomm and Staff do not dispute Broadcom's assertions advocating satisfaction of technical prong.

The undersigned finds that Broadcom's network testing of its wireless LAN products to ensure conformity to the IEEE 802.11 standards meets the limitations of claim 1.²⁸⁴ As supported by the direct testimony of Mr. Hayes and summarized by Staff, Broadcom's testing of an IEEE 802.11 communication network employs [] In this test network, some of the LAN products contain Broadcom BM4317 chips that have []

²⁸³ See Order No. 19 (January 24, 2006).

²⁸⁴ CX-1338C (Hayes Direct) at 5-6.

[

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D. Validity

1. Ordinary Skill in the Art

Broadcom asserts that a person of ordinary skill in the art with regard to the '311 patent would have a Bachelor's degree in electrical engineering with a few years of experience in wireless telecommunications.²⁸⁵ Qualcomm asserts that a person of ordinary skill in the art with regard to the '311 patent would have: 1) a Bachelor's degree in electrical engineering with 5-7 years work experience directly related to the design, implementation and programming of radio communication devices in the telecommunications industry, 2) a Master's degree in electrical engineering with a specialty in communications and two years work experience directly related to radio communications in the telecommunications industry, or 3) a Ph.D. in electrical engineering with a specialty in telecommunications.²⁸⁶ The undersigned finds that Qualcomm has not provided any justification for proposing such a high level of skill in the art and the undersigned finds that a person of ordinary skill in the art has a Bachelor's degree in electrical engineering with a few years of experience in wireless telecommunications.

2. Anticipation

a. Mobitex Terminal Specification

Qualcomm asserts that the Mobitex Terminal Specification ("MTS", corresponding to RX-

²⁸⁵ CX-1664C (Nettleton Direct) at 7. Staff agrees. SIB 58.

²⁸⁶ See RX-838C (Proakis Direct) at 52; Proakis, Tr. 2199-2201.

336) and its addendum battery saving protocol (“MTS Addendum”, corresponding to RX-337; jointly referred herein as the “MTS documents”) anticipates all of the asserted claims under § 35 U.S.C. 102(a) and 102(b).

First, Broadcom and Staff contend that the MTS documents are not prior art because they were subject to confidentiality restrictions and therefore, do not qualify as “printed publications.”²⁸⁷ Secondly, Broadcom argues that even if the MTS documents do qualify as prior art, they fail to disclose a “*wireless receiver* operable in a normal state,” “*wireless receiver* operable in power saving state,” or “a terminal node synchronizes operation of its *wireless receiver*” limitations because the MTS documents do not explicitly or inherently disclose operations of a wireless receiver.²⁸⁸

Specifically, Broadcom argues that the MTS documents were subject to confidentiality restrictions based on the following disclosure in the MTS specification:

Numbered copies of this specification will be issued on request to the above. Revision material will be periodically issued and sent to each registered holder of the specification.

Transfer of a numbered specification within a company should be reported to Cantel at the above address so revision material will be sent to the proper person. **Copies made of this specification must be internally controlled** since revision material will only be sent to registered holders of the specification. **Copies may not be distributed outside the organization to which the specification was originally issued.**²⁸⁹

Broadcom further points to the following deposition designations of Erik Sundstrom from Mobitex:

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²⁸⁷ CIB 134-37, SIB 123.

²⁸⁸ CIB 137 (emphasis in original).

²⁸⁹ RX-336 (MTS specification) at QBB567802 (emphasis added).

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Qualcomm argues that the disclosure in the MTS specification demonstrates that the MTS documents would have been issued to anyone requesting it and therefore, it is not subject to any confidentiality restrictions. Further, Qualcomm cites to the testimony of Mr. Fraser, the author of the above text, in which he states that his intent in writing the above text was to try to maintain organization of addendums to the protocol.²⁹¹ As further corroboration that the MTS documents were available to anyone who requested it, Qualcomm cites the following deposition designations of Sten Sjoberg from Ericsson:

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Qualcomm further cites the following deposition designations of Roger Schultz from Velocita

²⁹⁰ JX-77C (Sundstrom Dep) at 50-51.

²⁹¹ Fraser, Tr. 1305.

²⁹² JX-76C (Sjoberg Dep) at 12-13.

²⁹³ JX-76C (Sjoberg Dep) at 48-49.

Wireless:

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Lastly, Qualcomm cites the following deposition designations of Erik Sundstrom from Mobitex:

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The undersigned finds that Qualcomm has not shown, by clear and convincing evidence, that the MTS documents were “publicly accessible.” Irrespective of his desire to organize addendums to the MTS, Mr. Fraser admitted he limited access of the MTS to certain people to prevent it from being “sent to anybody who requested them”:

Q. And you wrote that specifically; correct?

A. Yes. At the time, things were really quite disorganized. **The specifications were basically being sent to anybody who requested them.** So I was trying to force a protocol so that I could maintain a way of adding addendums to these specifications.²⁹⁶

²⁹⁴ JX-75C (Schultz Dep) at 41-42 (objections omitted).

²⁹⁵ JX-77C (Sundstrom Dep) at 22 (objection omitted).

²⁹⁶ Fraser, Tr. 1305 (emphasis added).

* * *

- Q. And this one, when you sent it out, you said, quote, “Copies may not be distributed outside the organization to which the specification was originally issued.” Correct?
- A. **That’s because I wanted to maintain some control over who had a copy,** so that I could update it in the future.²⁹⁷

The undersigned finds that Qualcomm’s citations to the depositions of Sten Sjoberg, Erik Sundstrom, and Roger Schultz do not sufficiently refute the testimony of Mr. Fraser, the person who controlled dissemination of the MTS documents and who wrote the restriction provisions on the MTS documents. First, the above cited designations from Sten Sjoberg’s deposition do not clearly establish exactly whether the referred “timeframe” refers to a time period that precedes the priority date of the ‘311 patent. Secondly, when asked whether confidentiality restrictions were placed on the MTS documents, both Erik Sundstrom and Roger Schultz did not say no but instead, said that they weren’t aware of any. Weighing all of the proffered evidence in sum, the undersigned finds that Qualcomm has failed to prove by clear and convincing evidence that the MTS documents were “publicly accessible,” therefore, it is not considered “prior art” and cannot anticipate the ‘311 patent.

b. GSM Technical Specification

Qualcomm asserts that the Global System for Mobile Communications (“GSM”) standard is prior art to the ‘311 patent. According to Qualcomm, the GSM standard is a single standard composed of many technical specifications that are worked out in subcommittees with special interest in each area. Qualcomm asserts that the specifications relevant to the ‘311 patent include: RX-476 (GSM 03.13), RX-477 (GSM 04.08), RX-654 (GSM 05.01), and RX-465 (GSM 05.02),

²⁹⁷ Fraser, Tr. 1305-06 (emphasis added).

which were all part of the “Phase 1” release that was published by October 1, 1990.²⁹⁸ Qualcomm argues that, “[t]he fact that the subparts of the GSM standard are not given consecutive page numbers or bound together does not mean that they are not part of a single published standard.”²⁹⁹

Broadcom asserts that the GSM specification does not anticipate the ‘311 patent because Dr. Proakis’ anticipation analysis relied on four versions of the GSM technical specifications, which were not publicly available before October 1991 and were not implemented in any network in the United States until the late 1990s, along with additional arguments as to the limitations in the claims.³⁰⁰

Staff asserts that Qualcomm has failed to show, by clear and convincing evidence, that the GSM technical specification anticipates the asserted claims of the ‘311 patent.³⁰¹ Staff also asserts that Qualcomm has failed to allege that the entire Phase 1 release of the GSM standard was available as prior art, or that Qualcomm has provided any legal authority or rationale for considering these four particular technical specifications together as one publication under § 102.³⁰²

The undersigned finds Qualcomm’s arguments to be unpersuasive. Qualcomm has not shown why these four technical specifications, RX-476, RX-477, RX-654, and RX-465 should be considered as one prior art reference, which is required for anticipation. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the GSM technical specifications anticipate the ‘311 patent.

²⁹⁸ RIB 138-39; RRB 70-71. *See* RX-838C (Proakis Direct) at 39; RX-828C (Pautet Direct) at 15-17, 22-26.

²⁹⁹ RRB 71.

³⁰⁰ CIB 142-43.

³⁰¹ SIB 124.

³⁰² SRB 58.

c. The COGNITO System

Qualcomm does not argue in its post-trial brief that the '311 patent is anticipated by the COGNITO system. That issue is, therefore, waived.³⁰³

d. CDMA Draft Revision 0

(1) Anticipation under 35 U.S.C. §§ 102(a) and (b)

Qualcomm does not argue in its post-trial brief that the '311 patent is anticipated under 36 U.S.C. §§ 102(a) or (b) by the CDMA Draft Revision 0. That issue is, therefore, waived.³⁰⁴

(2) Anticipation under 35 U.S.C. §102(g)

Qualcomm asserts that the '311 patent is anticipated under § 102(g) based on its diligent reduction to practice of CDMA mobiles with "slotted mode" functionality prior to Broadcom's October 1, 1991 priority date for the '311 patent. Qualcomm asserts that the formal embodiment of Qualcomm's CDMA protocol was in the Rev. 0 CDMA CAI document, which was completed before July 31, 1990, which is more than one year before the October 1, 1991 priority date of Broadcom's '311 patent.³⁰⁵

Both Broadcom and Staff disagree that the '311 patent is anticipated under § 102(g).³⁰⁶ Broadcom asserts that Qualcomm's arguments should be rejected because RX-491C, the July 31, 1990 CDMA draft revision, fails to disclose multiple limitations in the '311 patent; Qualcomm's

³⁰³ See Ground Rule 11.1.

³⁰⁴ See Ground Rule 11.1.

³⁰⁵ RIB 144. See RX-830 (Tiedemann Direct) at 5-8, Q.48, 57, 67, 81; Hutchinson, Tr. 1223-24, 1231-34; RX-831C (Hutchinson Direct) at 1, 4, 6-17; RX-832C (Hughes Direct) at 4-5; RX-492C (CDMA Draft Revision 1), RX-493C (CDMA Draft Revision 1.1), RX-494C (CDMA Draft Revision 1.11), RX-495C (CDMA Draft Revision 1.12), RX-496 (CDMA Draft Revision 1.13), RX-497 (CDMA Draft Revision 1.14).

³⁰⁶ CIB 148-49; CRB 67-69; SRB 59-60.

“slotted sleep” idea was not a “complete and operative” invention by October 1991; and, there is no evidence of diligent reduction to practice during the critical period from October 1, 1991 to November 16, 2003.³⁰⁷ Staff asserts that Qualcomm failed to name Mr. Tiedemann, along with other unidentified Qualcomm engineers, as the alleged prior inventors of the subject matter of the ‘311 patent until the post-hearing brief; thereby waiving this issue pursuant to Ground Rule 8.2.³⁰⁸

Section 102(g) provides that a person is not entitled to a patent if the invention was previously made in this country “by another inventor” who had not abandoned suppressed or concealed it,” where an “inventor” must be a natural person.³⁰⁹ The undersigned finds Qualcomm’s arguments to be unpersuasive. First, Qualcomm failed to identify an actual inventor of “sleep mode” until its post-hearing brief.³¹⁰ Section 102(g) requires a named inventor and Qualcomm failed to explicitly name Mr. Tiedemann as the “inventor” in its pre-trial brief. Therefore the issue is waived pursuant to Ground Rule 8.2 and Qualcomm cannot prevail on § 102(g). Although Qualcomm asserts that it named Mr. Tiedemann as the inventor in its pre-trial brief, a reading of the pre-trial brief reveals that no such explicit assertion was made. Pages 94-95 of Qualcomm’s pre-trial brief makes reference to Mr. Tiedemann and Mr. Hughes as Qualcomm employees that will present testimony describing *Qualcomm’s* development of slotted sleep, but no direct assertion that they are the engineers Qualcomm alleges invented slotted sleep. Second, even if the undersigned did not consider this argument to be waived, the undersigned finds that Qualcomm has not proven that the

³⁰⁷ CIB 148-49. *See* RX-831C (Hutchinson Direct) at 6, 11; RX-501C (email) at QBB231147.

³⁰⁸ SRB 59-60.

³⁰⁹ 35 U.S.C. § 102(g); *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248, n. 23 (Fed. Cir. 1993) (“*Beech Aircraft*”).

³¹⁰ *See* RIB 144 (“Dr. Tiedemann worked full-time leading the CDMA CAI specification development team of approximately 10 Qualcomm engineers.”).

“slotted sleep” concept was “complete and operative” before October 1991, the effective filing date of the ‘311 patent.³¹¹

Accordingly, the undersigned finds that Qualcomm has failed to show, by clear and convincing evidence, that the ‘311 patent is anticipated under 35 U.S.C. § 102(g) by the CDMA Draft Revision.

3. Lack of Written Description

Qualcomm alleges that claims 7 and 8 are invalid for lack of written description. Specifically, Qualcomm argues that the ‘311 specification does not teach a second terminal node using a wireless transmitter to request a message that awaits delivery, as is required in claims 7 and 8. Although Qualcomm does not refute Broadcom’s contention that support for claims 7 and 8 is found in the ‘311 prosecution history in Appendix C,³¹² Qualcomm argues that Broadcom’s cited disclosure in Appendix C is not sufficiently incorporated to constitute part of the ‘311 specification.

The undersigned finds that Qualcomm has not proven, by clear and convincing evidence, that claims 7 and 8 are not supported by the specification. Although the contents of Appendix C were not published as part of the patent *per se*, the specification explicitly refers to Appendix C.³¹³ Furthermore, the prosecution history shows that Appendix C was co-filed with the ‘311

³¹¹ See, *infra*, section (V)(D)(2)(b)(2) where the undersigned finds that, even as of August 30, 1993, Qualcomm failed to prove that the “slotted sleep” concept was “complete and operative.”

³¹² See JX-8 (‘311 prosecution history) at BCMITC71438 (“[a] node transmits an ATTACH.request packet ... to attach to the network”), BCMITC71445 (“[i]f no parent candidates exist an unattached node can wait and listen, or, optionally, can solicit short HELLO.response packets by transmitting a global HELLO.request packet”), and BCMITC71450 (“[a] link in the spanning tree is lost whenever ... a child node is unable to deliver a message to its parent bridge node.”)

³¹³ See JX-3 (the ‘311 patent) at col. 19:41-43 (“**Appendix C, D, E, F, and G provide system specifications for the SST Network Architecture, SST Network Frame Format, Bridging Layer, MAC Layer, and Physical Layer of one embodiment of the present invention.**”)

specification, and therefore, constitutes part of the original disclosure. Thus, the undersigned finds that Qualcomm's contention that the contents of Appendix C are not part of the patent disclosure are unsupported by record evidence. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the '311 patent is invalid under § 112 for lack of written description.

V. The '983 Patent

A. Claim Construction

1. Asserted Claims

The asserted claims read as follows (with the first instance of the agreed-upon terms highlighted in *italics* and disputed terms highlighted in **bold**):

1. One or more circuits adapted for use in a mobile computing device comprising:

a terminal adapted to receive battery power for at least one of the circuits;

communication circuitry comprising a reduced power mode and being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication to transmit data to access points, the communication circuitry reducing power by controlling the frequency of scanning for the access points; and

processing circuitry arranged to process data received from the communication circuitry.

* * *

4. The one or more circuits of claim 1 wherein the processing circuitry comprises an integrated circuit.

* * *

8. The one or more circuits of claim 1 wherein the processing circuitry is arranged to provide output to a display and is arranged to control the display.

9. The one or more circuits of claim 1 and further comprising a bus suitable for receiving data from a keyboard.

* * *

11. The one or more circuits of claim 1 wherein **processing circuitry enables switching from the reduced power mode to an increased power mode of the processing circuitry** when the communication circuitry is needed to transmit or receive data.

* * *

14. A method for use in a mobile computing device to communicate with access points comprising:

receiving battery power;

using the battery power to transmit data to the access points and receive data from the access points using a first wireless communication and a second wireless communication different from the first wireless communication;

reducing the received battery power by controlling the frequency of scanning for the access points; and

processing data received from the first wireless communication and the second wireless communication.

* * *

17. The method of claim 14 wherein the processing data comprises operating at a first frequency and at a second frequency different from the first frequency.
18. The method of claim 17 and further comprising displaying data resulting from the data processing.
19. The method of claim 18 and further comprising receiving data from a keyboard.
20. The method of claim 14 and further comprising displaying data resulting from the data processing.
21. The method of claim 14 and further comprising receiving data from a keyboard.
22. The method of claim 14 wherein the processing data comprises processing at a plurality of different frequencies.
23. The method of claim 14 and further comprising:

reducing the received battery power when the transmitting of data or the receiving of data is not needed; and

increasing the received battery power when the transmitting of data or the receiving data is needed.

24. The method of claim 23 wherein the reducing the received battery power comprises **reducing the frequency of the processing** and wherein the increasing the received battery power comprises **increasing the frequency of the processing**.

2. Prosecution History

The application leading to the '983 patent was application serial no. 08/513,658 ("the '658 application"), which was filed on August 11, 1995 as a continuation-in-part of a multiple of applications, which eventually issued as U.S. Patent No. 5,680,633 ("the '633 patent").³¹⁴ There is no dispute that the '983 patent claims priority from August 31, 1993. The '658 application had 24 claims. Claims 1-17 were directed to a "portable data collection terminal" and claims 18-24 were directed to a "communication module for use with a portable data terminal."³¹⁵ On July 29, 1997, the applicants added new claims 25-31 and all 31 claims were allowed on September 16, 1997.³¹⁶ On July 29, 2002, the applicants filed a petition to withdraw the application for purposes of citing additional prior art, including the '633 patent, along with an amendment adding new claims 32-49.³¹⁷ On December 19, 2002, the examiner rejected claims 1-49 based on § 103(a)³¹⁸ and on May 23, 2003, the applicants filed an amendment adding new claims 50-74, which were directed to "one or more circuits adapted for use in a mobile computing device."³¹⁹ In response, on August 5, 2003, the

³¹⁴ JX-10 (the '983 prosecution history).

³¹⁵ *Id.* at BCMIT0000071760-68.

³¹⁶ *Id.* at BCMIT0000071960-74.

³¹⁷ *Id.* at BCMIT0000072020-53.

³¹⁸ *Id.* at BCMIT0000072073-77.

³¹⁹ *Id.* at BCMIT0000072171-201.

examiner dropped the §103(a) rejection, but issued a restriction requirement stating that the “portable data collection terminal” claims were patentably distinct from the “one or more circuits” claims.³²⁰ On August 28, 2003, the applicants proceeded with the circuit claims, which were allowed on November 16, 2003, and issued on March 30, 2004 as claims 1-24 of the ‘983 patent.³²¹

3. Disputed Claim Terms

a. “a terminal adapted to receive battery power for at least one of the circuits” (claim 1)

Broadcom asserts that the claim term “a terminal adapted to receive battery power for at least one of the circuits” should be construed as “a lead or connector adapted to receive battery power for at least one of the circuits.”³²² Qualcomm asserts that the claim term should be construed as a wireless network, such as a mobile computing device.³²³ Staff agrees that both parties claim constructions are proper within their own contexts, but that a person of ordinary skill in the art would note that the claims are directed toward circuitry; therefore, Staff adopts Broadcom’s claim construction.³²⁴ In a nutshell, the parties disagree on whether “terminal” is referring to a subpart of a circuit or the entire mobile computing device itself.

Broadcom asserts that its claim construction should be adopted because of the way the claim term appears grammatically in the claim, and because the function of the terminal is to receive battery power. As to the grammar, Broadcom asserts that the terms “terminal,” “communication circuitry,” and “processing circuitry” appear after the word “comprising”; therefore, the terms are

³²⁰ *Id.* at BCMIT0000072203-06.

³²¹ *Id.* at BCMIT0000072207-10; JX-5 (the ‘983 patent).

³²² CIB 31.

³²³ RIB 25.

³²⁴ SIB 43-44.

necessary components of the claimed “one or more circuits for use in a mobile computing device” that are the subject of claim 1, as set forth in the preamble.³²⁵ As to the function of the terminal, Broadcom asserts that a terminal that receives battery power does not contain battery power itself and that the power must come from some source external to the terminal.³²⁶

In addition, Broadcom asserts that the specification and prosecution history support its claim interpretation.³²⁷ For example, Broadcom asserts that the specification clearly distinguishes between a “terminal” of a circuit and the “terminal node” of a network. According to Broadcom, when discussing “terminal” in the context of a circuit, the specification expressly refers to a lead or connector of that circuit,³²⁸ and when using “terminal” in the context of a mobile computing device, the specification refers to either the “terminal unit 10” or “portable data collection terminal.”³²⁹ In addition, Broadcom asserts that the term “terminal” is used in different contexts within the specification because the original application disclosed multiple inventions, discussed above (*e.g.* “portable data collection terminal” vs. “one or more circuits.”) According to Broadcom and Staff, while the inventors ultimately elected the “circuits for use in a mobile computing device” claims that ultimately issued as the ‘983 patent, the disclosure of multiple inventions explains why the specification uses the word “terminal” to refer to inventive circuits for use in a mobile computing device (the elected ‘983 patent claims) and as a portable data collection terminal (the claims that

³²⁵ CIB 31 citing *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1344-45 (Fed. Cir. 2003) (“*Hoechst*”) (“Comprising is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.” (citations omitted)).

³²⁶ CIB 32. *See* CX-1664C (Nettleton Direct) at 16.

³²⁷ CIB 32-36.

³²⁸ *See* JX-5 (the ‘983 patent) at Fig. 3, col. 6:25-27; 15:21-31, 52-63.

³²⁹ *Id.* at col. 17:59-64.

were deferred).³³⁰

Staff asserts that the term “terminal” in the context of electricity and circuits, refers to a “a point of connection, such as a screw, lug, or other point, for two or more conductors in an electrical circuit,” which is consistent with Broadcom’s claim construction and the specification’s use of “terminal” to refer to the input/output pins of the microprocessor in figure 3.³³¹

Qualcomm asserts that its claim construction should be adopted because the plain meaning and common use of the term “terminal” refers to a “wireless network,” such as a “mobile computing device.” Qualcomm also asserts that “terminal” is used in this context numerous times in the specification, including the title, background of the invention section, and summary of the invention sections.³³²

Qualcomm counters Broadcom’s arguments, asserting that the preamble of claim 1 is not a limitation on the claim.³³³ Qualcomm also counters Broadcom’s argument that terminal cannot refer to a wireless device because of the grammar. Qualcomm asserts that Broadcom’s construction assumes that the term “comprising” in the preamble modifies the word “circuits,” but that under Qualcomm’s claim construction, “comprising” is actually referring to the noun “mobile computer device.”³³⁴ Qualcomm also counters Broadcom’s argument that terminal cannot refer to a wireless

³³⁰ CIB 35; SIB 44-45.

³³¹ SIB 44 citing JX-5 (the ‘983 patent) at Fig. 3, col. 6:26-27 (“data bus terminals”); 15:20-21 (“signal terminals”), and 15:24-25 (“signal and data terminals”).

³³² RIB 24-26.

³³³ RIB 26-27 citing *Schumer v. Lab. Computer Sys., Inc.* 308 F.3d 1304, 1310 (Fed. Cir. 2002) (“*Schumer*”) (“It is well settled that “[i]f the body of the claim sets out the complete invention, and the preamble is not necessary to give ‘life, meaning and vitality’ to the claim, ‘then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation.’” (citations omitted)); RRB 10-12.

³³⁴ RRB 12.

device because of the function. Qualcomm asserts that the '983 specification distinguishes between the battery and the wireless terminal and that there is no reason to believe that the same distinction is not made in claim 1.³³⁵

Qualcomm also counters Broadcom's argument that terminal cannot refer to a wireless device because of the specification and prosecution history.³³⁶ According to Qualcomm, the applicants provided a chart in support of their claim construction that refers to figure 1A of the patent, which uses "terminal" to refer to the entire network node.³³⁷ In addition, Qualcomm counters Broadcom's arguments that the restriction requirement explains the different use of the word "terminal."³³⁸

Broadcom and Staff counter Qualcomm's arguments and assert that they are not proposing to treat the preamble as a claim limitation, but that the preamble provides a "reference point" for understanding the claim as a whole, which is consistent with Federal Circuit case law.³³⁹ Broadcom further counters Qualcomm's arguments, asserting that Qualcomm's construction of "terminal" would make the claim redundantly read "one or more circuits for use in a mobile computing device comprising: a mobile computing device."³⁴⁰ In addition, Broadcom counters that Qualcomm's construction ignores the context of the claim, specification and prosecution history.³⁴¹

While Staff agrees that Qualcomm's claim construction is consistent with the use of the word

³³⁵ RIB 27; RRB 12-13. *See* JX-5 (the '983 patent) at col. 9:49-51 ("power pack module"); 12:63-65 ("battery end 24"); 14:21-31 ("power pack").

³³⁶ RRB 13-14.

³³⁷ RIB 26; RRB 13. *See* JX-10 (the '983 prosecution history) at BCMITC72187.

³³⁸ RRB 13-14.

³³⁹ CRB 9-10 citing *Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A.*, 944 F.2d 870, 879-80 (Fed. Cir. 1991) ("*Vaupel*"); SRB 11-12 citing *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) ("*ACTV*").

³⁴⁰ CIB 32.

³⁴¹ CRB 8-9.

“terminal” in the context of computer technology, Staff does not adopt Qualcomm’s claim construction because a person of ordinary skill in the art would recognize that the claim is directed toward circuitry.³⁴² Staff also agrees with Qualcomm that the specification repeatedly refers to a “portable data terminal” as a mobile computing device, but also notes that the specification refers to “terminal” as a lead or connector as well.³⁴³ Staff disputes that the chart referenced by Qualcomm, which refers to Figure 1A, supports Qualcomm’s position and asserts that the chart actually supports Broadcom’s and Staff’s position regarding the restriction requirement.³⁴⁴

The undersigned finds Broadcom’s and Staff’s arguments persuasive. The claim language itself reads as follows “[o]ne or more circuits adapted for use in a mobile computing device comprising a terminal adapted to receive battery power for at least one of the circuits . . .” The undersigned agrees that the preamble of claim 1 is not a limitation on the claim, but that it provides context for interpreting the claim. The use of the word “comprising” within the claim supports interpreting the claim term as a lead or connector of a circuit, rather than referring to the entire mobile computing device itself. Adopting Qualcomm’s claim construction would render the term “terminal” redundant because the claim would then read as “[o]ne or more circuits adapted for use in a mobile computing device comprising: a mobile computing device.”

In addition, the specification supports this claim interpretation. The specification makes a distinction between the “terminal” of a circuit, referred to as a lead or connector of the circuit, and the “terminal node” of a network, referred to as “terminal unit 10” or “portable data collection

³⁴² SIB 44.

³⁴³ SRB 9.

³⁴⁴ SRB 10-11.

terminal.”³⁴⁵ While there are different uses of the term “terminal” in the specification, the explanation proffered by Broadcom and Staff is persuasive in light of the prosecution history. Specifically, the prosecution history shows that the term “terminal” is used in different contexts within the specification because the original disclosure contained multiple inventions (*i.e.* “portable data collection terminal” vs. “one or more circuits”), which the examiner subjected to a restriction requirement, and the applicant chose to pursue the “circuits for use in a mobile computing device” claims.

Accordingly, the phrase “**a terminal adapted to receive battery power for at least one of the circuits**” in claim 1 is construed to mean: “**a lead or connector.**”

**b. “communication circuitry comprising a reduced power mode”
(claim 1)**

Broadcom asserts that the claim term “communication circuitry comprising a reduced power mode” should be construed as requiring the claimed circuits to have a power-saving ability in addition to controlling the frequency of scanning.³⁴⁶ Qualcomm asserts that the claim term should be construed as communication circuitry that can operate in a mode that uses less power by scanning less frequently for access points.³⁴⁷ Staff asserts that the claim term should be construed as requiring communication circuitry that can reduce power by controlling the frequency of scanning for access points and thereby operate in a reduced power mode.³⁴⁸ Broadcom asserts that the claim term requires the circuitry to have the ability to conserve power even when it is not performing scanning

³⁴⁵ Nettleton, Tr. 419; Proakis, Tr. 2003-04; CX-1664C (Nettleton Direct) at 17; RX-838C (Proakis Direct) at 54-56.

³⁴⁶ CIB 36; CRB 10.

³⁴⁷ RIB 27; RRB 14.

³⁴⁸ SIB 45-46; SRB 12.

for access points, while Qualcomm asserts that there is not a requirement for operating at a reduced speed other than when controlling the frequency of scanning for access points, with the Staff's position coming in somewhere between these two positions.³⁴⁹ In a nutshell, the parties dispute whether there are two separate reduced power modes: Broadcom asserts there are two different modes of reducing power, whereas Qualcomm and Staff assert that there are not.

Broadcom asserts that the claim language itself supports the finding that “reduced power mode” is separate from “controlling the frequency of scanning.” First, Broadcom asserts that the claim describes the two techniques for saving power separately. Specifically, Broadcom asserts that there is a reduced power “mode” that is distinct from reducing power by controlling the frequency of scanning because the reducing power is not described using the word “mode.”³⁵⁰ Second, Broadcom asserts that the language in claim 11 requires “switching from the reduced power mode . . . when the communication circuitry is needed to transmit or receive data” and that transmitting or receiving data can only take place after a network access point has been acquired. Therefore, according to Broadcom, because claim 1 must encompass claim 11, claim 1 must include a separate reduced power mode that is entered after scanning has been completed, whereas claim 11 shows that the reduced power mode is entered after the communication circuitry already has found an access point, *i.e.* when no scanning is being performed.³⁵¹ In addition, Broadcom asserts that the specification and prosecution history support its claim interpretation because it explicitly describes “sleep” mode.³⁵²

³⁴⁹ SIB 45.

³⁵⁰ CIB 36-37.

³⁵¹ CIB 37.

³⁵² CIB 37-38. *See* JX-5 (the ‘983 patent) at col. 18:16-64, figs. 2, 4; JX-10 (the ‘983 prosecution history) at BCMITC72187-88, 71738-39; CX-1664C (Nettleton Direct) at 24-25.

Qualcomm asserts that the claim language expressly ties “reduced power mode” to controlling the frequency of scanning for access points. According to Qualcomm, the patent does not refer to any reduced power mode other than one that results from reducing the frequency of scanning for access points and that Broadcom is attempting to improperly import a limitation into the claim.³⁵³ Qualcomm counters Broadcom’s arguments regarding claim 11 because, it is alleged, claim 11 refers to switching from a reduced power mode to an increased power mode in the processing circuitry, which has nothing to do with a reduced power mode in the communication circuitry in claim 1.³⁵⁴ As to column 18 in the specification, which discloses two separate power-saving modes, Qualcomm asserts that it is improper to import features of the disclosed embodiment into the claims and that the prosecution history makes clear that the this portion of the specification only refers to terminals that are “sleeping” or “dormant.”³⁵⁵

Staff asserts that the plain language of the claim supports its claim interpretation. According to Staff, adopting Broadcom’s claim interpretation would amount to rewriting the claim as follows: “communication circuitry comprising a reduced power mode . . . the communication circuitry **further** reducing power by controlling the frequency of scanning.”³⁵⁶ As to column 18 in the specification, which contrasts “normal state” with “power saving ‘slow’ clocking speed” in a “sub-active or dormant state,” Staff asserts that such limitations from the specification should not be incorporated into the claims unless absolutely necessary.³⁵⁷ In addition, Staff asserts that the

³⁵³ RIB 28; RRB 15.

³⁵⁴ RIB 28; RRB 15.

³⁵⁵ RIB 28-29; RRB 15 citing *Phillips*, 415 F.3d at 1323; see JX-10 (the ‘983 prosecution history) at BCMITC0072187-88.

³⁵⁶ SIB 46.

³⁵⁷ SIB 47; SRB 14 citing *Phillips*, 415 F.3d at 1323.

prosecution history supports its claim interpretation that mobile devices enter into the reduced power mode (*i.e.* sleep mode) between periods of scanning for access points or actively communicating with the host computer.³⁵⁸

Broadcom counters both Qualcomm and Staff's arguments. According to Broadcom, adopting either Qualcomm's or Staff's proposed claim construction would amount to improperly rewriting the claim as follows: "communication circuitry comprising a reduced power mode . . . the communication circuitry reducing *said* power by controlling the frequency of scanning."³⁵⁹

The undersigned does not find Broadcom's arguments to be persuasive. The relevant portion of claim 1 that is at issue is as follows:

communication circuitry comprising a ***reduced power mode*** and being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication to transmit data to access points, ***the communication circuitry reducing power by controlling the frequency of scanning for the access points.***³⁶⁰

A plain reading of the claim limitation shows that the latter reference in the claim to "reducing power" is referring back to the former "reduced power mode." There is nothing in the claim that requires two separate forms of reduced power. The fact that the word "mode" is not used in the latter part of the claim does not necessarily indicate that the applicant had something other than "reduced power mode" in mind. Because of the change in verb tense (from "reduced" to "reducing"), the use of the word "mode" was not necessary, which also explains why "said" was not used when referring to the "reducing power." The undersigned also disagrees with Broadcom that the language in claim

³⁵⁸ SRB 12-14; *see* JX-10 (the '983 prosecution history) at BCMITC0000072188, 71736, 71742.

³⁵⁹ CIB 36-37; CRB 10-11 (emphasis in original). *See Cardiac Pacemakers*, 296 F.3d at 1115 ("this court will not rewrite claims.")

³⁶⁰ JX-5 (the '983 patent) at col. 42:61-67 (emphasis added).

11 (*i.e.* switching from the reduced power mode to an increased power mode) requires a claim construction that encompasses two separate reduced power modes because the “reduced power mode” in claim 11 refers to processing circuitry, not communication circuitry. In addition, while the specification, at column 18, does disclose two separate power-saving modes, the case law is clear that limitations from the specification shall not be imported into the claims.³⁶¹ The undersigned also agrees that, based on the prosecution history, the applicant made clear that mobile devices enter into the reduced power mode (*i.e.* sleep mode) between periods of scanning for access points or actively communicating with the host computer.³⁶²

Now the question becomes whether to adopt Qualcomm’s or Staff’s claim construction. Based on a plain reading of the claim term, the undersigned finds Staff’s claim construction to more accurately describe the claim term. While Qualcomm’s claim construction appears to accurately describe how the reduced power mode is achieved, *i.e.* by scanning for access points less frequently, “less frequently” is not specifically claimed; therefore Staff’s claim construction more accurately describes the claim term. Accordingly, the phrase “**communication circuitry comprising a reduced power mode**” in claim 1 is construed to mean: “communication circuitry that can reduce power by controlling the frequency of scanning for access points and thereby operate in a reduced power mode.”

³⁶¹ *Dayco Products*, 258 F.3d at 1327; *Laitram*, 163 F.3d at 1347 (“a court may not import limitations from the written description into the claims.”)

³⁶² JX-10 (the ‘983 prosecution history) at BCMITC0072187-88.

- c. **“communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication to transmit data to access points” (claim 1)**

Broadcom asserts that the claim term “communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication to transmit data to access points” should be construed as “communication circuitry adapted to use at least two different wireless air interface protocols that transmit digital content.”³⁶³ Qualcomm asserts that the claim term should not be limited to different types of “air interfaces” and that data should not be limited to “digital” data.³⁶⁴ Staff asserts that the claim term should be construed as “communication circuitry suitable for transmitting analog or digital data (but not control signals) to access points using two different methods of communication.”³⁶⁵

(1) First and second wireless communications

According to Broadcom, the plain language of claim 1 requires that the claimed communication circuitry be capable of using two different wireless communications for transmitting data to access points. Broadcom asserts that the two different wireless communications must be air interface protocols. Broadcom cites to the specification and prosecution history in support.³⁶⁶

Qualcomm asserts that the term “wireless communication” should be construed broadly and that the applicants could have chosen a narrower claim term, such as “air interface” if a narrower claim was intended. According to Qualcomm, the term “different” as applied to wireless

³⁶³ CIB 38; CRB 11.

³⁶⁴ RIB 29-30; RRB 15-21.

³⁶⁵ SIB 48; SRB 15-18.

³⁶⁶ CIB 39-41. *See* JX-5 (the ‘983 patent) at col. 3:58-64, 4:7-17, 9:44-49, 10:24-43, 52-60, 11:7-13, 12:15-22, 26-30, 39:27-36; JX-10 (the ‘983 prosecution history) at BCMITC71753.

communications is extremely broad and is not limited to just one form of difference, such as an air interface.³⁶⁷ Qualcomm cites to the specification in support of the breadth of the term.³⁶⁸ Qualcomm asserts that the patent never uses the term “air interface” and that the prosecution history makes clear that the different wireless communications were not limited to different air interfaces.³⁶⁹ Qualcomm asserts that, adopting Broadcom’s claim construction would amount to rewriting the claim as follows: “communication circuitry...being adapted to use a first wireless communication [**using a first air interface**] and a second wireless communication [**using an interface**] different from [**that used in**] the first wireless communication to transmit data to access points.”³⁷⁰

Staff asserts that its claim construction is based on a plain reading of the claim term. According to Staff, at the time of the invention, “communication” in the telecommunications field was “any method or means of conveying information from one person or place to another, especially over wires or radio waves and excluding only correspondence through postal agencies, or direct and unassisted conversation.”³⁷¹ Staff cites to the specification in support, which refers to “wireless links” as different radio, infrared, or other technologies.³⁷²

Broadcom alleges that Qualcomm’s claim construction is unjustifiably broad.³⁷³ According to Broadcom, Qualcomm’s own expert conceded that Figure 47 of the ‘983 patent shows a single

³⁶⁷ RRB 15-16 citing *Sorensen v. Int’l Trade Comm’n*, 427 F.3d 1375, 1379 (Fed. Cir. 2005) (“*Sorensen*”) (“In other words, according to the claim language any difference in characteristics between the two injected materials would satisfy the claim language.”)

³⁶⁸ RIB 30, *see* JX-5 (the ‘983 patent) at col. 30:8-13, 35:11-20, 38-40, 39:25-36, 64-40:6, and figs. 11, 27, 47, 48.

³⁶⁹ RIB 31, RRB 17; *see* JX-10 (the ‘983 prosecution history) at BCMITC0072188, 71735-37, 71753-55; JX-5 (the ‘983 patent) at fig. 11.

³⁷⁰ RIB 32.

³⁷¹ SIB 48-49, *see* SX-2 at 477.

³⁷² SIB 49-50, *see* JX-5 (the ‘983 patent) at col. 4:52-56, 5:27-30, 39:66-40:6, 42:10-18.

³⁷³ CRB 11-12.

mobile computing device, such as a “dual-mode [cell] phone” using the inventive circuits to communication on two different “wireless links” – one that is “digital cellular” and the other that is “spread spectrum.”³⁷⁴ Qualcomm counters that Broadcom has cited to figure 47 out of context.³⁷⁵

Staff also opposes Qualcomm’s claim construction as being too broad because it would allow for two different frequency emissions from the same radio using the same technology on the same subnetwork to constitute the claimed two different wireless communications.³⁷⁶

Qualcomm counters Staff’s claim construction, asserting that limiting the different wireless communications to “two different methods of communication” is also too narrow.³⁷⁷

The parties do not appear to dispute that a “wireless communication” is described generally in the patent as any type of communication by signals transmitted through a medium that is not a wire.³⁷⁸ The dispute between the parties lies in defining how different these wireless communications need to be. The undersigned finds Broadcom’s claim construction to be too narrow because neither the patent or prosecution history uses the term “air interface,” so there is no support to limit the claim to such a narrow interpretation. On the other hand, the undersigned finds Qualcomm’s claim construction to be too broad because it would include any slight difference in wireless communications, without regard to the context of the claim. Therefore, the undersigned adopts Staff’s claim construction as most accurately describing the claim term. Staff’s claim construction is supported by the specification, which refers to “wireless links” as different radio,

³⁷⁴ CRB 12, citing Proakis, Tr. 2031-37.

³⁷⁵ RRB 17.

³⁷⁶ SIB 49; SRB 15.

³⁷⁷ RRB 20.

³⁷⁸ RIB 29; *see* JX-5 (the ‘983 patent) at col. 4:52-57, 5:26-30, 8:30-33; 40:13-26, 42:18-22; Nettleton, Tr. 439 (“My understanding of wireless communication is the use of electromagnetic energy to send information from one place to another.”)

infrared, or other technologies.³⁷⁹

Accordingly, the phrase “**communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication**” in claim 1 is not limited to “air interface protocols” and refers to two different methods of communication.

(2) Data

According to Broadcom, the term “data” in the claim term refers to digital data. Broadcom cites to the specification in support.³⁸⁰ In addition, Broadcom asserts that a person of ordinary skill in the art would understand that the many references to data refer to digital information.³⁸¹ Broadcom asserts that adopting Qualcomm’s construction would amount to writing the word “data” out of the claim term.³⁸²

Qualcomm asserts that “data” should be construed to mean “any communicative information,” such as “analog or digital data.”³⁸³ Qualcomm also asserts that “data” can include “control signals.”³⁸⁴ Qualcomm cites to various dictionary definitions in support.³⁸⁵ Qualcomm asserts that the specification does not suggest that the patent is limited to digital communications and

³⁷⁹ JX-5 (the ‘983 patent) at col. 4:52-56, 5:27-30, 39:66-40:6, 42:10-18.

³⁸⁰ CIB 42; *see* JX-5 (the ‘983 patent) at col. 19:66-20:1, 18:42-47, 15:4-5, 39:31-36, 11:34-35.

³⁸¹ CIB 42 citing Nettleton, Tr. 479 (“Data to me always means digital data”); CX-1664C (Nettleton Direct) at 28. It should be noted that Qualcomm’s expert, Dr. Proakis, was precluded from offering any opinion about the term “data” because it was not addressed in his expert report. *See* Bullock, Tr. 1862.

³⁸² CIB 41.

³⁸³ RIB 30, 32; RRB 21.

³⁸⁴ RIB 30, 32; *see* Nettleton, Tr. 2384-88, *cf.* CX-1664C (Nettleton Direct) at 28.

³⁸⁵ RIB 32-33. *See* RX-915 (IEEE Dictionary) at 225, RX-948 (Hargrave’s Communications Dictionary) at 135, and RX-917 (Wireless Dictionary) at 159.

that Broadcom is attempting to import a limitation from the preferred embodiment into the claims.³⁸⁶

Broadcom counters Qualcomm's claim construction based on dictionary definitions. According to Broadcom, the Federal Circuit warned that "heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification."³⁸⁷ In addition, Broadcom asserts that Figure 19 clearly distinguishes digital content from control signals.³⁸⁸

Staff asserts that data is not limited to digital data, but does not include control information or control signals.³⁸⁹ Staff agrees with Qualcomm that data should not be limited to digital content, but disagrees with Qualcomm's construction as being too broad and vague. Specifically, Staff disagrees that control signals constitute "data" because of the distinction made in the specification between "payload data" and "control signals."³⁹⁰ Staff also opposes Broadcom's claim construction as improperly reading a limitation into the claim by requiring "data" to be "digital."³⁹¹ Staff cites to Figure 1A in support, which refers to a microprocessor that has an analog to digital converter and an interface circuit linking the data communication transceiver to the rest of the data terminal as being an "analog or mixed analog and digital interface circuit."³⁹² According to Staff, if all "data" was digital, there would be no need for an analog to digital converter or interface circuit to include analog circuitry.³⁹³

³⁸⁶ RIB 32-33 citing *Phillips*, 415 F.3d at 1323. See JX-5 (the '983 patent) at col. 9:59-62, 10:15-18.

³⁸⁷ CRB 13 citing *Phillips*, 415 F.3d at 1321.

³⁸⁸ CRB 14.

³⁸⁹ SIB 50-51, SRB 16-18.

³⁹⁰ SIB 50-51; SRB 17, see JX-5 (the '983 patent) at 9:63-65.

³⁹¹ SIB 50; SRB 16.

³⁹² SRB 16, see JX-5 (the '983 patent) at 9:59-62, 10:15-18.

³⁹³ SRB 16-17.

The undersigned finds Broadcom's claim construction to be too narrow because neither the patent or prosecution history limits the term data to digital data, so there is no support to limit the claim to such a narrow interpretation.³⁹⁴ On the other hand, the undersigned finds Qualcomm's claim construction to be too broad because it includes control signals, which are distinguished from data in the specification.³⁹⁵ Therefore, the undersigned adopts Staff's claim construction as most accurately describing the claim term. Accordingly, the phrase **"to transmit data to access points"** in claim 1 includes analog or digital data, but does not include control signals.

(3) Conclusion

Accordingly, the phrase **"communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication to transmit data to access points"** is construed as: "communication circuitry suitable for transmitting analog or digital data (but not control signals) to access points using two different methods of communication."

d. **"the communication circuitry reducing power by controlling the frequency of scanning for access points" (claims 1 and 14)**

Broadcom asserts that the claim term "the communication circuitry reducing power by controlling the frequency of scanning for access points" should be defined to mean "the communication circuitry is adapted to vary how often it looks for an access point when attempting to open a communication channel with the network."³⁹⁶ Qualcomm asserts that "scanning for access points" should be construed as "examining signals received from access points to determine which

³⁹⁴ JX-5 (the '983 patent) at 9:59-62;10:15-18.

³⁹⁵ JX-5 (the '983 patent) at 9:63-65.

³⁹⁶ CIB 43; CRB 14-16.

access points are within radio coverage of the mobile computing device,” while “reducing power by controlling the frequency of scanning for access points” should be construed as “any control that limits how frequently the communication circuitry in the mobile computing device scans for access points.”³⁹⁷ Staff asserts that the claim term should be construed as “communication circuitry that is adapted to vary how often it looks for an access point for any reason whatsoever.”³⁹⁸ The main dispute between the parties is whether the claim should be limited to “examining signals received from an access point.”³⁹⁹ Broadcom and Staff assert that the claim is not so narrow, while Qualcomm asserts that it is.

Broadcom asserts that its claim construction is supported by dictionary definitions of “frequency,” the specification, and the prosecution history.⁴⁰⁰ Qualcomm asserts that “scanning for access points” is not disclosed in the ‘983 patent specification and that the plain meaning of the term is “examining received signals to determine which access points are within radio coverage of the mobile.”⁴⁰¹ While Staff agrees that “scanning for access points” is not disclosed in the ‘983 patent specification, Staff asserts that the ‘983 patent describes preferred embodiments that support its claim construction.⁴⁰² Staff also asserts that the applicant identified Figures 13 and 16 in support for

³⁹⁷ RIB 33; RRB 21-22.

³⁹⁸ SIB 51-52; SRB 18-20.

³⁹⁹ CRB 15.

⁴⁰⁰ CIB 43-45; *see* JX-5 (the ‘983 patent) at col. 29:55-32:9 and figs. 11-16; JX-10 (the ‘983 prosecution history) at BCMITC72188; Proakis, Tr. 2042-44, Nettleton, Tr. 2299-00, CX-1979C (Nettleton Rebuttal) at 5-7. In addition, Broadcom cites to CX-1362 (Webster’s Dictionary of the English Language) at page 379 but CX-1362 does not contain a copy of page 379.

⁴⁰¹ RIB 33-34, RRB 21; *see* Proakis, Tr. 1837; RX-838C (Proakis Direct) at 56-57.

⁴⁰² SIB 52-53; *see* JX-5 (the ‘983 patent) at col. 30:3-7, 10-13, 65-31:8, 40-46, 32:5-9, figs. 12-16; Nettleton, Tr. 2539-40; CX-1979C (Nettleton Rebuttal) at 5-7; CX-1339C (Koenck Direct) at 8-9.

the “controlling the frequency of scanning for access points” limitation in the prosecution history.⁴⁰³

Broadcom counters Qualcomm’s claim construction because it seeks to exclude out-of-range scanning or initial acquisition of an access point when signals cannot be received from access points, which would exclude the preferred embodiment from the claims.⁴⁰⁴ According to Broadcom, Qualcomm’s claim construction is incorrect because the ‘983 patent specification does disclose scanning for access points, and because a person of ordinary skill in the art would understand how to perform “scanning for access points” and “how to implement a retry counter to control the frequency of scanning for access points.”⁴⁰⁵ Staff also asserts that Qualcomm’s claim construction should be rejected because it is only based on extrinsic evidence, namely, the testimony of its expert.⁴⁰⁶

Qualcomm disagrees with Broadcom’s claim construction of “scanning for access points” because it includes “channel sensing.”⁴⁰⁷ According to Qualcomm, channel sensing takes place after a mobile unit has already scanned for access points and connected to a base station. Further, Qualcomm asserts that channel sensing is used to determine whether a channel for communication with an access point, such as a base station, is already occupied by another mobile unit.⁴⁰⁸ In other words, Qualcomm’s construction seeks to exclude out-of-range scanning or initial acquisition of an access point when signals cannot be received from access points.⁴⁰⁹ Qualcomm asserts that Broadcom is attempting to inject “channel sensing” into the claim construction in order to avoid a

⁴⁰³ SRB 18-19; *see* JX-10 (the ‘983 prosecution history) at BCMITC0000072188, 71738-40.

⁴⁰⁴ CRB 15-16, *see* JX-5 (the ‘983 patent) at 31:11-12, Proakis, Tr. 2042-43.

⁴⁰⁵ CRB 15, *see* Proakis, Tr. 2044-45.

⁴⁰⁶ SRB 20.

⁴⁰⁷ RIB 34; *see* Nettleton, Tr. 505-09.

⁴⁰⁸ RIB 74. *See* Proakis, Tr. 1839-41.

⁴⁰⁹ CRB 15 citing RIB 33.

section 112 problem.⁴¹⁰ Qualcomm asserts that Figs. 13 and 16, upon which Broadcom relies, do not disclose scanning for access points.⁴¹¹ Qualcomm also asserts that Fig. 11, which Broadcom relies upon, does not support Broadcom's argument because there is nothing in Figure 11 that suggests roaming between coverage areas means that the mobile terminal would be out of range of an access point.⁴¹² Qualcomm counters Broadcom's arguments regarding the prosecution history because it does not disclose any scanning other than channel sensing.⁴¹³

Staff asserts that Broadcom is being inconsistent and using a different construction for "scanning for access points" for purposes of claim construction and invalidity, which is improper. Specifically, for purposes of invalidity, Broadcom asserts that "scanning for access points" must occur during "system determination," which refers to the period when a mobile computing device is looking for, but has not yet acquired, access to the network.⁴¹⁴ Staff asserts that Broadcom's reliance on Figures 14 and 15 does not support Broadcom's position that "scanning for access points" should be limited to the "system determination" situation or the situation where a mobile computing device is out of range of all access points.⁴¹⁵

The parties agree that the dispute regarding this claim term is narrow. The parties agree that "controlling the frequency" means to vary how often the communication circuitry scans for access points, and that "scanning for access points" involves looking for access points.⁴¹⁶ The remaining dispute is whether the claim should be limited to "examining signals received from an access

⁴¹⁰ RIB 34.

⁴¹¹ RIB 34-35; *see* Koenck, Tr. 686-87; JX-71C (Meier Dep) at 50-51.

⁴¹² RRB 21.

⁴¹³ RRB 22.

⁴¹⁴ SRB 18; *cf.* CIB 43 with CIB 128, n. 47.

⁴¹⁵ SRB 19-20.

⁴¹⁶ CIB 43; RIB 14; SIB 51.

point.”⁴¹⁷ The undersigned finds Broadcom and Staff’s arguments to be persuasive. The undersigned finds Qualcomm’s claim construction to be too narrow because neither the patent or prosecution history limits the claim to examining signals received from an access point, so there is no support to limit the claim to such a narrow interpretation.

The undersigned rejects Qualcomm’s assertion that adopting Broadcom’s claim construction would be improper because it includes “channel sensing” because adopting such a claim construction is not contrary to the plain meaning of “scanning for access points” or to the inventor’s understanding of what the specification discloses. While Qualcomm asserts that Mr. Koenck and Mr. Meier testified that Figures 13 and 16 did not appear to disclose “scanning for access points,”⁴¹⁸ there is testimony from both experts, Dr. Nettleton and Dr. Proakis, that a person of ordinary skill in the art would have an understanding of how to perform “scanning for access points.”⁴¹⁹ In addition, Qualcomm’s arguments are not persuasive in light of its constantly changing claim construction, including being precluded from presenting yet another claim construction through Dr. Proakis’ second supplemental expert report, filed on February 9, 2006, the week before trial.⁴²⁰

⁴¹⁷ CRB 15.

⁴¹⁸ See Koenck, Tr. 686; JX-71C (Meier Dep) at 50-51.

⁴¹⁹ See CX-1979C (Nettleton Rebuttal) at 6-7; Nettleton, Tr. 2299-2300; Proakis, Tr. 2044-45. See also *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1463 (Fed. Cir. 1984) (“*Lindemann*”) (“The question is whether the disclosure is sufficient to enable those skilled in the art to practice the claimed invention, hence the specification need not disclose what is well known in the art.”)

⁴²⁰ See Tr. 136-48 (2/14/06), 1827-37. See also, Tr. 1938-39 (on cross-examination, a portion of Dr. Proakis’ deposition was read into testimony:

Q. . . . Question: “Do you believe that the specification generally discloses the scanning for access points in the sense of looking for base stations?” Answer: “That’s my general understanding, yes.” Have I read your testimony correctly?

A. Yes, but I think --

Q. Dr. Proakis, have I read your testimony correctly?

A. Yes.

The specification discloses a preferred embodiment where the “mobile computing devices remain in a sleep mode, where their radio is powered down, except when they are actually communicating with the host computer 510 or when they periodically awaken to synchronize with an access point” and another embodiment where “the MCD 518 is capable of roaming between access point coverage areas, and may disconnect the RF link with the access point 512 in favor of connection with a different access point 514.”⁴²¹ Adopting Qualcomm’s claim construction would improperly exclude the preferred embodiment, which is rarely, if ever, correct.⁴²²

Now the remaining question is whether to construe the claim as “communication circuitry is adapted to vary how often it looks for an access point when attempting to open a communication channel with the network,” which is Broadcom’s claim construction, or as “communication circuitry that is adapted to vary how often it looks for an access point for any reason whatsoever,” which is Staff’s claim construction. The undersigned finds Staff’s arguments to be persuasive. The undersigned finds Broadcom’s claim construction to be too narrow because neither the patent or prosecution history limits the claim to scanning for access points when attempting to open a communication channel with the network, so there is no support to limit the claim so narrowly.

Accordingly, the phrase “**the communication circuitry reducing power by controlling the frequency of scanning for access points**” in claims 1 and 14 is construed to mean: “communication circuitry that is adapted to vary how often it looks for an access point.”

JUDGE BULLOCK: I think he’s just asking you if this is a correct transcription of what you said in your deposition, just for now. Then he might have follow-up.

A. Yes, you’re reading it correctly, but you’re misinterpreting it.

⁴²¹ See JX-5 (the ‘983 patent) at col. 30:3-7, 10-13.

⁴²² *Globetrotter Software, Inc. v. Elan Computer Group, Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004) (“*Globetrotter*”).

e. **“processing circuitry enables switching from the reduced power mode to an increased power mode of the processing circuitry” (claim 11)**

Broadcom asserts that the claim term “processing circuitry enables switching from the reduced power mode to an increased power mode of the processing circuitry” should be construed as “processing circuitry that must be able to determine when to switch itself from a reduced power mode (where data is processed at a slower clock rate) to an increased power mode (where data is processed at a faster clock rate) based upon the need to transmit or receive data”.⁴²³ Qualcomm asserts that the claim term should be construed as “processing circuitry that is capable of switching from a reduced power mode to an increased power mode.”⁴²⁴ Staff agrees with Qualcomm, asserting that the claim only requires that the processing circuitry makes it possible to switch from a reduced power mode to an increased power mode.⁴²⁵ The dispute between the parties is whether the processing circuitry needs to have the capability to decide when switching between the two modes should occur.

Broadcom asserts that the plain language of claim 11 supports its claim construction that it is the processing circuitry that decides the operating mode.⁴²⁶ Broadcom asserts that the language of dependent claim 12 also supports this claim construction.⁴²⁷ Broadcom also cites to the specification in support.⁴²⁸ Qualcomm asserts that the plain language of claim 11, along with dictionary definitions of “enable” supports its claim construction.⁴²⁹

⁴²³ CIB 45-46; CRB 16-17.

⁴²⁴ RIB 35.

⁴²⁵ SIB 53.

⁴²⁶ CIB 46.

⁴²⁷ CIB 46.

⁴²⁸ CIB 46, *see* JX-5 (the ‘983 patent) at col. 17:32-41, 19:20-37; Nettleton, Tr. 2554-55.

⁴²⁹ RIB 35, *see* RX-914 (Merriam-Webster’s Collegiate Dictionary) at 380.

Broadcom counters Qualcomm's arguments, asserting that Qualcomm is reading the term "enables" out of the claim term and replacing it with "capable of," which amounts to impermissibly rewriting the claim term and is unsupported by the specification.⁴³⁰ Qualcomm counters Broadcom's claim construction that the claim term includes a limitation that the processing circuitry also have the capability to decide when switching between modes should occur.⁴³¹

The undersigned finds Broadcom's claim construction to be too narrow because neither the patent or prosecution history supports interpreting the claim to require that the processing circuitry have the capability to decide when switching between the two modes (reduced power mode vs. increased power mode) should occur. Accordingly, the undersigned finds Qualcomm's and Staff's arguments to be persuasive and most accurately reflecting the claim term's plain meaning.

Accordingly, the phrase "**processing circuitry enables switching from the reduced power mode to an increased power mode of the processing circuitry**" in claim 11 is construed to mean: "processing circuitry that is capable of switching from a reduced power mode to an increased power mode."

f. "reducing the frequency of the processing . . . increasing the frequency of the processing" (claim 24)

Broadcom asserts that the claim term "reducing the frequency of the processing . . . increasing the frequency of the processing" should be construed as requiring processing circuitry that can determine when to switch itself from a reduced power mode (where data is processed at a slower clock rate) to and increased power mode (where data is processed at a faster clock rate) based upon

⁴³⁰ CRB 16-17, *see* JX-5 (the '983 patent) at col. 17: 32-41, 19:20-37, 66-20:54, 21:31-33; CX-1664C (Nettleton Direct) at 29; Nettleton, Tr. 2554-56.

⁴³¹ RIB 35.

the need to transmit or receive data for the same reasons discussed above in connection with claim 11.⁴³² In other words, the “frequency of processing” refers to changing the processor’s clock rate.⁴³³ Qualcomm asserts that “frequency of processing” should be construed as “how frequently processing takes place.”⁴³⁴ Staff asserts that the claim term should be construed as “to decrease the energy drawn from the battery by decreasing how often the payload data received from the wireless communications circuitry is processed.”⁴³⁵

There does not appear to be much dispute from the parties regarding this claim term, as all parties agree that “frequency of processing” refers to a change in the processing rate. Accordingly, the term “**frequency of processing**” in the claim term “**reducing the frequency of the processing . . . increasing the frequency of the processing**” in claim 24 is construed to mean: “changing the processor’s clock rate.”

B. Infringement

Broadcom asserts that Qualcomm’s MSM6200, MSM6225, MSM6245, MSM6250, MSM6255, MSM6260, MSM6275, MSM6280, MSM6300, MSM6500, MSM6550, MSM6800, and MSM7500 chipsets, which are either sold and used in Qualcomm’s testing devices or its customers’ devices, infringe claims 1, 4, 8, 9, 11, 14, and 17-24 of the ‘983 patent, either directly or indirectly, including induced and contributory infringement, based on the claim construction adopted.⁴³⁶

Qualcomm asserts that, under its claim construction, all of the asserted claims of the ‘983 patent against Qualcomm are claims of indirect infringement; therefore Broadcom must satisfy the

⁴³² CIB 46-47; CRB 17-18; CX-1664C (Nettleton Direct) at 30.

⁴³³ CRB 17.

⁴³⁴ RIB 36.

⁴³⁵ SIB 55.

⁴³⁶ CIB 76-77.

additional legal tests for contributory infringement (including proof of direct infringement by a third party, proof that the accused devices are not staple articles of commerce suitable for substantial non-infringing uses) and induced infringement (including proof of knowledge of the patents and proof that Qualcomm intended to induced infringement by the infringing party).⁴³⁷

Qualcomm also asserts that, under the doctrine of judicial estoppel, Broadcom's disclaimer as to direct infringement by Verizon precludes Broadcom from taking any litigation position that is inconsistent with its disclaimer, including seeking any findings that identify Verizon as a violator or infringer, which includes seeking a finding of indirect infringement against Qualcomm based on any alleged act of direct infringement by Verizon. Qualcomm argues that Broadcom's representations preclude implicit findings that would implicate Verizon; therefore relevant evidence relating to infringement is significantly limited because facts relating to the country's largest ultimate consumer of Qualcomm's chips and handsets incorporating those chips—Verizon—must be excluded.⁴³⁸

Broadcom asserts that the doctrine of judicial estoppel is irrelevant because the doctrine is only applicable in preventing a party from taking a position that contradicts a position taken earlier in the litigation.⁴³⁹ According to Broadcom, it did not take any factual positions in connection with the motion to disqualify that are contradictory to the contentions it now makes on infringement. Furthermore, Broadcom asserts that Verizon's conduct is irrelevant to Qualcomm's infringement because Qualcomm directly and indirectly infringes both the '311 and '983 patent.⁴⁴⁰

⁴³⁷ RIB 47-49.

⁴³⁸ RIB 49-53.

⁴³⁹ CRB 27-30. *See SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1290 (Fed. Cir. 2005).

⁴⁴⁰ CIB 28-29.

The undersigned agrees that Broadcom has made a clear disclaimer as to Verizon's direct infringement. As already stated in Order No. 29, the undersigned found that:

Broadcom has specifically disclaimed the use of any facts pertaining to Verizon that have been proffered or admitted into evidence. Broadcom specifically states that "Broadcom will not use those facts (or any others) to seek in this proceeding a finding that Verizon has violated Section 337, a finding of direct infringement specifically by Verizon, or a cease and desist remedy against Verizon."⁴⁴¹

Therefore, in order for Broadcom to prove indirect infringement, Broadcom must prove direct infringement by someone other than Verizon. Based on the evidence presented by Broadcom on infringement, it appears that Broadcom is not taking a position that is inconsistent with the above; therefore judicial estoppel is inapplicable.

1. Description of the MSM6250 Chipset

According to the Broadcom, for purposes of assessing infringement of the '983 patent, the structure, function and operation of each accused MSM chipset is the same: each contains [

] Broadcom's infringement analysis focuses on the MSM6250 as being representative.⁴⁴²

Specifically, Broadcom asserts that Qualcomm's MSM6250 is a "chipset and system software solution" that supports communication on GSM/GPRS networks by combining a series of

⁴⁴¹ Order No. 29 (March 9, 2006) (footnotes omitted).

⁴⁴² CIB 77-79. See CX-1664C (Nettleton Direct) at 44-70; CX-52C (MSM Roadmap) at ALLTEL000246; CX-352 (MSM datasheets); CDX-66-79.

integrated circuits with associated system software.⁴⁴³ A block diagram showing principal components of the MSM6250 chipset is reproduced below:⁴⁴⁴

As shown, the three major components of the chipset are:

[

⁴⁴³ CX-352 (MSM6250 Datasheet) at BCMITC312448-49. Note that Qualcomm counters that the MSM6250 datasheet states that the Qualcomm Multimedia Platform “offers a system and software solution.” ROCF 758.1.

⁴⁴⁴ *Id.* at BCMITC312451.

] ⁴⁴⁵

Each accused MSM chipset is similarly configured and connected.⁴⁴⁶

Broadcom asserts that, when turned on, a cell phone powered by an MSM chipset first initializes using Qualcomm's software. The MSM chipset does so by running a [

] – just like the inventive

circuits of the '983 patent – [

] ⁴⁴⁷

According to Broadcom, the MSM chipsets are adapted to use a number of different air interface protocols, including GSM, GPRS, CDMA2000 1X, and others.⁴⁴⁸ This capability enables the MSMs to find and communicate on [

⁴⁴⁵ CX-1664C (Nettleton Direct) at 44-58; CX-352 (MSM6250 Datasheet) at BCMITC312448-51.

⁴⁴⁶ CX-1664C (Nettleton Direct) at 44; CX-352 (MSM Datasheets) at BCMITC312439-86.

⁴⁴⁷ CX-1664C (Nettleton Direct) at 50-56; JX-38C (Mollenkopf Dep) at 110-12, 274-75; JX-119C (Jaikumar Dep) at 63, 77-83, 114-67; JX-17C (Bullard Dep) at 131-32.

⁴⁴⁸ CX-352 (MSM Datasheets) at BCMITC312439-85.

] ⁴⁵¹

Qualcomm counters Broadcom's characterization that the MSM chipset runs on code written by Qualcomm, as Qualcomm asserts that its customers, the third-party phone manufacturers, [

] and that certain customers, [

] ⁴⁵² Qualcomm also asserts that the MSM6250 is not included in any phone in the United States. ⁴⁵³ Broadcom counters that Samsung's SGH-Z500 phone is on sale in the United States and available for use on the T-Mobile and Cingular networks and that the unrebutted evidence shows that, for the purposes of assessing infringement of the '983 patent, all of the accused MSM chipsets have the same function, structure, and operation as the MSM6250. ⁴⁵⁴

The undersigned finds Broadcom's arguments to be persuasive. Based on the evidence provided, the undersigned finds that, the evidence shows that Qualcomm's MSM6250 chipset is representative and that it is included in phones offered for sale in the United States; therefore the undersigned's infringement analysis will be based on Qualcomm's accused MSM6250 chipset, as

⁴⁴⁹ CX-1664C (Nettleton Direct) at 50; CX-103C (MSM6250 Specification) at QBB074468 (MSM6250 "chipset and system software is designed to address" multiple protocols).

⁴⁵⁰ See, e.g., CX-94C (MSM6250 ASIC HDD) at QBB068676.

⁴⁵¹ *Id.*

⁴⁵² ROFF 760. See JX-123C (Ahn Dep) at 113-14, 157.

⁴⁵³ RIB 67. See JX-38C (Mollenkopf Dep) at 220.

⁴⁵⁴ CRB 45. See CFF 757, CORFF 1225. See Nettleton, Tr. 413-14; CX-1781 (Mobilebee website) at BCMITC317497-99.

detailed above.

2. Direct Infringement by Qualcomm's testing using "Form Factor Accurate"⁴⁵⁵ devices

Broadcom asserts that Qualcomm makes and imports chipsets having all of the elements of the product claims (claims 1, 4, 8, 9, and 11) of the '983 patent; therefore the product claims are directly infringed.⁴⁵⁶ Specifically, Broadcom asserts that Qualcomm directly infringes the asserted claims of the '983 patent by the construction and use in the United States of FFAs, which Qualcomm uses to test the operation of MSM chipsets in a network environment.⁴⁵⁷ Broadcom also asserts that Qualcomm's own witnesses have conceded that all the asserted claims are directly infringed by Qualcomm's use of products which contained the accused chipsets, even under Qualcomm's claim construction with the exception of the "terminal" limitation.⁴⁵⁸ For example, Broadcom cites that Dr. Proakis conceded that Qualcomm's FFA test phones practice each limitation of claim 1, even under Qualcomm's claim construction;⁴⁵⁹ that Mr. Mollenkopf testified that Qualcomm[

460

] using its MSM chipsets for its customers.⁴⁶¹

Qualcomm asserts that Broadcom has failed to prove that its FFA testing directly infringes

⁴⁵⁵ A "Form Factor Accurate" ("FFA") device is a testing device that is made to resemble a cell phone. RIB 64. *See* JX-38C (Mollenkopf Dep) at 106-07.

⁴⁵⁶ CIB 91 citing *Certain Hardware Logic Emulation Systems*, Inv. No. 337-TA-383, Comm'n Determination, (March 1998) at 94 ("*Hardware*"); *Certain Personal Watercraft*, Inv. No. 337-TA-452, Order No. 31 (August 13, 2001) ("*Watercraft*").

⁴⁵⁷ CIB 80, 91.

⁴⁵⁸ CIB 91; CRB 41-43.

⁴⁵⁹ Proakis, Tr. 2023-26.

⁴⁶⁰ JX-38C (Mollenkopf Dep) at 106-07, 113-14.

⁴⁶¹ Grob, Tr. 1001, 1021-22.

the '983 patent.⁴⁶² Specifically, Qualcomm asserts that Broadcom has failed to identify any actual FFA testing performed by Qualcomm after the '983 patent issued or that the testing included “scanning for access points” or the power saving techniques of the claims. For example, Mr. Mollenkopf testified about [

] but that the '983 patent issued in March 2004.⁴⁶³

Staff asserts that Broadcom’s only infringement evidence with respect to Qualcomm’s FFAs includes the testimony of Mr. Mollenkopf, Mr. Grob and Dr. Proakis. According to Staff, a review of the testimony of these three witnesses shows that the evidence does not prove that Qualcomm has conducted testing of FFAs in a manner that infringes the asserted claims of the '983 patent because the witnesses’ testimony was not definite.⁴⁶⁴

Broadcom counters Qualcomm’s arguments. First, Broadcom asserts that Qualcomm’s arguments were not raised in Qualcomm’s pre-trial brief and are therefore waived.⁴⁶⁵ Second, Broadcom asserts that Qualcomm infringes the apparatus claims when it either makes its accused MSM chipsets, under Broadcom and Staff’s claim constructions, or when it incorporates those chips into FFAs capable of performing the claimed functions, under Qualcomm’s claim construction.⁴⁶⁶ Third, Broadcom asserts that Qualcomm’s own witnesses confirmed that Qualcomm has repeatedly tested its MSM chipsets in FFAs, even today.⁴⁶⁷ Fourth, Broadcom asserts that Qualcomm meets the scanning for access points and power saving techniques limitations[

⁴⁶² RIB 64-65.

⁴⁶³ RIB 64; RRB 37. *See* JX-38C (Mollenkopf Dep) 106-08.

⁴⁶⁴ SRB 32-33.

⁴⁶⁵ CRB 42.

⁴⁶⁶ CRB 42-43. *See HP*, 909 F.2d at 1468 (apparatus claims cover what a device is, not what a device does).

⁴⁶⁷ CRB 43. *See* Grob, Tr. 1001, 1021-22.

J⁴⁶⁸

Qualcomm counters Broadcom's arguments as to Mr. Grob's testimony. According to Qualcomm, Mr. Grob's testimony does not support Broadcom's arguments because Mr. Grob's testimony expressly relates to supporting customer testing of chips for compliance with the 1x EV-DO standard, and that the testimony does not mention the testing of sleep at all.⁴⁶⁹

The undersigned finds Qualcomm and Staff's arguments to be persuasive. While Broadcom asserts that there is testimony that Qualcomm tests its MSM chipsets in FFAs today, Broadcom did not present any specific testimony regarding the testing and how it specifically infringes the asserted claims of the '983 patent.⁴⁷⁰ Although Broadcom cites to Dr. Proakis's testimony, Dr. Proakis did not have any specific knowledge as to how the testing was performed.⁴⁷¹ Unlike Broadcom's analysis for direct infringement by third party handset manufacturers, which is discussed below, Broadcom's expert, Dr. Nettleton, did not test any of Qualcomm's FFAs. Accordingly, the undersigned finds that Broadcom has failed to prove that Qualcomm's FFAs directly infringe the asserted claims of the '983 patent.

3. Induced Infringement

Broadcom asserts that the issue of induced infringement is only relevant to the method claims of the '983 patent, and to the "terminal" limitation in claim 1 if the undersigned adopts Qualcomm's

⁴⁶⁸ RB 43. *See* JX38C (Mollenkopf Dep) at 106-14; Proakis, Tr. 1972-74, 2024-25; CX-1664C (Nettleton Direct) at 52-53; JX-119 (Jaikumar Dep) at 81-83.

⁴⁶⁹ RRB 37-38. *See* Grob, Tr. 1001-02. The "slotted sleep" feature in EV-DO (the '311 patent) is different from the "out of service sleep" in the '983 patent. Also, only the MSM6500, MSM6550, MSM6800, and MSM7500 are EV-DO compliant. SRB 32, n. 12.

⁴⁷⁰ *See* Grob, Tr. 1001-02.

⁴⁷¹ Proakis, Tr. 2023-24.

claim construction of that term.⁴⁷² Broadcom asserts that Qualcomm has engaged in intensive efforts to convince its customers to incorporate the accused MSM chipsets into their products by providing customers with [

] ⁴⁷³

Broadcom asserts that third party infringement may be proved by circumstantial evidence from the sale of infringing products when accompanied by instructions calling for an infringing use.⁴⁷⁴ Qualcomm disputes that circumstantial evidence may be used when indirect infringement concerns the sale of a component of an allegedly infringing product and that Broadcom was required to introduce evidence of individual acts of infringement by particular third party customers.⁴⁷⁵

Staff asserts that, because Broadcom has not made a showing of direct infringement of the method claims, there cannot be a showing of induced infringement as well.⁴⁷⁶ In addition, Staff asserts that, with respect to the method claims, Broadcom has failed to present an element-by-element analysis of induced infringement of any handset that incorporates an accused MSM chip practicing the claimed method.⁴⁷⁷

a. Direct Infringement by Third Parties

Broadcom asserts that, the evidence shows that Qualcomm's handset manufacturer customers

⁴⁷² CIB 91, n. 32.

⁴⁷³ CIB 91-92; CRB 44-46. *See* JX-38C (Mollenkopf Dep) at 39-40, 52-53, 60-68, 171-73, 230-31; Grob, Tr. 1001-04; CX-1936C (Qualcomm website).

⁴⁷⁴ CIB 60-61 citing *Water Techs.*, 850 F.2d at 668-69; *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1272 (Fed. Cir. 1986) ("*Moleculon*").

⁴⁷⁵ RRB 41-42. *See* *Dynacore*, 363 F.3d at 1277.

⁴⁷⁶ SIB 83-86; SRB 33.

⁴⁷⁷ SRB 36-37.

directly infringe the '983 patent by making handsets that incorporate the accused MSM chipsets and using [

] ⁴⁷⁸ Specifically, Broadcom cites to the testimony of Mr. Ahn, a Samsung employee, who testified that [

] ⁴⁷⁹ Broadcom also points to Dr. Nettleton's empirical testing of a Samsung SGH-Z500 cell phone, containing the MSM6250 chipset. ⁴⁸⁰ Broadcom also argues that Dr. Nettleton examined [

] ⁴⁸¹ Furthermore, Broadcom asserts that the handset manufacturers that purchase Qualcomm's accused MSM chipsets[

] ⁴⁸²

Qualcomm asserts that Broadcom has failed to establish that any third party infringes the '983 patent based on the testing performed by Dr. Nettleton. According to Qualcomm, Broadcom only selected to test one phone, which was a Samsung SGH-Z500 cell phone (CPX-17), for a wireless network in Italy. Qualcomm also asserts that Broadcom's test does not establish direct infringement because: 1) Broadcom did not look at the software code in the test phone or in any

⁴⁷⁸ CRB 44 citing CFF 807-83.

⁴⁷⁹ CIB 84. *See* JX-12C (Ahn Dep) at 17.

⁴⁸⁰ CIB 84; CRB 44. *See* CX-1664C (Nettleton Direct) at 55-56; CPX-17 (SGH-Z500); CDX-174 (Results).

⁴⁸¹ CRB 46 citing CFF 799.

⁴⁸² CRB 46 citing CFF 807-18.

other phone containing a Qualcomm chip, 2) the test only monitored gross power consumption and was not designed to monitor the claimed functionality specifically, and 3) the Qualcomm chip in the cellphone tested is not made for domestic consumption, but is made for foreign networks.⁴⁸³ According to Qualcomm, the testing performed by Dr. Nettleton was not a “scientific test” and should be excluded under *Daubert*.⁴⁸⁴ Furthermore, Qualcomm asserts that Broadcom’s reliance on Mr. Ahn’s testimony, a Samsung employee, is misplaced because Mr. Ahn clarified that Samsung [

] ⁴⁸⁵ According to Qualcomm, the evidence shows that Qualcomm’s customers [

] therefore, Broadcom cannot rely on [] to infer that its customers necessarily infringe and that Broadcom is required to introduce evidence of individual acts of infringement by particular third party customers.⁴⁸⁶

Staff asserts that Mr. Ahn’s testimony should be entitled to no weight due to the significant inconsistencies in his testimony.⁴⁸⁷ Staff also asserts that, although Qualcomm asserts that handset manufacturers could [

] relating to “controlling the frequency of

⁴⁸³ RIB 65-68; RRB 39-42. See CX-1664C (Nettleton Direct) at 55-56; RX-922C (Proakis Rebuttal) at 12-13; JX-38C (Mollenkopf Dep) at 220; CPX-17 (SGH-Z500).

⁴⁸⁴ RIB 66. See *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) (“*Daubert*”).

⁴⁸⁵ RRB 39-40. See JX-123C (Ahn Dep) at 155-56, 111, 168, 170.

⁴⁸⁶ RRB 42.

⁴⁸⁷ SRB 34. See JX-12C (Ahn Dep) and JX-123C (Ahn Dep).

scanning for access points.”⁴⁸⁸

Broadcom counters Qualcomm’s arguments regarding Dr. Nettleton’s test and asserts that Dr. Nettleton did examine the source code that Qualcomm supplies to its customers and that the [] by controlling the frequency of scanning for access points.⁴⁸⁹ In addition, Broadcom argues that Qualcomm’s expert, Dr. Proakis, never conducted any of his own testing to confirm or dispute the accuracy of Dr. Nettleton’s results, and that Qualcomm failed to meaningfully cross-examine Dr. Nettleton about his testing procedures.⁴⁹⁰ As to Qualcomm’s argument that the phone that was tested was for a foreign network, Broadcom counters that there is un rebutted evidence that, for the purposes of assessing infringement of the ‘983 patent, all of the accused MSM chipsets have the same function, structure, and operation as the MSM6250.⁴⁹¹ Furthermore, Broadcom asserts that the Samsung SGH-Z500 phone is on sale in the United States and available for use on the T-Mobile and Cingular networks.⁴⁹²

The undersigned finds Broadcom’s and Staff’s arguments to be persuasive. First, based on a review of the evidence and testimony provided, the undersigned rejects Qualcomm’s argument that Dr. Nettleton’s test should be excluded under *Daubert*. Dr. Nettleton’s empirical test results are un rebutted, as Dr. Proakis conducted no testing and “made no investigation to determine whether the Qualcomm products reduce power by controlling the frequency of scanning for access points.”⁴⁹³ Furthermore, the undersigned rejects Qualcomm’s arguments that Dr. Nettleton did not look at the

⁴⁸⁸ SRB 34. See Hutchinson, Tr. 1212-14.

⁴⁸⁹ See CX-1664C (Nettleton Direct) at 50-52.

⁴⁹⁰ CRB 44. See Proakis, Tr. 1972, 2017-19.

⁴⁹¹ CRB 45 citing CFF 757.

⁴⁹² See Nettleton, Tr. 413-14; CX-1781 (Mobilebee website) at BCMITC317497-99.

⁴⁹³ Proakis, Tr. 1972.

software code and only tested gross power consumption, as there is testimony that Dr. Nettleton examined Qualcomm's [] and explained his process for testing power consumption.⁴⁹⁴

Second, the undersigned finds that, while there is some evidence that handset manufacturers are [] that there is no evidence that a single Qualcomm customer has actually done so. Due to the significant changes in Mr. Ahn's testimony, the undersigned is in agreement with the Staff that his testimony should be given no weight. In addition, Mr. Hutchinson, vice president of technology for Qualcomm's CDMA Technologies division, testified that:

[

⁴⁹⁴ See CX-1664C (Nettleton Direct) at 50-56 citing CX-126C (QCT Source Code) at QBSC001664-81 (MSM6225), QBSC001550-61 (MSM6250), QBSC001682-95 (MSM6275), QBSC001696-1707 (MSM6500), QBSC001708-21 (MSM6550), QBSC001722-39 (MSM6800), and QBSC001782-99 (MSM7500).

] ⁴⁹⁵

Therefore, there is no evidence that handset manufacturers [] provided by Qualcomm to make the accused MSM chips non-infringing.

Third, as to Qualcomm's argument regarding the testing of the Samsung phone, the undersigned already ruled above that, for the purposes of assessing infringement of the '983 patent, all of the accused MSM chipsets have the same function, structure, and operation as the MSM6250, and the Samsung SGH-Z500 phone is, in fact, on sale in the United States and available for use on the T-Mobile and Cingular networks.⁴⁹⁶

Finally, while Qualcomm argues that Broadcom may not prove Qualcomm's indirect

⁴⁹⁵ Hutchinson, Tr. 1212-14.

⁴⁹⁶ See CX-1664C (Nettleton Direct) at 44-70; CX-352 (MSM Datasheets); Nettleton, Tr. 413-14; CX-1781 (Mobilebee website) at BCMITC317497-99.

infringement via direct infringement by Verizon, that, in itself, does not equate to a “non-infringing” use and Qualcomm points to no authoritative case law. Accordingly the undersigned’s rejects Qualcomm’s arguments and finds that the evidence shows that Qualcomm’s handset manufacturer customers directly infringe the ‘983 patent by making handsets that incorporate the accused MSM chipsets and using Qualcomm’s system determination software.

b. Inducing Third Parties to Directly Infringe

Broadcom asserts that Qualcomm has induced third party handset manufacturers to infringe the ‘983 patent through various activities, including providing customers with the [

] ⁴⁹⁷ Broadcom asserts that Qualcomm’s relationship with each of its handset manufacturer customers is so intimate that it amounts to a “design partnership,” which is classic inducement. ⁴⁹⁸

Qualcomm asserts that even if Broadcom were able to establish that third parties infringe the asserted claims of the ‘983 patent, that Broadcom has not met its burden in proving that Qualcomm

⁴⁹⁷ CRB 47-48 citing CFF 807-21.

⁴⁹⁸ CRB 47 citing *MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp.*, 420 F.3d 1369, 1379 (Fed. Cir. 2005) (“Evidence of active steps taken to encourage direct infringement, such as advertising an infringing use or instructing how to engage in an infringing use, show an affirmative intent that the product be used to infringe.” *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005)).

induces any third party to infringe. Specifically, Qualcomm asserts that, based on its software agreement with third-party Samsung, [

] ⁴⁹⁹ Furthermore, Qualcomm asserts that Qualcomm does not [

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] ⁵⁰¹ According to a Qualcomm employee, Qualcomm's customers, such as [

] ⁵⁰² Qualcomm argues that Broadcom should have analyzed the actual operation of a [] that those handsets use in order to prove that [] handsets infringe, which it did not. ⁵⁰³

In addition, Qualcomm argues that there is no evidence that Qualcomm engaged in conduct that allegedly induced infringement by third parties after it became aware of the '983 patent on March 30, 2005. ⁵⁰⁴ According to Qualcomm, its customers independently decide whether and how to implement the software and Qualcomm does not require customers to use the software that Qualcomm makes available concerning the network acquisition feature. ⁵⁰⁵ Furthermore, Qualcomm asserts that Broadcom does not identify any evidence that Qualcomm promoted the use of out of

⁴⁹⁹ RIB 68-69; RRB 39-44. *See* JX-123C (Ahn Dep); RX-939C & RX-940C (Software Agreements between Qualcomm and [] at 2. Note: there was much discussion about the Ahn deposition due to an errata sheet filed as to Mr. Ahn's first deposition (JX-12C), which resulted in a follow-up deposition to discuss the errata (JX-123C). *See* Tr. 882-912 (February 17, 2006).

⁵⁰⁰ JX-38C (Mollenkopf Dep) at 193-95

⁵⁰¹ RIB 69-70. *See* RX-831C (Hutchinson Direct) at 24-25.

⁵⁰² RIB 70-71. *See* Hutchinson, Tr. 1212-14; RX-832C (Hughes Direct) at 20-21.

⁵⁰³ RRB 40-41.

⁵⁰⁴ RRB 43.

⁵⁰⁵ RRB 43.

service sleep to any customers after the date Qualcomm acquired knowledge of the '983 patent, which was on March 30, 2005. According to Qualcomm, Broadcom's reliance on the testimony of Mr. Mollenkopf and Mr. Grob is misplaced because Mr. Mollenkopf did not testify about any testing taking place after March 2005, and that Mr. Grob's testimony concerned the operation of a network under the EV-DO standard, which calls for a completely different chip function than the system acquisition protocol that Broadcom accuses with respect to the '983 patent.⁵⁰⁶

Broadcom counters Qualcomm's arguments. First, Broadcom asserts that although Qualcomm does not require its customers to [

], that it is enough that Qualcomm provides its customers with the accused MSM chipset and [

] ⁵⁰⁷ Second, Broadcom asserts that Qualcomm provides handset manufacturers with the means to infringe the '983 patent by reducing the frequency of scanning for access points and that Qualcomm has failed to introduce any evidence demonstrating that a single network carrier has mandated a modification to the [

] ⁵⁰⁸

The undersigned finds Broadcom and Staff's arguments to be persuasive. The evidence shows that Qualcomm provides customers with the [

⁵⁰⁶ RRB 43-44. Grob, Tr. 1001-04.

⁵⁰⁷ CRB 47-48 citing CFF 808-11; CX-1664C (Nettleton Direct) at 54 citing JX-12C (Ahn Dep).

⁵⁰⁸ CRB 48.

]⁵⁰⁹ As already noted above, while there is some evidence that handset manufacturers are [] that there is no evidence that a single Qualcomm customer has actually done so. Also, as noted above, Mr. Ahn's testimony is given no weight due to the significant inconsistencies in his deposition. As to Qualcomm's argument that Broadcom does not identify any evidence that Qualcomm promoted the use of out of service sleep to any customers after the date Qualcomm acquired knowledge of the '983 patent, which was allegedly on March 30, 2005, such argument was not raised in Qualcomm's pre-hearing brief, and is therefore waived.⁵¹⁰ Accordingly the undersigned's rejects Qualcomm's arguments.

c. Intent

Broadcom asserts, based on Federal Circuit case law, "the only intent required of [the] defendant is the intent to cause the acts that constitute infringement."⁵¹¹ According to Broadcom, the evidence shows that Qualcomm has continued to cultivate "design partnerships" with handset manufacturers for the purpose of having them [] into handsets.⁵¹² Qualcomm asserts that Broadcom has failed to prove intent because Broadcom only makes general arguments as to marketing activities in support, and that

⁵⁰⁹ See CX-1664C (Nettleton Direct) at 51-54; JX-38C (Mollenkopf Dep) at 52, 191-92, 198; CX-126C (QCT Source Code); CX-1534C (MSM6250 Datasheet) at QBB73245.

⁵¹⁰ See Qualcomm's pre-trial brief at 65.

⁵¹¹ CRB 48 citing *Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1364 (Fed. Cir. 2006) ("*Golden Blount II*").

⁵¹² CRB 48-49.

Broadcom has failed to prove that Qualcomm had knowledge of the patents until March 30, 2005.⁵¹³

The undersigned finds Broadcom arguments to be persuasive. As noted above, Qualcomm provides customers with the [

] ⁵¹⁴ This constitutes more than just “general” arguments as to marketing activities and shows that Qualcomm had knowledge of the infringing acts.⁵¹⁵ Accordingly, the undersigned’s rejects Qualcomm’s arguments and finds that the evidence shows that Qualcomm intends to induce infringement because Qualcomm provides its customers with the system determination code.

d. Conclusion as to Induced Infringement

Accordingly, the undersigned finds that, based on a review of the evidence and arguments presented above, the undersigned finds that Broadcom has proved that Qualcomm induces infringement of the apparatus claims of the ‘983 patent (claims 1, 4, 8, 9, and 11), but that Broadcom has not proved that Qualcomm induced infringement of the method claims of the ‘983 patent (claims

⁵¹³ RIB 71-73. *See* CX-1664C (Nettleton Direct) at 68-70.

⁵¹⁴ *See* CX-1664C (Nettleton Direct) at 51-54; JX-38C (Mollenkopf Dep) at 52, 191-92, 198; CX-126C (QCT Source Code); CX-1534C (MSM6250 Datasheet) at QBB73245.

⁵¹⁵ *nCube*, 436 F.3d at 1324 (“To show intent for indirect infringement, ‘a patentee must be able to demonstrate at least that the alleged inducer had knowledge of the infringing acts.’”); *Fuji Photo Film*, 394 F.3d at 1377 (“A patentee may prove intent through circumstantial evidence.”)

14 and 17-24), which is discussed in further detail below.

4. Contributory Infringement

Broadcom asserts that Qualcomm is liable for contributory infringement because Qualcomm sells its MSM chipsets to handset manufacturer customers, [

] According to Broadcom, there is no substantial non-infringing use for the accused MSM chipsets because Qualcomm has failed to identify a single MSM customer who has implemented an accused MSM chipset in any way other than to reduce power by controlling the frequency of scanning.⁵¹⁶

Both Qualcomm and Staff disagree. Qualcomm asserts that Broadcom has not met its burden to show the absence of substantial non-infringing uses for the accused Qualcomm chips.⁵¹⁷ Qualcomm also asserts that, for the purposes of this investigation, Broadcom, because of its disclaimer regarding Verizon, that sales to Verizon constitute a significant non-infringing use.⁵¹⁸ Furthermore, Qualcomm asserts that the evidence shows that customers [

] and that Broadcom did not provide any evidence of what third party customers actually do with respect to the network acquisition feature in the handsets they manufacture.⁵¹⁹

Staff asserts that Broadcom has not shown contributory infringement by any standard of

⁵¹⁶ CIB 93-94. *See HP*, 909 F.2d at 1468-69.

⁵¹⁷ RIB 73-74, RRB 44. *See* 35 U.S.C. § 271(c); *Cross Medical Products, Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1312 (Fed. Cir. 2005) (“*Cross Medical*”); *Golden Blount, Inc. v. Robert H. Peterson Co.*, 365 F.3d 1054, 1061 (Fed. Cir. 2004) (“*Golden Blount*”).

⁵¹⁸ RIB 53; RRB 44.

⁵¹⁹ RRB 44. *See* Hutchinson, Tr. 1212-14; JX-123C (Ahn Dep) at 115-16, 121-22, 168, 170.

evidence because the only evidence presented by Broadcom of no substantial non-infringing use is a single unsupported statement in its post-hearing brief.⁵²⁰

Broadcom counters Qualcomm and Staff's arguments, asserts that the record shows that Qualcomm's handset manufacturer customers implement the accused MSM chipsets in their mobile devices to reduce power by controlling the frequency of scanning for access points.⁵²¹

The undersigned agrees with both Qualcomm and Staff that Broadcom has failed to meet its burden that there are no substantial non-infringing uses. Accordingly, the undersigned finds that there is no evidence of contributory infringement.

5. Claims

The asserted claims of the '983 patent fall into two categories—product claims and method claims. For the product claims (claims 1, 4, 8, 9, and 11), Broadcom asserts that Qualcomm's MSM chipsets and software directly infringe. For the method claims (claims 14 and 17-24), Broadcom asserts that Qualcomm's MSM chipsets indirectly infringe based on Qualcomm's "testing" of "Form Factor Accurate" devices. Qualcomm does not analyze infringement on a claim by claim basis and directed all of its arguments towards general categories of infringement, which were discussed above.

a. Claim 1

Claim 1 reads "[o]ne or more circuits adapted for use in a mobile computing device comprising: a terminal adapted to receive battery power for at least one of the circuits; communication circuitry comprising a reduced power mode and being adapted to use a first wireless

⁵²⁰ SRB 33.

⁵²¹ CRB 49.

communication and a second wireless communication different from the first wireless communication to transmit data to access points, the communication circuitry reducing power by controlling the frequency of scanning for the access points; and processing circuitry arranged to process data received from the communication circuitry.”

Broadcom asserts that the accused MSM chips practice each and every limitation of claim 1, both as sold and as used in Qualcomm’s and its customers’ devices.⁵²² Broadcom asserts that Qualcomm does not contest that the accused MSM chips meet the following limitations: “circuits adapted for use in a mobile computing device,”⁵²³ “communication circuitry comprising a reduced power mode,”⁵²⁴ “communication circuitry . . . being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication to transmit data to access points,”⁵²⁵ and “processing circuitry arranged to process data received from the communication circuitry.”⁵²⁶ Staff agrees.⁵²⁷

Broadcom asserts that the parties infringement dispute regarding claim 1 centers on two issues: whether the accused MSM chipsets satisfy the “terminal” limitation and whether they reduce

⁵²² CIB 79.

⁵²³ CIB 79. *See* CX-1664C (Nettleton Direct) at 44-45; CX-1534C (MSM6250 Datasheet) at QBB73245; CX-139C (MSM6275 Datasheet) at QBB73234-37; CX-99C (MSM6300 FDD) at QBB89122-30; CX-72C (MSM6500 FDD) at QBB95261-74; CX-154C (MSM6800 HDD) at QBD36038-475; CX-1540C (MSM7500 HDD) at QBB69090-70417; CDX-66 to CDX-79.

⁵²⁴ CIB 81. *See* CX-1664C (Nettleton Direct) at 49-50; JX-24C (Grob Dep) at 103-05, 154-55, 196; JX-38C (Mollenkopf Dep) at 127-29, 239-42; CX-1534C (MSM6250 Datasheet); CX-94C (MSM6250 ASIC HDD) at QBB68232, QBB68676-89; CX-75C (MSM6500 HDD) at QBB83331.

⁵²⁵ CIB 81-82. *See* CX-1664C (Nettleton Direct) at 50; Proakis, Tr. 1965-68; JX-38C (Mollenkopf Dep) at 143-45; JX-24C (Grob Dep) at 189-92; JX-29C (Konganda Dep) at 60.

⁵²⁶ CIB 85. *See* CX-1664C (Nettleton Direct) at 56-57; JX-24C (Grob Dep) at 194; CX-103C (MSM6250 Specification) at QBB74471, 74475.

⁵²⁷ SIB 78. *See* CX-1664C (Nettleton Direct) at 50, 56-57; Nettleton, Tr. 2535-36; RX-922C (Proakis Rebuttal) at 11-13.

power by controlling the frequency of scanning.

(1) “terminal”

As to the first disputed issue, Broadcom asserts that Qualcomm’s MSM chipsets practice the “terminal” limitation under either party’s claim construction.⁵²⁸ Broadcom asserts that, according to Qualcomm’s witnesses, the MSM baseband chips contain numerous [

] for receiving power routed from a battery by the PM6650 chip, thereby meeting this limitation of claim 1 under Broadcom and Staff’s claim construction.⁵²⁹ Broadcom also asserts that Qualcomm’s MSM chipsets practice the “terminal” limitation under Qualcomm’s claim construction when the MSM chipsets are used in Qualcomm’s FFA devices and its customers’ cell phone products.⁵³⁰

Qualcomm asserts that, under its proposed claim construction, its chips do not infringe claim 1 because its chips and software are not terminal nodes or mobile computing devices in a network.⁵³¹ Qualcomm also asserts that, even under Broadcom’s claim construction, its chips do not infringe because [

]⁵³² Based on a recent Commission decision, Qualcomm asserts that its chips do not infringe because they are not enabled unless and until they are [

⁵²⁸ CIB 79-81. *See* JX-24C (Grob Dep) At 184-86; JX-38C (Mollenkopf Dep) At 93-94; CX-1664C (Nettleton Direct) at 45-47; CX-103C (MSM6250 specification) at QBB74498-500; Proakis, Tr. 2007-08.

⁵²⁹ CIB 79-80. *See* JX-24C (Grob Dep) at 184-86; JX-38C (Mollenkopf Dep) at 93-94; CX-1664C (Nettleton Direct) at 45-47; CX-103C (MSM6250 Specification) at QBB74498-500; Proakis, Tr. 2007-08.

⁵³⁰ CIB 80-81.

⁵³¹ RIB 64; RRB 35.

⁵³² RRB 35. *See* RX-831C (Hutchinson Direct) at 24-25; Hutchinson, Tr. 1212-13; RX-832C (Hughes Direct) at 20-21; JX-123C (Ahn Dep) at 111, 115-16, 121-22, 159-60, 168, 170; RX-939, RX-940, and RX-942 (Software Agreements between Qualcomm and Samsung) at 2.

] that provides the accused functionality. According to Qualcomm, the only accused and enabled devices are third party handsets or Qualcomm's test devices, the FFAs. Therefore, according to Qualcomm, the chips themselves cannot directly infringe and Qualcomm's separate sales of chips and software must be analyzed under indirect infringement.⁵³³ Qualcomm counters Broadcom's arguments regarding its FFAs.⁵³⁴

Broadcom asserts that, even under Qualcomm's claim construction of the "terminal" limitation, Qualcomm infringes via its FFA testing devices and its customers' cell phone products.⁵³⁵ Qualcomm counters that Mr. Mollenkopf testified that the relevant tests involving the power-saving protocol was performed in the summer of 2003, which is before the '983 patent issued in March 2004.⁵³⁶ Qualcomm also counter's Broadcom's reliance on Mr. Grob's testimony, because Mr. Grob's testimony expressly relates to supporting customer testing of chips for compliance with the 1x EV-DO standard, which does not address the testing of sleep at all.⁵³⁷ Broadcom counters that Qualcomm has made and used FFAs for each of the accused MSM chipsets, which continues to this day.⁵³⁸

Staff asserts that, under its proposed claim construction, Qualcomm's MSM chipsets directly

⁵³³ RRB 36 citing *Certain Personal Computers, Server Computers, and Components Thereof*, Inv. No. 337-TA-509, Comm'n Op. at 7-8 (December 8, 2005) ("*Personal Computers*") ("An accused device must be presently and reasonably capable of performing the claimed function. See *Stryker Corp. v. Davol, Inc.*, 234 F.3d 1252 (Fed. Cir. 2000) [*"Stryker"*]. If the claimed function has not been fully enabled, the accused device is not reasonably capable of meeting the claim's functional limitation and thus does not infringe. See *Telemac v. Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316 (Fed. Cir. 2001) [*"Telemac"*]").

⁵³⁴ RIB 64-65. See JX-38C (Mollenkopf Dep) at 108.

⁵³⁵ CIB 80-81. See JX-38C (Mollenkopf Dep) at 106-12; CX-1664C (Nettleton Direct) at 47-49; Proakis, Tr. 2020-26; CX-95C (MSM6250 schematic); CX-441C (Spreadsheet).

⁵³⁶ RRB 37. See JX-38C (Mollenkopf Dep) at 108.

⁵³⁷ RRB 37-38. See Grob, Tr. 981-84, 1001-02; Nettleton, Tr. 2498-99.

⁵³⁸ CORFF 1210. See JX-38C (Mollenkopf Dep) at 112-14, 231; Grob, Tr. 1001.

infringe claim 1 because the MSM6250 has a lead or connector adapted to receive battery power for at least one of the circuits.⁵³⁹

As discussed above, the undersigned construed the term “terminal” as a “lead or connector.” While Qualcomm disputes that its chips do not infringe the “terminal” limitation even under Broadcom and Staff’s claim construction because the software must be enabled, the undersigned does not find Qualcomm’s arguments to be persuasive. Within the context of the claim, “terminal,” as construed by the undersigned, does not require any enabling software. As the evidence is clear that Qualcomm’s MSM chipsets contain numerous [] for receiving power routed from a battery by the PM6650 chip, which are “leads” or “connectors,” Qualcomm’s MSM chipsets infringe the “terminal” claim limitation.⁵⁴⁰ As the undersigned did not adopt Qualcomm’s claim construction for “terminal,” the arguments regarding Qualcomm’s FFA’s will not be addressed.

(2) “reducing power by controlling the frequency of scanning for the access points”

As to the second disputed issue, Broadcom asserts that the communication circuitry of accused MSM chipsets conserve battery power by controlling how often the circuitry scans for access points.⁵⁴¹ Staff also asserts that, under its proposed claim construction, Qualcomm’s MSM chipsets directly infringe claim 1 because the accused chipsets contain communication circuitry that can reduce power by controlling the frequency of scanning for access points.⁵⁴²

⁵³⁹ SIB 77. *See* CX-1664C (Nettleton Direct) at 45-49; Nettleton, Tr. 2542.

⁵⁴⁰ *See* JX-24C (Grob Dep) at 184-86; JX-38C (Mollenkopf Dep) at 93-94; CX-1664C (Nettleton Direct) at 45-47; CX-103C (MSM6250 Specification) at QBB74498-500; Proakis, Tr. 2007-08.

⁵⁴¹ CIB 82; *see* CX-1664C (Nettleton Direct) at 50.

⁵⁴² SIB 77. *See* CX-1664C (Nettleton Direct) at 50-56.

Specifically, Broadcom asserts that Qualcomm's [] causes the accused MSM chipsets to reduce power by controlling the frequency of scanning for access points.⁵⁴³ According to Broadcom, Qualcomm implements this [] in its FFAs⁵⁴⁴ and that Qualcomm's handset manufacturer customers use Qualcomm's []⁵⁴⁵

Qualcomm asserts that if the undersigned adopts its claim construction of "scanning for access points", the claim is invalid. On the other hand, Qualcomm asserts that if "scanning for access points" is interpreted solely as channel sensing, then the accused chips do not infringe.⁵⁴⁶ Staff agrees that under the latter claim construction, there would be no infringement.⁵⁴⁷

Staff asserts that, based on an examination of the source code, the MSM6250 chipset will []⁵⁴⁸

Staff also asserts that when the accused chips are incorporated into telephone handsets, they

⁵⁴³ RIB 82-83. See CX-1664C (Nettleton Direct) at 50-52; JX-119C (Jaikumar Dep) at 63, 77-83.

⁵⁴⁴ RIB 83-84. See JX-38C (Mollenkopf Dep) at 111-14, 274-75.

⁵⁴⁵ RIB 84-85. See JX-12C (Ahn Dep) at 17; JX-123C (Ahn Dep) 102, 156; Nettleton, Tr. 412, 2548; CX-1664C (Nettleton Direct) at 55-56; Proakis, Tr. 1972, 2017-19; CX-1534 (MSM6250 datasheet) at QBB73245; Grob, Tr. 1003-04; JX-38C (Mollenkopf Dep) at 52, 191-92, 198; CPX-17 (SGH-Z500); CDX-174 (results).

⁵⁴⁶ RIB 63, 73-74.

⁵⁴⁷ SRB 36.

⁵⁴⁸ SIB 77. See CX-1664C (Nettleton Direct) at 51-52; Proakis, Tr. 2201-02; RX-922C (Proakis Rebuttal) at 11-13.

also directly infringe claim 1. According to Staff, there is no evidence in the record to suggest that, when these chips are incorporated into telephone handsets, they operate differently because there is no evidence that manufacturers, who are able to [] actually do so.⁵⁴⁹

Staff asserts that Qualcomm induces infringement by supporting the handset manufacturers in incorporating the accused chipsets into their handsets, including a recommendation that handset manufacturers[

] ⁵⁵⁰

As to Broadcom's assertion that Qualcomm directly infringes the asserted claims of the '983 patent by the construction and use in the United States of FFAs, Staff counters that the evidence does not prove that Qualcomm has conducting testing of FFAs in a manner that infringes. According to Staff, the only evidence with regard to FFA testing includes the deposition testimony of Mr. Mollenkopf, and the hearing testimony of Mr. Grob and Dr. Proakis, and that the testimony of these witnesses is insufficient.⁵⁵¹

The undersigned finds Staff's arguments to be persuasive. As discussed above, the undersigned construed the term "the communication circuitry reducing power by controlling the frequency of scanning for access points" as a "communication circuitry that is adapted to vary how often it looks for an access point," which was the claim construction proposed by the Staff. Accordingly, the undersigned finds that the MSM chipsets themselves and when incorporated into telephone handsets, directly infringe this claim limitation. The undersigned also agrees that

⁵⁴⁹ SIB 78-79; SRB 33-36. *See* Hutchinson, Tr. 1214-14.

⁵⁵⁰ SIB 78-79. *See* Hutchinson, Tr. 1210-12; Grob, Tr. 998-99, 1003-04, 1010-11, 1022; RX-838C (Proakis Direct) at 16; JX-122C (Finnerty Dep) at 84-87.

⁵⁵¹ SIB 31-33. *See* JX-38C (Mollenkopf Dep) at 8, 108-14; Grob, Tr. 1001, 1011, 1022; Proakis, Tr. 2023.

Broadcom has failed to prove that Qualcomm directly infringes this claim limitation with regard to Qualcomm's FFAs because Broadcom did not produce any direct evidence regarding testing of the FFAs in a manner that infringes all the asserted claim limitations.

b. Claim 4

Claim 4 reads "[t]he one or more circuits of claim 1 wherein the processing circuitry comprises an integrated circuit." Broadcom asserts that the processing circuitry for each of the accused MSM chipsets comprises of an integrated circuit.⁵⁵² Staff agrees, asserting that all accused Qualcomm chips are integrated circuits.⁵⁵³ Staff also asserts that telephone handsets incorporating the accused chips also directly infringe claim 4 and that Qualcomm induces this infringement by supporting the handset manufacturers in incorporating the accused chipsets into their handsets.⁵⁵⁴ Qualcomm does not address claim 4 directly and relies on its general infringement arguments.

The undersigned finds Broadcom's and Staff's arguments to be persuasive. The evidence shows that the additional claim limitation in claim 4 ("processing circuitry comprises an integrated circuit") is met.⁵⁵⁵ Accordingly, the undersigned finds that the MSM chipsets themselves and when incorporated into telephone handsets, directly infringe this claim limitation. The undersigned also agrees that Broadcom has failed to prove that Qualcomm directly infringes this claim limitation with regard to Qualcomm's FFAs.

⁵⁵² CIB 85. *See* CX-1664C (Nettleton Direct) at 58; CX-103C (MSM6250 Specification) at QBB74468; CDX-67.

⁵⁵³ SIB 79. *See* Proakis, Tr. 2199; CX-1664C (Nettleton Direct) at 58; CDX-67.

⁵⁵⁴ SIB 79-80. *See* Hutchinson, Tr. 1210-12; Grob, Tr. 998-99, 1003-04, 1011, 1022; RX-838C (Proakis Direct) at 16; JX-122C (Finnerty Dep) at 84-87.

⁵⁵⁵ *See* CX-1664C (Nettleton Direct) at 58; RX-838C (Proakis Direct) at 16; Proakis, Tr. 2199; CX-103C (MSM6250 Specification) at QBB74468; CDX-67.

c. **Claim 8**

Claim 8 reads “[t]he one or more circuits of claim 1 wherein the processing circuitry is arranged to provide output to a display and is arranged to control the display.” Broadcom asserts that Qualcomm concedes that the accused MSM chipsets include processing circuitry arranged to provide output to a display and to control the display, [

] ⁵⁵⁶ Staff agrees,

asserting that Qualcomm has not contested the analysis that the [

] ⁵⁵⁷ Staff also asserts

that telephone handsets incorporating the accused chips also directly infringe claim 8 and that Qualcomm induces this infringement by supporting the handset manufacturers in incorporating the accused chipsets into their handsets. ⁵⁵⁸ Qualcomm does not address claim 8 directly and relies on its general infringement arguments.

The undersigned finds Broadcom’s and Staff’s arguments to be persuasive. The evidence shows that the additional claim limitation in claim 8 (“processing circuitry is arranged to provide output to a display and is arranged to control the display”) is met. ⁵⁵⁹ Accordingly, the undersigned finds that the MSM chipsets themselves and when incorporated into telephone handsets, directly infringe this claim limitation. The undersigned also agrees that Broadcom has failed to prove that

⁵⁵⁶ CIB 85. *See* JX-24C (Grob Dep) at 202; CX-1664C (Nettleton Direct) at 59; CDX-68; CDX-103C (MSM6250 Specification) at QBB74471, 74540-43, 74622-24.

⁵⁵⁷ SIB 80. *See* CX-1664C (Nettleton Direct) at 59; CDX-68; RX-922C (Proakis Rebuttal) at 11-13.

⁵⁵⁸ SIB 80. *See* Hutchinson, Tr. 1210-12; Grob, Tr. 998-99, 1003-04, 1011, 1022; RX-838C (Proakis Direct) at 16; JX-122C (Finnerty Dep) at 84-87.

⁵⁵⁹ *See* JX-24C (Grob Dep) at 202; CX-1664C (Nettleton Direct) at 59; RX-922C (Proakis Rebuttal) at 11-13, 16; CDX-68; CDX-103C (MSM6250 Specification) at QBB74471, 74540-43, 74622-24..

Qualcomm directly infringes this claim limitation with regard to Qualcomm's FFAs.

d. Claim 9

Claim 9 reads “[t]he one or more circuits of claim 1 and further comprising a bus suitable for receiving data from a keyboard.” Broadcom asserts that each accused MSM chipset includes a bus suitable for receiving data from a keyboard.⁵⁶⁰ Staff agrees, asserting that Qualcomm has not contested that the technical documentation shows a bus which can be [] which is suitable for receiving data from a keyboard.⁵⁶¹ Staff also asserts that telephone handsets incorporating the accused chips also directly infringe claim 9 and that Qualcomm induces this infringement by supporting the handset manufacturers in incorporating the accused chipsets into their handsets.⁵⁶² Qualcomm does not address claim 9 directly and relies on its general infringement arguments.

The undersigned finds Broadcom's and Staff's arguments to be persuasive. The evidence shows that the additional claim limitation in claim 9 (“a bus suitable for receiving data from a keyboard”) is met.⁵⁶³ Accordingly, the undersigned finds that the MSM chipsets themselves and when incorporated into telephone handsets, directly infringe this claim limitation. The undersigned also agrees that Broadcom has failed to prove that Qualcomm directly infringes this claim limitation

⁵⁶⁰ CIB 86. *See* CX-1664C (Nettleton Direct) at 60; CDX-69; CX-103C (MSM6250 Specification) at QBB74471, QBB74646; CX-94C (MSM6250 ASIC HDD) at QBB68233, 68236, 68256.

⁵⁶¹ SIB 81. *See* CX-1664C (Nettleton Direct) at 60; CDX-69; RX-922C (Proakis Rebuttal) at 11-13.

⁵⁶² SIB 81. *See* Hutchinson, Tr. 1210-12; Grob, Tr. 998-99, 1003-04, 1011, 1022; RX-838C (Proakis Direct) at 16; JX-122C (Finnerty Dep) at 84-87.

⁵⁶³ *See* CX-1664C (Nettleton Direct) at 60; CDX-69; RX-922C (Proakis Rebuttal) at 11-13; CX-103C (MSM6250 Specification) at QBB74471, QBB74646; CX-94C (MSM6250 ASIC HDD) at QBB68233, 68236, 68256.

with regard to Qualcomm's FFAs.

e. Claim 11

Claim 11 reads “[t]he one or more circuits of claim 1 wherein processing circuitry enables switching from the reduced power mode to an increased power mode of the processing circuitry when the communication circuitry is needed to transmit or receive data.” Broadcom asserts that each accused MSM chipset includes a [] that enables switching from the reduced power mode to an increased power mode of the processing circuitry when the communication circuitry is needed to transmit or receive data.⁵⁶⁴ Broadcom also asserts that each accused MSM chipset includes a []

[]⁵⁶⁵ Staff agrees, asserting that Qualcomm has not contested Dr. Nettleton's opinion that the accused chipsets have processing circuitry that can []

[]⁵⁶⁶ Staff notes that its proposed claim construction of claim 11 is broader than Broadcom's; therefore, Dr. Nettleton's analysis is equally applicable under its claim construction.⁵⁶⁷ Staff also asserts that telephone handsets incorporating the accused chips also directly infringe claim 11 and that Qualcomm induces this infringement by supporting the handset manufacturers in incorporating the accused chipsets into their handsets.⁵⁶⁸

⁵⁶⁴ CIB 86. *See* CX-1664C (Nettleton Direct) at 61-62; CDX-70; CX-94C (MSM6250 ASIC HDD) at QBB68676.

⁵⁶⁵ CIB 87. *See* CX-24C (Grob Dep) at 204-08; CX-94C (MSM6250 ASIC HDD) at QBB68878, 68900.

⁵⁶⁶ SIB 81-82. *See* CX-1664C (Nettleton Direct) at 61-62.

⁵⁶⁷ SIB 82.

⁵⁶⁸ SIB 82. *See* Hutchinson, Tr. 1210-12; Grob, Tr. 998-99, 1003-04, 1011, 1022; RX-838C (Proakis Direct) at 16; JX-122C (Finnerty Dep) at 84-87.

Qualcomm does not address claim 11 directly and relies on its general infringement arguments.

The undersigned finds Broadcom's and Staff's arguments to be persuasive. The evidence shows that the additional claim limitation in claim 11 ("processing circuitry enables switching from the reduced power mode to an increased power mode of the processing circuitry when the communication circuitry is needed to transmit or receive data") is met.⁵⁶⁹ Accordingly, the undersigned finds that the MSM chipsets themselves and when incorporated into telephone handsets, directly infringe this claim limitation. The undersigned also agrees that Broadcom has failed to prove that Qualcomm directly infringes this claim limitation with regard to Qualcomm's FFAs.

f. Claim 14

Claim 14 reads "[a] method for use in a mobile computing device to communicate with access points comprising: receiving battery power; using the battery power to transmit data to the access points and receive data from the access points using a first wireless communication and a second wireless communication different from the first wireless communication; reducing the received battery power by controlling the frequency of scanning for the access points; and processing data received from the first wireless communication and the second wireless communication." Broadcom asserts that the accused MSM chipsets practice each method step of claim 14 as implemented by Qualcomm in its FFAs and as used in its customers' mobile computing devices.⁵⁷⁰

Specifically, Broadcom asserts that there is no dispute that Qualcomm designs, markets, and sells each of the accused MSM chipsets for use in mobile computing devices to enable

⁵⁶⁹ See CX-1664C (Nettleton Direct) at 61-62; CX-24C (Grob Dep) at 204-08; CDX-70; CX-94C (MSM6250 ASIC HDD) at QBB68676, 68878, 68900.

⁵⁷⁰ CIB 87-88.

communication with access point.⁵⁷¹ According to Broadcom, the MSM6250: receives battery power over []⁵⁷² uses battery power to transmit data to the access points and receive data from the access points using a first wireless communication and a second wireless communication different from the first wireless communication for the same reasons it meets this limitation in claim 1;⁵⁷³ reduces the received battery power by controlling the frequency of scanning for access points for the same reasons it meets this limitation in claim 1;⁵⁷⁴ and processes data received from the first wireless communication and the second wireless communication for the same reasons it meets this limitation in claim 1.⁵⁷⁵

Staff asserts that Broadcom's entire analysis of controlling the frequency of scanning for access points is restricted to the situation when there is no access point channel available. According to Staff, its view is that when a cellular handset is out of range of all access points, it may not be said to be practicing a method to communicate with access points; therefore Staff asserts that Broadcom has not met its burden to show that the accused chipsets themselves, or when incorporated into a telephone handset, practice claim 14.⁵⁷⁶ Staff also asserts that Broadcom has failed to show that a handset with an accused chip that is outside the range of all access points, practices the method elements of "using the battery power to transmit data to the access points" or "processing data received" from the access points.⁵⁷⁷

⁵⁷¹ CIB 87. *See* CX-1534C (MSM6250 datasheet).

⁵⁷² CIB 87. *See* CX-1664C (Nettleton Direct) at 45-47; JX-38C (Mollenkopf Dep) at 184-85; JX-12C (Ahn Dep) at 45.

⁵⁷³ CIB 88.

⁵⁷⁴ CIB 88.

⁵⁷⁵ CIB 88.

⁵⁷⁶ SIB 82-83; SRB 36. *See* CX-1664C (Nettleton Direct) at 50-56, 63.

⁵⁷⁷ SIB 36-37.

Qualcomm does not address claim 14 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 14.

g. Claim 17

Claim 17 reads "[t]he method of claim 14 wherein the processing data comprises operating at a first frequency and at a second frequency different from the first frequency." Broadcom asserts that Qualcomm's MSM chipsets, when incorporated into Qualcomm's FFAs or its customers' devices, operate at a first frequency and at a second frequency different from the first frequency when processing data for the same reasons it meets this limitation in claim 11.⁵⁷⁸ Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁷⁹ Qualcomm does not address claim 17 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as

⁵⁷⁸ CIB 88.

⁵⁷⁹ SIB 83-84.

implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 17.

h. Claim 18

Claim 18 reads "the method of claim 17 and further comprising displaying data resulting from the data processing." Broadcom asserts that Qualcomm's MSM chipsets, when incorporated into Qualcomm's FFAs or its customers' devices, [] located in the mobile station hosting the MSM for the same reasons it meets this limitation in claim 8.⁵⁸⁰ Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁸¹ Qualcomm does not address claim 18 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 18.

i. Claim 19

Claim 19 reads "[t]he method of claim 18 and further comprising receiving data from a keyboard." Broadcom asserts that, when used on mobile stations having a keypad, such as the

⁵⁸⁰ CIB 89. *See* CX-103C (MSM6250 specification) at QBB74471, 74540-43, 74622-24; CX-1664C (Nettleton Direct) at 64-65.

⁵⁸¹ SIB 84.

Samsung SGH-Z500, Qualcomm's MSM chipsets receive data from a keyboard.⁵⁸² Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁸³ Qualcomm does not address claim 19 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 19.

j. Claim 20

Claim 20 reads "[t]he method of claim 14 and further comprising displaying data resulting from the data processing." Broadcom asserts that, when operating in conjunction with a mobile station having a display, Qualcomm's MSM chipsets, when incorporated into Qualcomm's FFAs or its customers' devices, display data resulting from the data processing for the same reasons it meets this limitation in claim 18.⁵⁸⁴ Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁸⁵ Qualcomm does not address

⁵⁸² CIB 89. See CX-1664C (Nettleton Direct) at 65; CX-103C (MSM6250 Specification) at QBB74471 (figs. 1-2), 74646; CDX-74.

⁵⁸³ SIB 84.

⁵⁸⁴ CIB 89. See CX-1664C (Nettleton Direct) at 66; CX-103C (MSM6250 Specification) at QBB74471; CDX-75.

⁵⁸⁵ SIB 84-85.

claim 20 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 20.

k. Claim 21

Claim 21 reads "[t]he method of claim 14 and further comprising receiving data from a keyboard." Broadcom asserts that, when used in a mobile station having a keypad, Qualcomm's MSM chipsets, when incorporated into Qualcomm's FFAs or its customers' devices, receive data from a keyboard for the same reasons it meets this limitation in claim 19.⁵⁸⁶ Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁸⁷ Qualcomm does not address claim 21 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 21.

⁵⁸⁶ CIB 89. *See* CX-1664C (Nettleton Direct) at 66-67, CX-103C (MSM6250 Specification) at QBB74471, 74646; CDX-76.

⁵⁸⁷ SIB 85.

l. Claim 22

Claim 22 reads “[t]he method of claim 14 wherein the processing data comprises processing at a plurality of different frequencies.” Broadcom asserts that Qualcomm’s MSM chipsets, when incorporated into Qualcomm’s FFAs or its customers’ devices, process data at a plurality of different frequencies for the same reasons it meets this limitation in claim 11.⁵⁸⁸ Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁸⁹ Qualcomm does not address claim 22 directly and relies on its general infringement arguments.

The undersigned finds Staff’s arguments to be persuasive. As noted above the undersigned adopted Staff’s claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm’s MSM chipsets, as implemented in Qualcomm’s FFAs or Qualcomm’s customers’ mobile computing devices, directly infringe method claim 22.

m. Claim 23

Claim 23 reads “[t]he method of claim 14 and further comprising: reducing the received battery power when the transmitting of data or the receiving of data is not needed; and increasing the received battery power when the transmitting of data or the receiving data is needed.” Broadcom asserts that Qualcomm’s MSM chipsets, when incorporated into Qualcomm’s FFAs or its customers’ devices, reduce the received battery power when transmitting or receiving data is not needed, and increase the received battery power when transmitting or receiving is needed for the same reasons

⁵⁸⁸ CIB 90. *See* CX-1664C (Nettleton Direct) at 67; CX-94C (MSM6250 ASIC HDD) at QBB68878, 6890; CDX-77.

⁵⁸⁹ SIB 85.

it meets this limitation in claim 11.⁵⁹⁰ Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused chipsets or cellular handsets incorporating the accused chipsets.⁵⁹¹ Qualcomm does not address claim 23 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 23.

n. Claim 24

Claim 24 reads “[t]he method of claim 23 wherein the reducing the received battery power comprises reducing the frequency of the processing and wherein the increasing the received battery power comprises increasing the frequency of the processing.” Broadcom asserts that Qualcomm's MSM chipsets, when incorporated into Qualcomm's FFAs or its customers' devices, reduce the frequency of processing when reducing the received battery power, and increase the frequency of processing when increasing the received battery power [] and for the same reasons it meets this limitation in claim 11.⁵⁹² Staff asserts that, for the same reasons discussed with respect to claim 14, Broadcom has not met its burden to show infringement with respect to the accused

⁵⁹⁰ CIB 90. *See* CX-1664C (Nettleton Direct) at 67-68; CX-94C (MSM6250 ASIC HDD) at QBB68876, 68900; CDX-78.

⁵⁹¹ SIB 85-86.

⁵⁹² CIB 90-91. *See* CX-1664C (Nettleton Direct) at 68; CX-103 (MSM6250 Specification) at QBB74567, 74516, 74659-60; CX-94C (MSM6250 ASIC HDD) at QBB68676; CDX-79.

chipsets or cellular handsets incorporating the accused chipsets.⁵⁹³ Qualcomm does not address claim 24 directly and relies on its general infringement arguments.

The undersigned finds Staff's arguments to be persuasive. As noted above the undersigned adopted Staff's claim construction for the relevant claim limitations. Accordingly, Broadcom has failed to show that, based on the claim construction adopted, that Qualcomm's MSM chipsets, as implemented in Qualcomm's FFAs or Qualcomm's customers' mobile computing devices, directly infringe method claim 24.

C. Domestic Industry - Technical Prong

Broadcom asserts that its BCM2121, BCM2132, and BCM2133 chips practice claim 1 of the '983 patent; that its BCM 2121 and BCM2132 chips practice claims 4, 8, 9, 11, 14 and 17-24 of the '983 patent; and that beyond selling chips and software that perform the asserted claims, that Broadcom also conducts extensive testing in a manner that practices the asserted claims.⁵⁹⁴

Broadcom asserts that Qualcomm did not contest that Broadcom has satisfied the technical prong of the domestic industry requirement in its pre-trial brief; therefore, Qualcomm is precluded from making such an argument at this time.⁵⁹⁵ In addition, Broadcom asserts that Dr. Proakis, Qualcomm's expert, had no opinion as to whether any Broadcom products practice the '983 patent; therefore, Broadcom's technical domestic industry is undisputed.⁵⁹⁶

Qualcomm asserts that it disputes that Broadcom practices the asserted patent claims to the extent that those claims are invalid or are construed contrary to Broadcom's asserted interpretations.

⁵⁹³ SIB 86.

⁵⁹⁴ CIB 110-11. *See* CX-1664C (Nettleton Direct) at 70-73; CDX-80, 86-93; CX-1667C (Sollenberger Direct).

⁵⁹⁵ CIB 109. *See* Ground Rule 8.2 (Order No. 2, June 21, 2005).

⁵⁹⁶ CIB 111; Proakis, Tr. 2091-92.

In particular, Qualcomm asserts that if Broadcom's construction of the claim term "terminal" is rejected, that Broadcom does not practice claim 1 of the '983 patent.⁵⁹⁷

Staff asserts that Broadcom's BCM2132 is designed to operate within a mobile phone and is currently used in the Treo 650 Smartphone. Specifically, Staff asserts that the BCM2132 chip is capable of communicating on the GSM, GPRS, and EDGE protocol standards.⁵⁹⁸ [

599

600

601

] ⁶⁰² In this way, the communication circuitry and the entire phone reduces power consumption.⁶⁰³ [

]

⁵⁹⁷ RIB 79.

⁵⁹⁸ CX-1664C (Nettleton Direct) at 71-72; CX-1667C (Sollenberger Direct) at 3, 4.

⁵⁹⁹ CX-1667C (Sollenberger Direct) at 6.

⁶⁰⁰ CX-1667C (Sollenberger Direct) at 6.

⁶⁰¹ CX-1667C (Sollenberger Direct) at 6.

⁶⁰² CX-1664C (Nettleton Direct) at 71; CX-1667C (Sollenberger Direct) at 6.

⁶⁰³ CX-1664C (Nettleton Direct) at 71; CX-1667C (Sollenberger Direct) at 6.

[]⁶⁰⁴ Therefore, Staff asserts that the BCM2132 chips meets each and every limitation of claim 1 of the ‘983 patent under the Staff’s proposed claim construction. Staff notes that, while Broadcom asserts that other products practice the ‘983 patent, that Broadcom has not provided any detail analysis for these other products.⁶⁰⁵

As already discussed above, the undersigned adopted Broadcom’s claim construction for the claim term “terminal” and adopted all of Staff’s claim construction for the disputed terms of the ‘983 patent. Accordingly, the undersigned finds that Broadcom’s BCM2132 chip practices claim 1 of the ‘983 patent.⁶⁰⁶ Therefore, Broadcom has satisfied the technical prong of domestic industry for the ‘983 patent.

D. Validity

1. Ordinary Skill in the Art

Broadcom asserts that a person of ordinary skill in the art with regard to the ‘983 patent would have a Bachelor’s degree in electrical engineering with a few years of experience in wireless telecommunications.⁶⁰⁷ Qualcomm asserts that a person of ordinary skill in the art with regard to the ‘983 patent would have: 1) a Bachelor’s degree in electrical engineering with 5-7 years work experience directly related to the design, implementation and programming of radio communication devices in the telecommunications industry, 2) a Master’s degree in electrical engineering with a specialty in communications and two years work experience directly related to radio communications

⁶⁰⁴ CX-1664C (Nettleton Direct) at 72; CX-1667C (Sollenberger Direct) at 5, 7.

⁶⁰⁵ SIB 101, n. 51.

⁶⁰⁶ SIB 99-101. *See* CX-1664C (Nettleton Direct) at 70-72; CX-1667C (Sollenberger Direct) at 3-6; CDX-66.

⁶⁰⁷ CX-1664C (Nettleton Direct) at 7. Staff agrees. SIB 41.

in the telecommunications industry, or 3) a Ph.D. in electrical engineering with a specialty in telecommunications.⁶⁰⁸ The undersigned finds that Qualcomm has not provided any justification for proposing such a high level of skill in the art and the undersigned finds that a person of ordinary skill in the art has a Bachelor's degree in electrical engineering with a few years of experience in wireless telecommunications.

2. Anticipation

a. GSM Standard and Technical Specifications

Qualcomm asserts that the Global System for Mobile Communications ("GSM") standard is prior art to the '983 patent. According to Qualcomm, the GSM standard is a single standard composed of many technical specifications that are worked out in subcommittees with special interest in each area. Qualcomm asserts that two technical specifications are prior art to the '983 patent: RX-334 (GSM 02.11) dated April 1993, and RX-468 (GSM 04.08 v 4.2.0) dated October 1992.⁶⁰⁹ According to Qualcomm, the GSM standards setting body was not closed to the public and its members were not barred from disclosing information discussed at meetings by confidentiality agreements, therefore the specifications were "publicly available" and constitute prior art.⁶¹⁰

Qualcomm asserts that under either party's claim construction, the GSM specifications teach each and every limitation of independent claims 1 and 14, including:

- terminals adapted to receive battery power,⁶¹¹
- three different types of wireless communications (*i.e.* roaming between different networks, types of data transmitted such as digital voice and data, and communications on two different

⁶⁰⁸ RIB 121. *See* RX-838C (Proakis Direct) at 52.

⁶⁰⁹ RIB 87. *See* Pautet, Tr. 1710; Proakis, Tr. 1069-70; RX-828C (Pautet Direct) at 27-31.

⁶¹⁰ RIB 86. *See* Pautet, Tr. 1787.

⁶¹¹ RIB 88. *See* RX-838C (Proakis Direct) at 103.

frequencies),⁶¹²

- to the extent Broadcom argues that Qualcomm’s compliance with the GSM standards 3GPP TS 24.008 version 5.3.0 and 3GPP TS 22.011 version 6.4.0 constitutes infringement because it teaches “discontinuous searching” or searching at a “low rhythm” after the initial search, the GSM standard is prior art,⁶¹³ and

- processing circuitry to process the received data.⁶¹⁴

As for the additional dependent claim limitations, Qualcomm asserts that the GSM standard discloses each and every limitation of the dependent claims, including:

- processing circuitry comprising an integrated circuit (claim 4),⁶¹⁵
- display controlled by, and displaying content generated by processing circuitry (claims 8, 18, and 20),⁶¹⁶
- a bus for receiving data from a keypad (claims 9, 19, and 21),⁶¹⁷
- switching between reduced and increased power modes (claims 11 and 23),⁶¹⁸ and
- different frequencies of processing data (claims 17, 22, and 24).⁶¹⁹

Broadcom asserts that the GSM specification does not anticipate the ‘983 patent because it

⁶¹² RIB 88-89. *See* Pautet, Tr. 1705-10, 1795-1801; Proakis, Tr. 2078-81; RX-838C (Proakis Direct) at 103, 107; RX-890 (GSM 03.40 v 3.5.0).

⁶¹³ RIB 89. *See* RX-47 (Sollenberger Declaration); RX-838C (Proakis Direct) at 105-08; RX-468 (GSM 04.08 v 4.2.0) at QBB479548.

⁶¹⁴ RIB 89. *See* RX-838C (Proakis Direct) at 104-05, 108; Proakis, Tr. 2081; CX-1979C (Nettleton Rebuttal) at 28-31.

⁶¹⁵ RIB 89-90. *See* RX-838 (Proakis Direct) at 105; Nettleton, Tr. 2345-47; Pautet, Tr. 1753; RX-469 (GSM 02.06 v 3.2.0) at QBB155094-95.

⁶¹⁶ RIB 90. *See* RX-838 (Proakis Direct) at 105, 109; CX-1979C (Nettleton Rebuttal) at 30-31; Nettleton, Tr. 2349-50; RX-475 (GSM 02.07 v 3.3.0) at QBB221628.

⁶¹⁷ RIB 90. *See* RX-838 (Proakis Direct) at 105, 109-10; CX-1979C (Nettleton Rebuttal) at 30; Nettleton, Tr. 2359; RX-475 (GSM 02.07 v 3.3.0) at QBB221628.

⁶¹⁸ RIB 91. *See* Nettleton, Tr. 432-33, 2081-82; RX-468 (GSM 04.08 v 4.2.0) at QBB479548; RX-476 (GSM 03.13 v 3.0.2) at QBB221726.

⁶¹⁹ RIB 91-92. *See* Proakis, Tr. 1927; Nettleton, Tr. 2081-82, 2385, 2390-91; RX-476 (GSM 03.13 v 3.0.2) at QBB221726.

was not publicly available, is based on a combination of eleven different GSM technical specifications, does not meet the “two different types of wireless communications ” limitation because it does not disclose two different wireless air interfaces, does not include circuit level implementation, was only known in Europe at the time of the ‘983 patent, and does not meet other certain dependent claim limitations.⁶²⁰ Specifically, Broadcom argues that the early GSM standards were confidential, as evidenced by testimony from Ms. Pautet that, prior to August 31, 1993, only authorized delegates of the European Telecommunications Standards Institute (ETSI) had access to the GSM standards.⁶²¹ Furthermore, Broadcom argues that, even the testimony of a credible witness by itself fails to rise to the level of clear and convincing evidence in the absence of any documentary corroboration of the witness’ memory.⁶²²

Staff asserts that Qualcomm has failed to show, by clear and convincing evidence, that the GSM technical specification anticipates the asserted claims of the ‘983 patent.⁶²³ According to Staff, Ms. Pautet, who is supposedly one of the most knowledgeable people in the world about the operation of GSM, testified that GSM only has one radio interface or air interface that is used for all communications between a mobile device and a base station.⁶²⁴ Therefore, in Staff’s view, the GSM

⁶²⁰ CIB 124-126; CRB 62-64. *See* Pautet, Tr. 1710-12, 1720-21, 1723-25, 1734-38, 1740-41, 1743, 1745, 1746-47, 1749-50, 1753, 1779, 1801-02; Nettleton, Tr. 2292-93; Proakis, Tr. 2069-72, 2074-75; CX-1979C (Nettleton Rebuttal) at 29-32; CDX-175.03C; CDX-175.04C; RX-471 (GSM 04.01 v 3.0.1) at QBB155203.

⁶²¹ CIB 124-25; CRB 61. *See* Pautet, Tr. 1714, 1716-19. *See also N. Telecom v. Datapoint Corp.*, 9 U.S.P.Q.2d 1577, 1601 (N.D. Tex. 1988) (“*N. Telecom*”) (documents not publications where, although contained in a library at a particular corporation and not classified, access to the library was restricted), *aff’d in relevant part*, 908 F.2d 931 (Fed. Cir. 1990).

⁶²² CRB 62 citing *Juicy Whip, Inc. v. Orange Bang, Inc.*, 292 F.3d 728, 743 (Fed. Cir. 2002) (“*Juicy Whip*”) (“The uncorroborated oral testimony of [the accused infringer], as the inventor, and his close associates would be insufficient to prove invalidity.”).

⁶²³ SIB 118.

⁶²⁴ RX-828 (Pautet Direct) at 8; Pautet, Tr. 1720-21, 1734-36, 1753, 1787-88, 1798, 1801-02.

technical specification does not anticipate the '983 patent under either the Staff's or Broadcom's claim construction, which requires two communication methodologies or two air interfaces, respectively.⁶²⁵ Staff also asserts that Qualcomm has failed to allege that the entire GSM standard was available as prior art, or that Qualcomm has provided any legal authority or rationale for considering the two particular technical specifications together as one publication under § 102.⁶²⁶ In addition, Staff asserts that Qualcomm has not shown, by clear and convincing evidence, that the specifications were publicly available prior to August 1993.⁶²⁷

Qualcomm counters Broadcom's arguments. First, Qualcomm asserts that the GSM specification that is locked away in a vault is a rare historical copy.⁶²⁸ Second, Qualcomm asserts that the '983 patent does not include circuit schematics and only discloses general figures and block diagrams. In addition, Qualcomm asserts that the use of circuitry to build a device pursuant to the GSM specification was clear to one of ordinary skill in the art and that circuitry is inherent in any mobile phone.⁶²⁹ In the alternative, Qualcomm asserts that the GSM specifications did teach circuit level details in providing requirements for vehicle-mounted, portable, and hand-held mobile terminals.⁶³⁰ Third, Qualcomm asserts that Ms. Pautet testified that various American companies, such as Motorola, were represented in the GSM body via their European subsidiaries.⁶³¹

The undersigned finds Qualcomm's arguments to be unpersuasive. First, the fact that

⁶²⁵ SIB 119; SRB 48.

⁶²⁶ SRB 47.

⁶²⁷ SRB 47-48.

⁶²⁸ RRB 51.

⁶²⁹ RIB 87; RRB 51-52. *See* Proakis, Tr. 1818-19, 2071, 2081, 2213-16; Pautet, Tr. 1753; RX-654 (GSM 05.01 v 3.2.0) at QBB233739.

⁶³⁰ RIB 88. *See* RX-838C (Proakis Direct) at 102, 106; RX-469 (GSM 02.06 v 3.2.0) at QBB155094-95.

⁶³¹ RRB 52. *See* Pautet, Tr. 1714-15.

Broadcom, in its complaint, asserted that Qualcomm's chipsets infringe based on these two technical specifications of the GSM standard, is irrelevant for invalidity purposes. Second, Qualcomm has not shown that the entire GSM standard was publicly available prior to August 1993.⁶³² Third, Qualcomm has not shown why the two technical specifications, RX-334 and RX-468, along with other parts of the GSM standard, should be considered as one prior art reference, which is required for anticipation. Fourth, even if Qualcomm has shown that the entire GSM standard is considered published prior art, or that the two technical specifications should be considered as a single reference, Qualcomm has not shown that more than one communication methodology is disclosed. As discussed above, the undersigned construed the claim limitation "**communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication**" to refer to two different methods of communication. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the GSM technical specifications anticipate the '983 patent.

b. CDMA Draft Revision 0

(1) 35 U.S.C. §§ 102(a)

Qualcomm asserts that the "Blue Book" version (RX-647 "Blue Book") of the draft CDMA standard is a later developed version of the CDMA CAI Rev. 0 document (RX-491C "CDMA Draft Revision 0"); therefore, the disclosures of the Blue Book are substantially the same as the disclosures of the CDMA CAI Rev. 0.⁶³³ Qualcomm is not, however, contending that the CDMA Draft Revision

⁶³² See *Northern Telecom*, 908 F.2d 936-37 (to qualify as a printed publication, the publication must be generally available to the public such that access to the document is not limited or subject to an obligation of confidentiality).

⁶³³ RIB 92. See RX-830 (Tiedemann Direct) at 7-8; Proakis, Tr. 1870.

0 was publicly available at the time of the '983 patent.⁶³⁴ According to Qualcomm, the Blue Book was published on April 21, 1992 when it was presented to a large group of industry leaders at a public conference in Niagara Falls, Ontario by Mr. Tiedemann.⁶³⁵ Qualcomm also asserts that the Blue Book was received by at least two public libraries in April & May 1992, including the Library of Congress and the University of California at San Diego, and was therefore, publicly available.⁶³⁶

Qualcomm asserts that even the earliest version of the CDMA Draft Revision 0 contains a detailed description of the “slotted sleep mode” of operation for mobile devices.⁶³⁷ According to Qualcomm, in the “slotted sleep mode” time is divided into a series of slots and each cell phone is assigned a slot for it to check for messages from the base station. Messages for the phone will only come during the assigned slot; therefore, significant portions of the phone can be shut down when the phone does not need to monitor its assigned slot for messages.⁶³⁸ According to Qualcomm, before Qualcomm developed “slotted sleep mode,” cell phones did not stop “scanning for access points.” Rather, even after acquiring service, they continued to consume battery power by constantly searching for service. In “slotted sleep mode” however, a cell phone only scans for service immediately prior to and during its assigned paging slot, conserving battery power.⁶³⁹

Qualcomm asserts that under either party’s claim construction, the Blue Book teaches each

⁶³⁴ RRB 54.

⁶³⁵ RIB 93. See Tiedemann, Tr. 1047-49, 1066; *Mass. Inst. of Tech. v. Ab Fortia*, 774 F.2d 1104, 1109 (Fed. Cir. 1985) (“*Mass. Inst.*”) (paper deemed a “publication” where its contents were discussed orally to a large group of people having ordinary skill in the art, and where at least six copies were distributed).

⁶³⁶ RIB 93. See Tiedemann, Tr. 1049-50, 1057; RX-936 (Library of Congress copy of RX-647) *In re Hall*, 781 F.2d 897 (Fed. Cir. 1986) (“*Hall*”).

⁶³⁷ RIB 94. See RX-813C (Hutchinson Direct) at 3; RX-832C (Hughes Direct) at 4.

⁶³⁸ RIB 94. See RX-491 (CDMA Draft Revision 0) at QBB138701-03; Proakis, Tr. 1848.

⁶³⁹ RIB 94. See Proakis, Tr. 1848, 1912-13; Hutchinson, Tr. 1227-29; RX-831C (Hutchinson Direct) at 3.

and every limitation of independent claims 1 and 14, including:

- terminals adapted to receive battery power,⁶⁴⁰
- different first and second wireless communications for transmitting data to, and receive data from, access points,⁶⁴¹
- controlling the frequency of scanning for access points,⁶⁴² and
- processing data received from the communications circuitry.⁶⁴³

As for the additional dependent claim limitations, Qualcomm asserts that CDMA Draft Revision 0 and the Blue Book disclose each and every limitation of the dependent claims, including:

- processing circuitry comprising an integrated circuit (claim 4),⁶⁴⁴
- a display controlled by, and displaying content generated by processing circuitry (claims 8, 18, and 20),⁶⁴⁵
- a bus for receiving data from a keypad (claims 9, 19, and 21),⁶⁴⁶
- switching between reduced and increased power modes (claims 11 and 23),⁶⁴⁷ and
- altering the frequency of processing (claims 17, 22, and 24).⁶⁴⁸

Broadcom asserts that CDMA Draft Revision 0 does not anticipate the '983 patent because

⁶⁴⁰ RIB 94-95. *See* RX-647 (Blue Book) at QBB001605, 1659; RX-491C (CDMA Draft Revision 0) at QBB138617, 138631; RX-831C (Hutchinson Direct) at 1-2.

⁶⁴¹ RIB 95. *See* RX-647 (Blue Book) at QBB001605, 1935; RX-491C (CDMA Draft Revision 0) at QBB138617; CX-1979C (Nettleton Rebuttal) at 25; Nettleton, Tr. 2342.

⁶⁴² RIB 95-97. *See* RX-647 (Blue Book) at QBB001923-33, 2005; RX-491C (CDMA Draft Revision 0) at QBB138702-03; Hutchinson, Tr. 1216, 1227-29; Nettleton, Tr. 2529-30, 2533, 2544-45, 2572-75; Proakis, Tr. 1849-51, 1864, 1912-13, 2086.

⁶⁴³ RIB 97. *See* RX-647 (Blue Book) at QBB001985.

⁶⁴⁴ RIB 97-98. *See* Nettleton, Tr. 2345-47; RX-838C (Proakis Direct) at 63, 105.

⁶⁴⁵ RIB 98. *See* Nettleton, Tr. 2349-50; RPX-1 (CD-7000).

⁶⁴⁶ RIB 98. *See* Nettleton, Tr. 2348-49; RX-647 (Blue Book) at QBB002084.

⁶⁴⁷ RIB 98-99. *See* RX-647 (Blue Book) at QBB001712-13, 1930-33.

⁶⁴⁸ RIB 99. *See* RX-647 (Blue Book) at QBB001712-13; 1930-33.

it was not publicly available, does not disclose circuitry, including processing circuitry,⁶⁴⁹ does not teach two different digital wireless communications, does not meet the “reducing the power by controlling the frequency of scanning” limitation, and does not meet other certain dependent claim limitations.⁶⁵⁰ As to RX-647, the Blue Book, Broadcom asserts that Qualcomm failed to put forth an anticipation analysis in its pre-trial brief, and that the issue is waived pursuant to Ground Rule 8.2.⁶⁵¹ In addition, Broadcom asserts that neither of Dr. Proakis’s witness statements, RX-838C and RX-922C, offer an anticipation analysis based on the Blue Book, and that Dr. Proakis conclusory testimony that the two documents are materially the same is insufficient.⁶⁵²

Staff asserts that Qualcomm has failed to show that CDMA Draft Revision 0 is prior art because it was not ever made available to the public to qualify as a printed publication under § 102(b).⁶⁵³ Staff also disputes that the Blue Book is “prior art.” Although the Staff acknowledges that there is evidence in the record that the Blue Book was received by the Library of Congress on May 2, 1992, Staff asserts that there is no evidence in the record regarding the usual practices of the Library of Congress in order to determine whether the document was actually available to the public.⁶⁵⁴ Staff also asserts that Mr. Tiedemann’s testimony that he distributed copies of the Blue

⁶⁴⁹ Broadcom asserts that Qualcomm never addressed how RX-491C or RX-497C discloses the “processing circuitry” limitation in its pre-trial brief, therefore, the issue has been waived pursuant to Ground Rule 8.2. CIB 126, n. 45; CRB 60.

⁶⁵⁰ CIB 126-27; CRB 64-67. *See* CX-1979C (Nettleton Rebuttal) at 32-38; Nettleton, Tr. 33-35, 2294-96, 2544-45; RX-838C (Proakis Direct) at 63; Proakis, Tr. 2060-61, 2083-84; Chassman, Tr. 1851; RX-647 (Blue Book) at QBB001936; RX-491C (CDMA Draft Revision 0) at QBB138708; CDX-175.05C; CDX-175.07C.

⁶⁵¹ CRB 59-60.

⁶⁵² CRB 60. *See* Proakis, Tr. 1869-70. *See also* *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998) (“*ATD*”).

⁶⁵³ SIB 119-20.

⁶⁵⁴ SRB 49. *See* *Hall*, 781 F.2d at 899.

Book at an April 21, 1992 conference in Niagara Falls, Ontario, is uncorroborated testimony that is insufficient to show by that Blue Book was published by clear and convincing evidence.⁶⁵⁵

Staff also asserts that Qualcomm has failed to show, by clear and convincing evidence, that the CDMA standard anticipates the asserted claims of the '983 patent because Qualcomm's expert, Dr. Proakis, testified that "there's no disclosure of processing circuitry distinct from communications circuitry."⁶⁵⁶ Therefore, Staff asserts that the reference does not anticipate the '983 patent because the "communication circuitry . . . adapted to use a first wireless communication and a second wireless communication from the communication circuitry" limitation is not met.⁶⁵⁷

Qualcomm counters Broadcom's arguments. First, Qualcomm asserts that the CDMA Draft Revision 0 discloses circuits.⁶⁵⁸ Second, Qualcomm asserts that the CDMA standard discloses two different wireless communications, including a digital and analog communication.⁶⁵⁹ Third, Qualcomm asserts that the CDMA standard teaches continuous scanning for access points in the *non-slotted* mode.⁶⁶⁰ Fourth, Qualcomm asserts that scanning for access points may occur after an access point has been obtained.⁶⁶¹ Fifth, Qualcomm asserts that CDMA standard taught processing circuitry that employed integrated circuits.⁶⁶² Finally, Qualcomm asserts that the Blue Book was

⁶⁵⁵ SRB 49. *See* RX-830 (Tiedemann Direct) at 1; Tiedemann, Tr. 1041-43, 1047-49, 1066-67.

⁶⁵⁶ SRB 50. *See* Proakis, Tr. 2084.

⁶⁵⁷ SRB 50.

⁶⁵⁸ RRB 52. *See* RX-838C (Proakis Direct) at 62-63, 66-70; various block diagrams, logic gate diagrams, flowcharts, state diagrams in RX-491C.

⁶⁵⁹ RRB 52-53.

⁶⁶⁰ RRB 53. *See* RX-491C (CDMA Draft Revision 0) at QBB138703, 708; Nettleton, Tr. 2529-30; Proakis, Tr. 1912-13; Hutchinson, Tr. 1227-29.

⁶⁶¹ RRB 53. Specifically, Qualcomm asserts that Broadcom has raised this objection for the first time in its post-trial brief and that it has been waived pursuant to Ground Rule 8.2.

⁶⁶² RRB 53-54. *See* Nettleton, Tr. 2345-47.

publicly available and is prior art.⁶⁶³

The undersigned finds Qualcomm's arguments to be unpersuasive. First, Qualcomm's entire discussion of the CDMA standard is jumbled with interchangeable references between RX-491C, the "CDMA Draft Revision 0,"⁶⁶⁴ which Qualcomm concedes was not publicly available as of the time of the '983 patent, and RX-647 "the Blue Book." If the disclosures in the Blue Book are truly substantially the same as the disclosures in the CDMA Draft Revision 0, then there would be no need for Qualcomm to refer to RX-491C. The fact is, Qualcomm makes constant reference to RX-491C and RX-647.

Second, the undersigned rejects Qualcomm's arguments that RX-647 (Blue Book) was "published" at the time of the '983 patent and is prior art. There was much discussion during the

⁶⁶³ RRB 54. *See* RX-830 (Tiedemann Direct) at 2, 7; Tiedemann, Tr. 1049-50, 1052, 1057; Proakis, Tr. 1869-70; RX-935; RX-936. *See also In re Klopfenstein*, 380 F.3d 1345 (Fed. Cir. 2004) ("*Klopfenstein*"); *Cooper Cameron Corp. v. Kvaerner Oilfield Products, Inc.*, 291 F.3d 1317 (Fed. Cir. 2002) ("*Cooper Cameron* ").

⁶⁶⁴ The undersigned cannot see how RX-491C could be considered publicly available, as Qualcomm *still* designates RX-491C as a confidential document, not to mention all the confidential notations in the document itself. For example, the cover of RX-491C specifically states:

QUALCOMM PROPRIETARY
REPRODUCTION PROHIBITED

along with another warning on the last page stating:

CONTROLLED DOCUMENT
DO NOT REPRODUCE - CONTACT SECURITY
MUST BE PROTECTED AT ALL TIMES

DO NOT DISSEMINATE OR DIVULGE WITHOUT APPROVAL.

RX-491C (CDMA Draft Revision 0) at QBB138614, QBB138831. There is also a warning on the first page, which states that:

All data and information contained in or disclosed by this document is confidential and proprietary information of QUALCOMM, Inc. and all rights therein are expressly reversed. By accepting this material the recipient agrees that this material and the information contained therein is held in confidence and in trust and will not be used, copied, reproduced in whole or in part, nor its contents revealed in any manner to others without the express written permission of QUALCOMM, Inc.

RX-491C (CDMA Draft Revision 0) at QBB138614.

pre-hearing conference and trial about various versions of the CDMA standard, including RX-647, the April 21, 1992 Blue Book, and another version dated July 1993 (RX-931, which was rejected).⁶⁶⁵ Qualcomm failed to put the July 1993 version of the CDMA standard on its notice of prior art or its trial exhibit list, Campbell, Tr. 145-46, and the undersigned ruled that Qualcomm could not refer to the July 1993 version because adequate notice was not given either in the prior art list or in Dr. Proakis's expert report, so Qualcomm was forced to argue anticipation based solely on the Blue Book.⁶⁶⁶ Then, there was much discussion during the hearing when the Blue Book was received by the Library of Congress.⁶⁶⁷ The undersigned agrees with Staff that, while there is evidence in the record that the Library of Congress received the Blue Book as of May 7, 1992, that there is no evidence in the record regarding the usual practices of the Library of Congress in order to determine whether the document was actually available to the public.⁶⁶⁸

Third, even if the undersigned accepted that the Blue Book and CDMA Draft Revision 0 are substantially the same, and the undersigned considered the Blue Book to be "published" and therefore "prior art," Qualcomm's own expert witness testified that there is no disclosure of processing circuitry distinct from communications circuitry; therefore the "communication circuitry . . . adapted to use a first wireless communication and a second wireless communication from the communication circuitry" limitation is not met.⁶⁶⁹

Accordingly, the undersigned finds that Qualcomm has failed to show, by clear and convincing evidence, that the '983 patent is anticipated by CDMA Draft Revision or the Blue Book.

⁶⁶⁵ See Tr., 136-48, 247-93.

⁶⁶⁶ Bullock, Tr. 293-95.

⁶⁶⁷ See Tr. 1050-70, 1156-58, 1339-69.

⁶⁶⁸ See RX-935 (Library of Congress stamped Blue Book); *Hall*, 781 F.2d at 899.

⁶⁶⁹ Proakis, Tr. 2084.

(2) 35 U.S.C. § 102(g)

Qualcomm asserts that Qualcomm's prior conception, diligent reduction to practice, and development of the slotted sleep technology that culminated in the July 31, 1990 Draft 0 of the CDMA standard is prior invention by another that invalidates the '983 patent under 35 U.S.C. § 102(g).⁶⁷⁰ Qualcomm asserts that the CDMA standard was conceived by Qualcomm engineers, including Mr. Tiedemann, prior to the July 31, 1990 date of the CDMA Digital CAI Standard Rev. 0.⁶⁷¹ Qualcomm asserts that, between August 30-November 16, 1993, its engineers spent a great deal of time developing and improving features necessary to implement slotted sleep and that it has proven "reasonable diligence" from the "critical period" before the patentee's priority date to the date Qualcomm reduced its idea to practice.⁶⁷² Qualcomm asserts that, by November 16, 1993, Qualcomm engineer, Mr. Hutchinson succeeded in developing a lab phone that operated in slotted mode through the night.⁶⁷³ Qualcomm relies on an email dated November 16, 1993, along with testimony, for its reduction to practice date.⁶⁷⁴

Specifically, Qualcomm asserts that the evidence shows that Qualcomm conceived of a dual-mode CDMA cell phone with processing circuitry, a display, a controller for the display, a keyboard

⁶⁷⁰ RIB 117.

⁶⁷¹ RIB 118. See RX-830 (Tiedemann Direct) at 3-4; RX-831C (Hutchinson Direct) at 3; RX-832C (Hughes Direct) at 4; Grob, Tr. 1016-17.

⁶⁷² RIB 118-19. See RX-527C (10/2/93 email) and various weekly engineering reports (RX-555C, RX-556C, RX-557C, RX-558C, RX-559C, RX-560C, RX-561C, RX-562C, RX-563C). See also *Cooper v. Goldfarb*, 154 F.3d 1321, 1330 (Fed. Cir. 1998) ("*Cooper*"); *Monsanto Co. v. Mycogen Plant Science Inc.*, 261 F.3d 1356, 1369 (Fed. Cir. 2001) ("*Monsanto*").

⁶⁷³ RIB 119-20. See RX-528C (11/16/93 email); RX-565C (weekly engineering report); RX-831C (Hutchinson Direct) at 3-4; Hutchinson, Tr. 1181, 1237-38; Hughes, Tr. 1102-06; RPX-1 (CD7000).

⁶⁷⁴ RRB 57. See Hutchinson, Tr. 1237-38; RX-528C (11/16/93 email); RX-831C (Hutchinson Direct) at 16-17.

and bus, and software that reduced the clock speed and turned off the processor.⁶⁷⁵ Qualcomm asserts that the invention was reduced to practice when slotted sleep software was loaded onto a prototype phone, the CD7000, on November 16, 1993.⁶⁷⁶ According to Qualcomm, one of ordinary skill in the art would know that a portable handheld phone would have integrated circuits, which is visible when the cover is removed from the CD7000.⁶⁷⁷

Broadcom asserts that Qualcomm's "slotted sleep" and "deep sleep"⁶⁷⁸ concepts do not anticipate the asserted claims of the '983 patent. First, Broadcom asserts that the only system determination disclosed in RX-491C is continuous scanning for access point; therefore, "slotted sleep" does not disclose the "controlling the frequency of scanning for access points" limitation in the asserted independent claims.⁶⁷⁹ Moreover, Broadcom asserts that Qualcomm never addressed how the "slotted sleep" concept discloses the "processing circuitry" (claim 1 and 14), "display" (claims 8, 18, and 20), or "bus" and "keyboard" (claims 9, 19, and 21) limitations in its pre-trial brief, therefore, the issue has been waived pursuant to Ground Rule 8.2.⁶⁸⁰

Second, Broadcom asserts that Qualcomm has failed to demonstrate, by clear and convincing evidence, that its conception of the "slotted sleep" concept was "complete and operative" before August 31, 1993, the effective filing date of the '983 patent. According to Broadcom, an engineering

⁶⁷⁵ RIB 120; RRB 58. *See* Hutchinson, Tr. 1229, 1231-32; RPX-1 (CD7000); RX-501 (12/26/91 email) at QBB231147; RX-582 (system determination source code) at QBB234892, 996-999.

⁶⁷⁶ RRB 58. *See* Nettleton, Tr. 2359; Hutchinson, Tr. 1224-25.

⁶⁷⁷ Nettleton, Tr. 2345-47; RPX-1 (CD-7000).

⁶⁷⁸ While Broadcom addresses "deep sleep," it is not addressed by Qualcomm; therefore it will not be addressed by the undersigned. *See* CRB 67.

⁶⁷⁹ CIB 128-29. *See* Nettleton, Tr. 2294-96; Proakis, Tr. 2086-88; RX-491C (CDMA Draft Revision 0) at QBB138703; CDX-175.07C.

⁶⁸⁰ CIB 129.

report dated August 30, 1993, shows that Qualcomm still had no clue as to what is wrong with the sleep initialization or the wake handling and that it would have to continue to pursue sleep/wakeup problems.⁶⁸¹

Third, Broadcom asserts that even if Qualcomm could overcome the lack of a complete and operative conception of “slotted sleep” before August 31, 1993, that it cannot overcome the extensive, unexplained gaps in diligence that exist prior to its supposed reduction to practice.⁶⁸² Finally, Broadcom asserts that Qualcomm has failed to identify an actual “inventor” or objective corroboration that any such inventor subjectively appreciated what they had invented.⁶⁸³

Staff asserts that Qualcomm did not identify an actual inventor of the “sleep mode” disclosed in the 1990 CDMA CAI and that Qualcomm’s reduction to practice was not supported with independent corroborating evidence, other than the November 16, 1993 email claiming “minor sleep success.”⁶⁸⁴ Staff argues that Qualcomm’s post-hearing brief is the *first time* Qualcomm has alleged that Mr. Tiedemann is the prior inventor. According to Staff, Mr. Tiedemann is not named as author of the draft CDMA document and that there is no evidence that Mr. Tiedemann has ever claimed to have invented slotted sleep.⁶⁸⁵

Qualcomm counters both Broadcom and Staff’s arguments. First, Qualcomm asserts that it did disclose an individual inventor before the post-hearing brief, namely, Mr. Tiedemann.⁶⁸⁶ Second,

⁶⁸¹ CIB 130-31; CRB 68-69. See RX-555C (8/30/93 engineering report); Hutchinson, Tr. 1178-85; Nettleton, Tr. 2298-99; CDX-175.12C.

⁶⁸² CIB 131.

⁶⁸³ CIB 132; CRB 68 citing *Invitrogen Corp. v. Clontech Labs., Inc.*, 429 F.3d 1052, 1063-64 (Fed. Cir. 2005) (“*Invitrogen*”).

⁶⁸⁴ SIB 121-22; SRB 52-53. See RX-528C (11/16/93 email).

⁶⁸⁵ SRB 52.

⁶⁸⁶ RRB 57. See RX-830 (Tiedemann Direct) at 4-5.

Qualcomm asserts that the invention was corroborated by Mr. Hutchinson, Mr. Hughes, the dated CDMA CAI versions, and various emails.⁶⁸⁷ Third, Qualcomm asserts that slotted sleep anticipates the '983 patent's dependent claims.⁶⁸⁸

Section 102(g) provides that a person is not entitled to a patent if the invention was previously made in this country "by another inventor" who had not abandoned suppressed or concealed it," where an "inventor" must be a natural person.⁶⁸⁹ The undersigned finds Qualcomm's arguments to be unpersuasive. First, Qualcomm did not adequately identify an actual inventor of "sleep mode" until it's post-hearing brief.⁶⁹⁰ Section 102(g) requires a named inventor. Qualcomm failed to name Mr. Tiedemann as the "inventor" in its pre-trial brief, therefore the issue is waived pursuant to Ground Rule 8.2 and Qualcomm cannot prevail on § 102(g). Although Qualcomm asserts that it named Mr. Tiedemann as the inventor in its pre-trial brief, a reading of the pre-trial brief reveals that no such explicit assertion was made. Pages 88-90 of Qualcomm's pre-trial brief, which discusses § 102(g) in connection with the '983 patent makes no reference to Mr. Tiedemann, and pages 94-95, which discusses § 102(g) in connection with the '311 patent, makes reference to Mr. Tiedemann and Mr. Hughes as Qualcomm employees that will present testimony describing *Qualcomm's* development of slotted sleep, but no direct assertion that they are the engineers Qualcomm alleges invented slotted sleep.

⁶⁸⁷ RRB 57-58. *See* Hutchinson, Tr. 1226-27, 1237-38; Hughes, Tr. 1102-06; RX-831C (Hutchinson Direct) at 16-17; RX-832C (Hughes Direct) at 4-5; RX-528C (11/16/93 email); RX-529 (11/30/93 email); RX-530 (12/13/93 email).

⁶⁸⁸ RRB 58. *See* Hutchinson, Tr. 1224-25, 1231-32; Nettleton, Tr. 2345-47, 2359; RPX-1 (CD7000).

⁶⁸⁹ 35 U.S.C. § 102(g); *Beech Aircraft*, 990 F.2d at 1248, n. 23.

⁶⁹⁰ *See* RIB 118 ("Qualcomm engineers, including Mr. Tiedemann, conceived of slotted sleep prior to the July 31, 1990 date of CDMA Digital CAI Standard Rev. 0, which set out the protocols for slotted sleep.")

Even if the undersigned did not consider this argument to be waived, the undersigned finds that Qualcomm has not proven that the “slotted sleep” concept was “complete and operative” before August 31, 1993, the effective filing date of the ‘983 patent. According to an engineering report dated August 30, 1993, Qualcomm continued to have problems with sleep initialization and wake handling.⁶⁹¹ “Conception is complete only when the idea is so clearly defined in the inventor’s mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.”⁶⁹² Qualcomm has failed to meet this standard.

Accordingly, the undersigned finds that Qualcomm has failed to show, by clear and convincing evidence, that the ‘983 patent is anticipated under 35 U.S.C. § 102(g) by the CDMA Draft Revision.

c. U.S. Patent No. 4,964,121 (“the Moore ‘121 patent”)

The Moore ‘121 patent issued on October 16, 1990 and is entitled “battery saver for a TDM system.”⁶⁹³ Accordingly, it is prior art under 35 U.S.C. §§ 102(a), (b), and (e). According to Qualcomm, the Moore ‘121 patent discloses circuits by discussing a communication system comprising multiple remote sites (*i.e.* access points) serving multiple remote communication units (*i.e.* mobile computing devices) for use in a digital Time Division Multiplexed (TDM) system. While Qualcomm concedes that the Moore ‘121 patent does not disclose circuitry, it asserts that the Moore ‘121 patent provides the same level of detail as the ‘983 patent via functional diagrams.⁶⁹⁴

⁶⁹¹ See RX-555C (8/30/93 engineering report); Hutchinson, Tr. 1178-85; Nettleton, Tr. 2298-99; CDX-175.12C.

⁶⁹² *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (“*Burroughs Wellcome*”).

⁶⁹³ RX-441 (the Moore ‘121 patent).

⁶⁹⁴ RIB 100. See RX-838C (Proakis Direct) at 85; RX-441 (the Moore ‘121 patent) at Abstract.

Qualcomm asserts that under either party's claim construction, the Moore '121 patent anticipates each and every limitation of independent claims 1 and 14, including:

- a terminal adapted to receive battery power,⁶⁹⁵
- different first and second wireless communications for transmitting data to, and receive data from, access points,⁶⁹⁶
- controlling the frequency of scanning for access points,⁶⁹⁷ and
- processing data received from the communications circuitry.⁶⁹⁸

As for the additional dependent claim limitations, Qualcomm asserts that the Moore '121 patent discloses each and every limitation of the dependent claims, including:

- processing circuitry comprising an integrated circuit (claim 4),⁶⁹⁹
- a display controlled by, and displaying content generated by processing circuitry (claims 8, 18, and 20),⁷⁰⁰
- a bus for receiving data from a keypad (claims 9, 19, and 21),⁷⁰¹

⁶⁹⁵ RIB 100. *See* RX-441 (the Moore '121 patent) at cols. 1:16-19; 7:60-67; RX-838C (Proakis Direct) at 85-86, 91; CX-1979C (Nettleton Rebuttal) at 23-25.

⁶⁹⁶ RIB 101. *See* RX-441 (the Moore '121 patent) at cols. 3:45-48, 63-4:4, 38-45, 5:45-56; Proakis, Tr. 1872; RX-838C (Proakis Direct) at 86, 91-92; Nettleton, Tr. 2334-35, 2342.

⁶⁹⁷ RIB 101-02. *See* RX-441 (the Moore '121 patent) at cols. 3:69-4:9, 7:34-39, 52-55, 57-8:30; Proakis, Tr. 1872-74; RX-838C (Proakis Direct) at 86-89, 92-94; CX-1979C (Nettleton Rebuttal) at 23-25.

⁶⁹⁸ RIB 102. *See* RX-441 (the Moore '121 patent) at cols. 2:64-65, 6:65-7:14, 9:56-63; RX-838C (Proakis Direct) at 89, 94-95; CX-1979C (Nettleton Rebuttal) at 23-25.

⁶⁹⁹ RIB 102. *See* RX-441 (the Moore '121 patent) at col. 6:65-7:14; RX-838C (Proakis Direct) at 89; Nettleton, Tr. 2345-47; CX-1979C (Nettleton Rebuttal) at 23.

⁷⁰⁰ RIB 103-04. *See* RX-441 (the Moore '121 patent) at cols. 7:23-25, 9:45-46; RX-447 (the Moore '121 prosecution history) at QBB741917; RX-838C (Proakis Direct) at 89-90, 95-96; CX-1979C (Nettleton Rebuttal) at 23-26; Nettleton, Tr. 2350, 2352-53.

⁷⁰¹ RIB 104. *See* RX-441 (the Moore '121 patent) at cols. 7:6-8, 9:45-46; RX-838C (Proakis Direct) at 90, 95-96; Nettleton, Tr. 2355-56, 2358-59; CX-1979C (Nettleton Rebuttal) at 24-26.

- switching between reduced and increased power modes (claims 11 and 23),⁷⁰² and
- altering the frequency of processing (claims 17, 22, and 24).⁷⁰³

Broadcom asserts that the Moore ‘121 patent does not anticipate the ‘983 patent because it does not disclose two different wireless communications protocols (*i.e.* air interfaces) for digital transmission to access points, a “reduced power mode,” processing circuitry, and other dependent claim limitations.⁷⁰⁴ Broadcom also asserts that Qualcomm never addressed how the Moore ‘121 patent discloses the “processing circuitry” (claim 1 and 14), “display” (claims 8, 18, and 20), or “bus” and “keyboard” (claims 9, 19, and 21) limitations in its pre-trial brief, therefore, the issue has been waived pursuant to Ground Rule 8.2.⁷⁰⁵

Staff asserts that Qualcomm has failed to show, by clear and convincing evidence, that the Moore ‘121 patent anticipates the asserted claims of the ‘983 patent.⁷⁰⁶ According to Staff, Qualcomm’s expert, Dr. Proakis, only identified one communication technology in the Moore ‘121 patent.⁷⁰⁷ Therefore, Staff asserts that the reference does not anticipate the ‘983 patent under either the Staff’s or Broadcom’s claim construction, which requires two communication methodologies or two air interfaces, respectively.⁷⁰⁸ Staff concedes, however, that if the undersigned adopts a claim construction of “first wireless communication” and “second wireless communication” that is broad

⁷⁰² RIB 104-05. *See* RX-441 (the Moore ‘121 patent) at cols. 2:31-41, 7:21-28, 60-8:9, 63-67, 9:32-45; RX-838C (Proakis Direct) at 90-91, 96-98; Proakis, Tr. 1865-66; Nettleton, Tr. 2385.

⁷⁰³ RIB 106. *See* RX-838C (Proakis Direct) at 90-91, 96-100.

⁷⁰⁴ CIB 127-28; CRB 67. *See* Proakis, Tr. 2064-65; CX-1979C (Nettleton Rebuttal) at 14, 16-18, 20-27; Nettleton, Tr. 2297-98; RX-441 (the Moore ‘121 patent) at col. 3:37-39; CDX-175.09C-175.11C.

⁷⁰⁵ CIB 127, n. 46; CRB 60.

⁷⁰⁶ SIB 120.

⁷⁰⁷ RX-838C (Proakis Direct) at 86.

⁷⁰⁸ SIB 120; SRB 50.

enough to encompass different types of data transmitted over a single wireless link, that the Moore ‘121 patent appears to anticipate the asserted claims of the ‘983 patent.⁷⁰⁹

Qualcomm counters both Broadcom’s and Staff’s arguments. According to Qualcomm, Broadcom’s only two arguments regarding invalidity based on the Moore ‘121 patent are based on Broadcom’s construction of the claim elements “two different wireless communications” and a “reduced power mode.” Qualcomm asserts that, should the undersigned reject Broadcom’s construction of these claim limitations, then the ‘983 patent is invalid.⁷¹⁰ Qualcomm asserts that Broadcom’s expert, Dr. Nettleton, concedes that if the undersigned adopts Qualcomm’s claim construction for the term “two different wireless communications,” then the Moore ‘121 patent discloses this claim limitation.⁷¹¹ Qualcomm also asserts that Moore discloses a reduced power mode.⁷¹²

The undersigned does not find Qualcomm’s arguments to be persuasive. Qualcomm has not shown that more than one communication methodology is disclosed in the Moore ‘121 patent. As discussed above, the undersigned construed the claim limitation “**communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication**” to refer to two different methods of communication. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the Moore ‘121 patent anticipates the ‘983 patent.

⁷⁰⁹ SRB 50-51.

⁷¹⁰ RRB 55-56.

⁷¹¹ RRB 55-56. *See* Nettleton, Tr. 2342 (Moore).

⁷¹² RRB 56, n.19. *See* Proakis, Tr. 2064-65 (Moore).

d. U.S. Patent No. 5,203,020 (“the Sato ‘020 patent”)

The Sato ‘020 patent was filed on October 2, 1991 and issued on April 13, 1993. It is entitled “method and apparatus for reducing power consumption in a radio telecommunication apparatus.”⁷¹³ Accordingly, it is prior art under 35 U.S.C. §§ 102(e).

According to Qualcomm, the Sato ‘020 patent describes a mobile communication device that communicates with access points. While Qualcomm concedes that the Sato ‘020 patent does not disclose circuitry, it asserts that the Sato ‘020 patent provides the same level of detail as the ‘983 patent via functional diagrams.⁷¹⁴ Qualcomm asserts that under either party’s claim construction, the Sato ‘020 patent anticipates each and every limitation of independent claims 1 and 14, including:

- terminals adapted to receive battery power,⁷¹⁵
- different first and second wireless communications for transmitting data to, and receive data from, access points,⁷¹⁶
- controlling the frequency of scanning for access points,⁷¹⁷ and
- processing data received from the communications circuitry.⁷¹⁸

As for the additional dependent claim limitations, Qualcomm asserts that the Sato ‘020 patent discloses each and every limitation of the dependent claims, including:

⁷¹³ RX-443 (the Sato ‘020 patent).

⁷¹⁴ RIB 106. *See* RX-443 (the Sato ‘020 patent) at Abstract, Figs. 1-2; RX-838C (Proakis Direct) at 79, 81.

⁷¹⁵ RIB 107. *See* RX-443 (the Sato ‘020 patent) at cols. 3:41-45, 6:57-66, Fig. 1; RX-838C (Proakis Direct) at 79, 81; CX-1979C (Nettleton Rebuttal) at 17-19.

⁷¹⁶ RIB 107. *See* RX-443 (the Sato ‘020 patent) at cols. 1:49-56, 2:6-8, 61-68, 4:38-43, 5:17-24, 31-46 7:7-22, 30-36, 44-54, 10:8-13, Figs. 2, 6-7; RX-838C (Proakis Direct) at 79-81.

⁷¹⁷ RIB 107-08. *See* RX-443 (the Sato ‘020 patent) at cols. 6:13-29, Figs. 4(a)-(b); RX-838C (Proakis Direct) at 79-80; CX-1979C (Nettleton Rebuttal) at 17-19.

⁷¹⁸ RIB 108. *See* RX-443 (the Sato ‘020 patent) at cols. 3:51-53, 4:61-62, 5:25-35, 7:23-36, Fig. 2; RX-838C (Proakis Direct) at 80; CX-1979C (Nettleton Rebuttal) at 19.

- processing circuitry comprising an integrated circuit (claim 4),⁷¹⁹
- a display controlled by, and displaying content generated by processing circuitry (claims 8, 18, and 20),⁷²⁰
- a bus for receiving data from a keypad (claims 9, 19, and 21),⁷²¹
- switching between reduced and increased power modes (claims 11 and 23),⁷²² and
- altering the frequency of processing (claims 17, 22, and 24).⁷²³

Broadcom asserts that the Sato '020 patent does not anticipate the '983 patent because it does not disclose two different wireless communications protocols (*i.e.* air interfaces) for digital transmission to access points, a “reduced power mode,” processing circuitry, and other dependent claim limitations.⁷²⁴ Broadcom asserts that Qualcomm never addressed how the Sato '020 patent discloses the “processing circuitry” (claim 1 and 14), “display” (claims 8, 18, and 20), or “bus” and “keyboard” (claims 9, 19, and 21) limitations in its pre-trial brief, therefore, the issue has been waived pursuant to Ground Rule 8.2.⁷²⁵

Staff asserts that Qualcomm has failed to show, by clear and convincing evidence, that the

⁷¹⁹ RIB 108-09. *See* RX-443 (the Sato '020 patent) at cols. 4:54-5:24, Fig. 2; RX-838C (Proakis Direct) at 80; CX-1979C (Nettleton Rebuttal) at 19; Nettleton, Tr. 2345-47.

⁷²⁰ RIB 109. *See* RX-443 (the Sato '020 patent) at cols. 3:51-53, 4:2, 4-12, 54-62-5:24; CX-1979C (Nettleton Rebuttal) at 19.

⁷²¹ RIB 109-10. *See* RX-443 (the Sato '020 patent) at col. 4:1-20, Fig. 1; RX-838C (Proakis Direct) at 80, 83; Nettleton, Tr. 2358-59.

⁷²² RIB 110-11. *See* RX-443 (the Sato '020 patent) at cols. 2:65-3:2, 5:17-24, 48-51, 65-6:29; RX-838C (Proakis Direct) at 80-81, 84; CX-1979C (Nettleton Rebuttal) at 20.

⁷²³ RIB 111. *See* RX-443 (the Sato '020 patent) at cols. 2:61-3:2, 6:30-32, 24-29, 7:9-33, 44-61, 8:56-61, Figs. 5-7; RX-838C (Proakis Direct) at 83-85.

⁷²⁴ CIB 127-28; CRB 67. *See* Proakis, Tr. 2055, 2065; CX-1979C (Nettleton Rebuttal) at 14-17, 18-27; Nettleton, Tr. 2297-98; RX-443 (the Sato '020 patent) at col. 1:17-24; CDX-175.09C-175.11C.

⁷²⁵ CIB 127, n. 46; CRB 60.

Sato '020 patent anticipates the asserted claims of the '983 patent.⁷²⁶ According to Staff, Qualcomm's expert, Dr. Proakis, only identified one communication technology in the Sato '020 patent.⁷²⁷ Therefore, Staff asserts that the reference does not anticipate the '983 patent under either the Staff's or Broadcom's claim construction, which requires two communication methodologies or two air interfaces, respectively.⁷²⁸ Staff concedes, however, that if the undersigned adopts a claim construction of "first wireless communication" and "second wireless communication" that is broad enough to encompass different types of data transmitted over a single wireless link, that the Sato '020 patent appears to anticipate the asserted claims of the '983 patent.⁷²⁹

Qualcomm counters both Broadcom and Staff's arguments. According to Qualcomm, Broadcom's only two arguments regarding invalidity based on the Sato '020 patent are based on Broadcom's construction of the claim elements "two different wireless communications" and a "reduced power mode." Qualcomm asserts that, should the undersigned reject Broadcom's construction of these claim limitations, then the '983 patent is invalid.⁷³⁰ Qualcomm asserts that Broadcom's expert, Dr. Nettleton, concedes that if the undersigned adopts Qualcomm's claim construction for the term "two different wireless communications," then the Sato '020 patent discloses this claim limitation.⁷³¹ Qualcomm also asserts that the Sato '020 patent discloses a reduced power mode.⁷³²

The undersigned does not find Qualcomm's arguments to be persuasive. Qualcomm has not

⁷²⁶ SIB 120-21.

⁷²⁷ RX-838C (Proakis Direct) at 79.

⁷²⁸ SIB 120-21; SRB 51.

⁷²⁹ SRB 51.

⁷³⁰ RRB 55-56.

⁷³¹ RRB 55-56.

⁷³² RRB 56, n.19. *See* Proakis, Tr. 2055-56 (Sato).

shown that more than one communication methodology is disclosed in the Sato '020 patent. As discussed above, the undersigned construed the claim limitation “**communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication**” to refer to two different methods of communication. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the Sato '020 patent anticipates the '983 patent.

e. U.S. Patent No. 5,128,938 (“the Borrás '938 patent”)

The Borrás '938 patent issued on July 7, 1992 and is entitled “energy saving protocol for a communications system.”⁷³³ Accordingly, it is prior art under 35 U.S.C. §§ 102(a), (b), and (e).

According to Qualcomm, the Borrás '938 patent describes mobile subscriber units containing one or more circuits which communicate with base stations. While Qualcomm concedes that the Borrás '938 patent does not disclose circuitry, it asserts that the Borrás '938 patent provides the same level of detail as the '983 patent via functional diagrams.⁷³⁴ Qualcomm asserts that under either party's claim construction, the Borrás '938 patent anticipates each and every limitation of independent claims 1 and 14, including:

- terminals adapted to receive battery power,⁷³⁵
- different first and second wireless communications for transmitting data to, and receive data from, access points,⁷³⁶

⁷³³ RX-15 (the Borrás '938 patent).

⁷³⁴ RIB 112. *See* RX-838C (Proakis Direct) at 73, 75-96; RX-15 (the Borrás '938 patent) at cols. 2:38-41, 4:29-40, Figs. 1-2; Nettleton, Tr. 2360, 2362.

⁷³⁵ RIB 112-13. *See* RX-15 (the Borrás '938 patent) at col. 4:29-40, Fig. 2; RX-838C (Proakis Direct) at 73-76; CX-1979C (Nettleton Rebuttal) at 13-15.

⁷³⁶ RIB 113. *See* RX-15 (the Borrás '938 patent) at cols. 2:57-68, 3:54-60, 4:41-52, 63-65; Nettleton, Tr. 2364-67.

- controlling the frequency of scanning for access points,⁷³⁷ and
- processing data received from the communications circuitry.⁷³⁸

As for the additional dependent claim limitations, Qualcomm asserts that the Borrás ‘938 patent discloses each and every limitation of the dependent claims, including:

- processing circuitry comprising an integrated circuit (claim 4),⁷³⁹
- a display controlled by, and displaying content generated by processing circuitry (claims 8, 18, and 20),⁷⁴⁰
- a bus for receiving data from a keypad (claims 9, 19, and 21),⁷⁴¹
- switching between reduced and increased power modes (claims 11 and 23),⁷⁴² and
- altering the frequency of processing (claims 17, 22, and 24).⁷⁴³

Broadcom asserts that the Borrás ‘938 patent does not anticipate the ‘983 patent because it does not disclose two different wireless communications protocols (*i.e.* air interfaces) for digital transmission to access points, a “reduced power mode,” processing circuitry, and other dependent

⁷³⁷ RIB 113-14. *See* RX-15 (the Borrás ‘938 patent) at cols. 1:27-32, 3:31-37, 5:10-15, 47-52, 6:13-16, 29-34, 42-58, 7:4-11, 5:46-52, Fig. 3; RX-838C (Proakis Direct) at 74-76; CX-1979C (Nettleton Rebuttal) at 14-15; Nettleton, Tr. 2372-75.

⁷³⁸ RIB 114. *See* RX-15 (the Borrás ‘938 patent) at cols. 3:1-9, 4:33-36, 55-65; RX-838C (Proakis Direct) at 74-77; CX-1979C (Nettleton Rebuttal) at 13-15.

⁷³⁹ RIB 115. *See* RX-15 (the Borrás ‘938 patent) at col. 3:1-4; RX-838C (Proakis Direct) at 75; CX-1979C (Nettleton Rebuttal) at 14-15; Nettleton, Tr. 2379-80.

⁷⁴⁰ RIB 115. *See* RX-15 (the Borrás ‘938 patent) at col. 4:64-65, Fig. 2; RX-838C (Proakis Direct) at 75, 77; Nettleton, Tr. 2379-80; CX-1979C (Nettleton Rebuttal) at 15-16.

⁷⁴¹ RIB 115. *See* RX-15 (the Borrás ‘938 patent) at col. 3:45-49; RX-838C (Proakis Direct) at 75; Proakis, Tr. 1865-66; Nettleton, Tr. 2359.

⁷⁴² RIB 116. *See* RX-15 (the Borrás ‘938 patent) at cols. 4:44-47, 6:1-12, Fig. 2; Proakis, Tr. 1985-66; Nettleton, Tr. 2380; CX-1979C (Nettleton Rebuttal) at 15-17.

⁷⁴³ RIB 116-17. *See* RX-15 (the Borrás ‘938 patent) at cols. 1:27-32, 4:41-65, 5:10-15, Fig. 2; RX-838C (Proakis Direct) at 77-78.

claim limitations.⁷⁴⁴ Broadcom asserts that Qualcomm never addressed how the Borrás ‘938 patent discloses the “processing circuitry” (claim 1 and 14), “display” (claims 8, 18, and 20), or “bus” and “keyboard” (claims 9, 19, and 21) limitations in its pre-trial brief, therefore, the issue has been waived pursuant to Ground Rule 8.2.⁷⁴⁵

Staff asserts that Qualcomm has failed to show, by clear and convincing evidence, that the Borrás ‘938 patent anticipates the asserted claims of the ‘983 patent.⁷⁴⁶ According to Staff, Qualcomm’s expert, Dr. Proakis, only identified one communication technology in the Borrás ‘938 patent.⁷⁴⁷ Therefore, Staff asserts that the reference does not anticipate the ‘983 patent under either the Staff’s or Broadcom’s claim construction, which require two communication methodologies or two air interfaces, respectively.⁷⁴⁸ Staff concedes, however, that if the undersigned adopts a claim construction of “first wireless communication” and “second wireless communication” that is broad enough to encompass different types of data transmitted over a single wireless link, that the Borrás ‘938 patent appears to anticipate the asserted claims of the ‘983 patent.⁷⁴⁹

Qualcomm counters both Broadcom and Staff’s arguments. According to Qualcomm, Broadcom’s only two arguments regarding invalidity based on the Borrás ‘938 patent is based on Broadcom’s construction of the claim elements “two different wireless communications” and a “reduced power mode.” Qualcomm asserts that, should the undersigned reject Broadcom’s

⁷⁴⁴ CIB 127-28; CRB 67. *See* Proakis, Tr. 2065, 2068; CX-1979C (Nettleton Rebuttal) at 13-24; Nettleton, Tr. 2297-98; RX-15 (the Borrás ‘938 patent) at col. 2:57-61; CDX-175.09C-175.11C.

⁷⁴⁵ CIB 127, n. 46; CRB 60.

⁷⁴⁶ SIB 121.

⁷⁴⁷ RX-838C (Proakis Direct) at 73-74.

⁷⁴⁸ SIB 121; SRB 51.

⁷⁴⁹ SRB 51.

construction of these claim limitations, then the '983 patent is invalid.⁷⁵⁰ Qualcomm asserts that Broadcom's expert, Dr. Nettleton, concedes that if the undersigned adopts Qualcomm's claim construction for the term "two different wireless communications," then the Borrás '938 patent discloses this claim limitation.⁷⁵¹ Qualcomm also asserts that the Borrás '938 patent discloses a reduced power mode.⁷⁵² While Broadcom also asserts that Borrás fails to disclose "controlling the frequency of scanning," Qualcomm counters that Dr. Nettleton already conceded that Borrás discloses at least one instance in which the mobile terminal determines for itself when to enter a low power state.⁷⁵³

The undersigned does not find Qualcomm's arguments to be persuasive. Qualcomm has not shown that more than one communication methodology is disclosed in the Borrás '938 patent. As discussed above, the undersigned construed the claim limitation "**communication circuitry...being adapted to use a first wireless communication and a second wireless communication different from the first wireless communication**" to refer to two different methods of communication. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the Borrás '938 patent anticipates the '983 patent.

3. Obviousness

All of Qualcomm's obviousness combinations are based on single-reference obviousness where obviousness can be found based on a single prior art reference where the differences between the asserted claims and the prior art would have been within the knowledge of one of ordinary skill

⁷⁵⁰ RRB 55-56.

⁷⁵¹ RRB 55-56. *See* Nettleton, Tr. 2366.

⁷⁵² RRB 56, n.19. *See* Nettleton, Tr. 2368-69.

⁷⁵³ RRB 55, n. 18. *See* Nettleton, Tr. 2372-73.

in the art.⁷⁵⁴ Both Broadcom and Staff assert that Qualcomm has failed to show, by clear and convincing evidence, that any of the asserted claims of the '983 patent are invalid for obviousness.⁷⁵⁵ Broadcom asserts that Qualcomm failed to preserve its single-reference obviousness theory in its pre-trial brief; therefore it now waived pursuant to Ground Rule 8.2. Broadcom also asserts that, even if the issue were preserved, that Qualcomm has failed to provide any evidence of a motivation to combine.⁷⁵⁶

For Qualcomm's obviousness arguments, Qualcomm assumes that independent claims 1 and 14 are anticipated by one or more of the five anticipatory references.⁷⁵⁷ Then, Qualcomm argues that the asserted dependent claims are obvious because the additional limitations were "well-known" in the art at the time of the '983 patent. The "well-known" limitations include:

- integrated circuits (claim 4),
- display (claims 8, 18, and 20),
- keypad with bus (claims 9, 19, and 21),
- increased power mode (claims 11 and 23), and
- frequency of processing (claims 17, 22, and 24).⁷⁵⁸

Qualcomm asserts that there is no legal requirement of expert testimony in order to prove obviousness.⁷⁵⁹

⁷⁵⁴ RIB 121 citing *Sibia Neurosciences, Inc. v. Cadus Pharmaceutical Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000) ("*Sibia Neurosciences*"); RRB 59 citing *Nutrition 21 v. United States*, 930 F.2d 867, 871 (Fed. Cir. 1991) ("*Nutrition 21*").

⁷⁵⁵ CRB 59, 71-72; SIB 122; SRB 53.

⁷⁵⁶ CRB 59, 72.

⁷⁵⁷ RIB 121, n. 22.

⁷⁵⁸ RIB 122-125; RRB 59.

⁷⁵⁹ RIB 121. See *Peterson Mfg. Co., Inc. v. Central Purchasing, Inc.*, 740 F.2d 1541, 1548 (Fed. Cir. 1984) ("*Peterson*"); *Avia*, 853 F.2d at 1564.

The issue of whether Qualcomm had adequately preserved its single-reference obviousness defense was discussed at length during trial.⁷⁶⁰ The undersigned ruled that Dr. Proakis could not offer testimony on obviousness because it was not addressed in his expert report pursuant to Ground Rule 10.5.6.⁷⁶¹ Qualcomm, however, made a proffer of single-reference obviousness.⁷⁶² Even assuming that Qualcomm adequately preserved its single-reference obviousness defense, the undersigned finds Qualcomm's arguments to be inadequate and unpersuasive.

First, Qualcomm's analysis is based on an assumption that each of the allegedly five anticipatory references anticipates independent claims 1 and 14, which is not what the undersigned has found above. Second, there is no testimony or evidence as to what would motivate a person of ordinary skill in the art to apply the well-known limitations to any of the allegedly anticipatory references. While the undersigned agrees that there is no legal requirement that expert testimony is necessary in order to prove obviousness, there still needs to be some evidence in the record of a motivation to combine, other than attorney argument.

Accordingly, the undersigned finds that Qualcomm has failed to show, by clear and convincing evidence, that the '983 patent is invalid based on single-reference obviousness.

4. Lack of Written Description

Qualcomm asserts that the '983 patent is invalid under 35 U.S.C. § 112 for failing to contain a sufficiently definite written description of the "controlling the frequency of scanning for access points" claim limitation.⁷⁶³ According to Qualcomm, "scanning for access points" means examining

⁷⁶⁰ See Tr. 1866-69, 2251-72.

⁷⁶¹ See Tr. 2271-72.

⁷⁶² See Tr. 2618-21.

⁷⁶³ RIB 125; RRB 59-60.

signals received from access points to determine which access points are within radio coverage of the mobile computing devices. In other words, a description of how one would examine signals from base stations to determine which are within range. Qualcomm asserts, however, that the '983 specification does not describe the process of examining signals received from access points to determine which are in range. Rather, the '983 specification only described "channel sense" algorithms. Qualcomm asserts that channel sense algorithms do not scan for access points and that they only deal with communications between a terminal and an access point.⁷⁶⁴ Qualcomm asserts that the prosecution history supports its argument. Specifically, Qualcomm refers to a chart which references Figures 11, 13, and 16 when discussing "scanning for access points." According to Qualcomm, none of these figures disclose a mechanism to identify available access points.⁷⁶⁵

Staff asserts that Qualcomm has failed to show that the '983 patent is invalid for lack of enablement or a written description of "scanning for access points" based on how that claim element should be construed.⁷⁶⁶ According to Staff, Figures 11 and 14 of the '983 patent illustrate how a terminal can roam from one access point to another, and in so doing, disconnect from one access point and reconnect with another, while Figure 15 shows a similar process that includes a retry counter that decreases the frequency of scanning for access points to decrease power drain.⁷⁶⁷ Staff concedes that, if the undersigned construes "controlling the frequency of scanning for access points" as meaning the examination of signals received from access points to determine which access points

⁷⁶⁴ RIB 125. *See* Proakis, Tr. 1824-27, 1837-38, 1840-41; Nettleton, Tr. 505-06, 511, 519; JX-5 (the '983 patent) at cols. 30-31.

⁷⁶⁵ RIB 125-26. *See* JX-10 (the '983 prosecution history) at BCMIT0072187-91; Koenck, Tr. 686-87; JX-71C (Meier Dep) at 35-37, 50-52.

⁷⁶⁶ SIB 122.

⁷⁶⁷ *See* JX-5 (the '983 patent); CX-1339C (Koenck Direct) at 8-9.

are within radio coverage of the mobile computing device, then Qualcomm has shown that the specification does not provide an example of “scanning for access points.” Staff disputes, however, that even if that is the case, that the ‘983 patent is invalid under § 112 because Qualcomm has failed to present evidence that the specification as a whole, would not allow one skilled in the art to visualize or recognize the identify of the subject matter purportedly described.⁷⁶⁸

Broadcom asserts that, while Qualcomm has dropped its enablement argument of how to “reduce power by controlling the frequency of scanning for access points,” Qualcomm’s arguments in support of its lack of written description argument for lack of disclosure of a mechanism for “controlling the frequency of scanning for access points,” are cursory, at best. Broadcom agrees with Staff that there are several figures in the ‘983 patent, such as figures 11 and 13-16, that adequately discloses the invention.⁷⁶⁹

The undersigned does not find Qualcomm’s arguments to be persuasive. Qualcomm’s entire lack of written description argument is based on its claim construction, which was not adopted above. Accordingly, Qualcomm has failed to show, by clear and convincing evidence, that the ‘983 patent is invalid under § 112 for lack of written description.

⁷⁶⁸ SRB 54-55. See *University of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 923 (Fed. Cir. 2004) (“*Rochester*”).

⁷⁶⁹ CRB 72-73. See *Nettleton*, Tr. 2299-2300; CX-1979C (*Nettleton Rebuttal*) at 4-8; CX-1339C (*Koenck Direct*) at 8-9; *Proakis*, Tr. 2043-45. See also *Bilstad v. Wakalopoulos*, 386 F.3d 1116, 1123 (Fed. Cir. 2004) (“*Bilstad*”) (written description is satisfied if the specification “reasonably conveys to a person skilled in the art that the inventor had possession of the claimed subject matter at the time of the earlier filing date.”).

VI. The '675 Patent

A. Claim Construction

1. Asserted Claims

The asserted claims read as follows (with the first instance of the agreed-upon terms highlighted in *italics* and disputed terms highlighted in **bold**):

33. A gain compensator circuit that determines **a reference pump current for a charge pump in a phase lock loop (PLL)**, comprising

a plurality of **unit current sources** that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated, wherein said capacitor control signal also controls a corresponding fixed capacitor of a voltage controlled oscillator (VCO) in the PLL; and

a **current mirror** including one or more weighted current sources that generate a **reference scale current responsive to a PLL control signal**, the PLL control signal representative of one or more characteristics of the PLL, each of said unit current sources generating a unit current proportional to said reference scale current, said unit currents summed together to form the reference pump current.

* * *

35. The gain compensator circuit of claim 33, wherein a number of said unit current sources in said group is determined so as to compensate for variable VCO gain that is caused when said corresponding fixed capacitor is switched into said VCO.

2. Person of Ordinary Skill In The Art

Claim terms are to be given their ordinary and accustomed meaning as understood by one of ordinary skill in the art.⁷⁷⁰ Based upon the expert testimony of Dr. Milor, Broadcom argues that a person of ordinary skill in the art has “a Bachelor of Science or Masters of Science degree in electrical engineering and a few years of experience in the design of analog circuits.”⁷⁷¹

⁷⁷⁰ See *Phillips*, 415 F.3d at 1312-13 (internal citations omitted).

⁷⁷¹ CX-1662C (Milor Direct) at 17.

Qualcomm asserts, based on the testimony of their expert, Mr. Gutierrez, that one of ordinary skill in the art has “a Masters or Ph.D. degree and at least one year of experience designing PLL circuits.”⁷⁷²

The Staff sides with Broadcom on this issue and argues that “Qualcomm’s position is undermined by the fact that immediately after receiving his Masters[] degree in electrical engineering, Jeremy Dunworth was assigned the task of designing the PLL circuit that is contained in almost all of the accused products” but did not design any other PLLs after that project.⁷⁷³ Therefore, the Staff concludes that Qualcomm’s assertion that a person of ordinary skill in the art would have had some sort of special expertise in PLL design is unsupported. Thus, according to the Staff, both factual and expert testimony support the conclusion that a person of ordinary skill in the art would have “a Masters degree in electrical engineering with some experience in analog circuit design.”⁷⁷⁴

The undersigned finds that a person of ordinary skill in the art relevant to the claimed invention of the ‘675 patent is a person with at least a Masters degree in electrical engineering from an accredited university or college, with a few years of experience in the design of analog circuits. As such, the disputed claims will be construed based on the above definition of one of ordinary skill in the art.

⁷⁷² RX-839C (Gutierrez Direct) at 7.

⁷⁷³ SIB 17 (citing Dunworth, Tr. 1262-63, 1270, 1275-76).

⁷⁷⁴ *Id.*

3. Disputed Claim Terms

a. “a reference pump current for a charge pump in a phase lock loop (PLL)” (claim 33)

The parties disagree as to the meaning of “a reference pump current for a charge pump in a phase lock loop (PLL)” in claim 33 of the ‘675 patent. Broadcom argues that the disputed term refers to “a current for use in a charge pump in a PLL” and indicates that Qualcomm stated in its pre-trial brief that the meaning of “a reference pump current for a charge pump in a phase lock loop (PLL)” was no longer in dispute.⁷⁷⁵ Broadcom further argues that, at this point, it does not matter what the term actually means because Mr. Gutierrez has “admitt[ed] that the accused Qualcomm products include ‘a reference pump current for a charge pump in a phase lock loop [(PLL)],’” whatever the definition.⁷⁷⁶

To the contrary, Qualcomm asserts that a person of ordinary skill in the art would understand the disputed phrase to mean “a current that serves as an input to, and controls the magnitude of, the output current generated by the charge pump.”⁷⁷⁷ In support of its construction, Qualcomm indicates that the specification of the ‘675 patent uses the term “consistently” to refer to such a current.⁷⁷⁸

The Staff agrees with Broadcom that “the language [of the claim] does not require the particular charge pump structure that Qualcomm’s definition incorporates.”⁷⁷⁹ Thus, according to the Staff, “reference pump current” should be construed as “a current to be used in a charge pump contained in a phase lock loop.”⁷⁸⁰

⁷⁷⁵ CIB 14 (citing Qualcomm’s pre-trial brief at 16; CX-1662C (Milor Direct) at 18).

⁷⁷⁶ *Id.* (citing Gutierrez, Tr. 1443).

⁷⁷⁷ RIB 15; RX-839C (Gutierrez Direct) at 12.

⁷⁷⁸ *Id.* at 16 (citing JX-4 (the ‘675 patent) at col. 8:64-65, 13:22-24, and 6:15-17).

⁷⁷⁹ SIB 31-32.

⁷⁸⁰ *Id.* at 32.

The term “reference pump current for a charge pump in a phase lock loop (PLL)” appears in the preamble to claim 33 of the ‘675 patent. “Reference pump current” appears in each element of the body of claim 33. The term “reference pump current” does not have a specialized meaning in the field of electrical engineering.⁷⁸¹

A reading of claim 33 indicates that the language of the claim itself requires only that the “reference pump current” be generated by the unit current sources and that it be used by a charge pump in a PLL. Thus, one could glean from the plain meaning of the claim language that the reference pump current” is a current for use in a PLL. No other restrictions on the meaning of the term at issue are apparent from the claim language itself.

Other claims of the ‘675 patent, both asserted and unasserted, may also assist in determining the meaning of a disputed term “[b]ecause claim terms are normally used consistently throughout the patent.”⁷⁸² In the ‘675 patent, claims 1, 14, and 32 each begin with a preamble identical to the one in claim 33 and the body of each of those claims also contain references to the “reference pump current” in a manner similar to the reference made in the first element of claim 33. Consistent with the language of claim 33, the only restriction placed in the meaning of “reference pump current” in claims 1, 14, and 32 is that said current must be generated by the unit current sources and used by a charge pump in a PLL. These other claims, however, provide very little additional insight into the meaning of the phrase at issue.

“[C]laims must [also] be construed so as to be consistent with the specification, of which they

⁷⁸¹ RIB 16; SIB 31 n.19 (citing JX-4 (‘675 patent) at abstract, 2:29-32, 8:29, 8:42; RX-839C (Gutierrez Direct) at 12-13). The specification refers variously to this reference charge pump current as a “charge pump reference current,” a “reference pump current,” a “charge pump current,” and a “reference charge pump current.”

⁷⁸² *Phillips*, 415 F.3d at 1314.

are a part.”⁷⁸³ In this case, the specification of the ‘675 patent refers numerous times to the phrase “reference pump current,”⁷⁸⁴ and its variants.⁷⁸⁵ Each of those references is consistent with applying the plain meaning of “reference pump current for a charge pump in a phase lock loop (PLL).”

The undersigned rejects Qualcomm’s contention that a “reference pump current for a charge pump in a phase lock loop (PLL)” should be construed to mean “a current that serves as an input to and controls the magnitude of the output current generated by the charge pump.” In support of its contention, Qualcomm cites to three passages from the patent, each in the preferred embodiment described in the specification, in support of its contention:

The charge pump 204 sources (or sinks) a percentage of the pump current 205 based on the error signal 203, as will be understood by those skilled in the arts.⁷⁸⁶

The DAC 610 converts the pump current value 608 to the actual analog pump current 205 that drives the charge pump 204.⁷⁸⁷

In step 1108, the charge pump 204 sources or sinks a percentage of a reference pump current 205 based on the error signal 203.⁷⁸⁸

Qualcomm supplies no other support for limiting the scope of claim 33. While Qualcomm’s construction aptly describes the reference pump current from the sole embodiment described in the specification, Qualcomm has not heeded the Federal Circuit’s admonitions against limiting claims to a disclosed embodiment even when the disclosed embodiments are “very specific.”⁷⁸⁹ As the

⁷⁸³ *Id.* at 1316 (citations omitted).

⁷⁸⁴ *See e.g.*, JX-4 (the ‘675 patent) at Abstract; 2:28-34; 3:9-13; 6:15-17; 8:28-30, 42-45, 63-65; 9:56-58; 10:30-32; 13:36-41; 14:21-23.

⁷⁸⁵ *See, supra*, footnote 781.

⁷⁸⁶ JX-4 (the ‘675 patent) at col. 6:15-17.

⁷⁸⁷ JX-4 (the ‘675 patent) at col. 8:63-65.

⁷⁸⁸ JX-4 (the ‘675 patent) at col. 13:22-24.

⁷⁸⁹ *Phillips*, 415 F.3d at 1323 (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”).

Federal Circuit has noted “[a] person of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.”⁷⁹⁰ In this case, there is nothing in either the specification or prosecution history that indicates that the applicant intended to place such limitations on the claim at issue here. Thus, the undersigned finds that the plain meaning of the claims controls the proper construction of the disputed claim term. Accordingly, the undersigned finds “reference pump current for a charge pump in a phase lock loop (PLL)” means “a current for use in a charge pump in a PLL.”

b. “unit current source” (claims 33 and 35)

The parties also disagree about the meaning of “unit current source” in claims 33 and 35 of the ‘675 patent. Broadcom contends that a “unit current source” is a “single current source” in accordance with the plain and ordinary meaning of the term as one of ordinary skill in the art would understand it.⁷⁹¹ Broadcom further argues that the specification of the ‘675 patent is consistent with that plain meaning and points to Figure 9 as an example.⁷⁹² According to Broadcom, Figure 9 “depicts each unit current source as a single transistor.”⁷⁹³

Broadcom rejects Qualcomm’s contention that the unit current sources must be arranged in the gain compensator circuit in precisely the way in which they are depicted in the one embodiment described in the specification, *i.e.* that the unit current sources “must make up the output side of the current mirror whose input is the reference scale current.”⁷⁹⁴ According to Broadcom, “nothing in

⁷⁹⁰ *Id.*

⁷⁹¹ CIB 14 (citing CX-1662C (Milor Direct) at 19).

⁷⁹² *Id.*

⁷⁹³ *Id.*

⁷⁹⁴ CIB 15 (citing Qualcomm’s pretrial brief at 21; RX-839C (Gutierrez Direct) at 13).

the intrinsic evidence requires the unit current sources to be part of a current mirror.”⁷⁹⁵ Rather, Broadcom contends that the structure of claim 33 indicates that the unit current sources and current mirror are two distinct elements because claim 33 recites “unit current sources” in one claim element and “current mirror” in the other.⁷⁹⁶ Furthermore, Broadcom argues that the language of claim 33 “indicates that the current mirror ‘includ[es] one or more weighted current sources, but imposes no similar requirement for the ‘unit current sources.’”⁷⁹⁷ Broadcom concedes that there must be a relationship between the “unit current sources” and the “reference scale current” that is generated by part of the current mirror recited in claim 33, *i.e.* that “each of said unit current sources generat[es] a current proportional to said reference scale current.”⁷⁹⁸ Broadcom contends, however, that the word “‘proportional’ does not, however, imply a causality between the two variables or that both variables are part of the same structure.”⁷⁹⁹ Instead, Broadcom states that the term proportional indicates a “linear relationship between the unit currents and the reference scale current.”⁸⁰⁰ Broadcom argues that Qualcomm’s expert agrees that claim 33 does not identify the “output” of the recited current mirror and “further conceded that the unit current sources do not need to be part of the current mirror to be proportional to the reference scale current.”⁸⁰¹

Finally, Broadcom asserts that the doctrine of claim differentiation dictates that the “unit current sources” do not have to be part of the current mirror recited in claim 33 because claim 38

⁷⁹⁵ *Id.*

⁷⁹⁶ *Id.*

⁷⁹⁷ *Id.* at 16.

⁷⁹⁸ *Id.* (citing JX-4 (the ‘675 patent), claim 33).

⁷⁹⁹ *Id.* (citing CX-1662C (Milor Direct) at 22; CX-1978C (Milor Rebuttal) at 2; SX-1 at 594).

⁸⁰⁰ *Id.* (citing CX-1978C (Milor Rebuttal) at 5; Gutierrez, Tr. 1479).

⁸⁰¹ *Id.* at 17 (citing RX-839C (Gutierrez Direct) at 19; Gutierrez, Tr. 1484; CX-1978C (Milor Rebuttal at 2)).

requires that “each unit current source [be] controlled by said current mirror.”⁸⁰²

Qualcomm argues that “unit current sources” refer to “current sources, each of which generates a current that either replicates or is proportional to a reference scale current.”⁸⁰³ In addition, Qualcomm asserts that claim 33 uses “unit current sources” to “refer to the *output* side of the current mirror.”⁸⁰⁴ In support of its contentions, Qualcomm cites to the Abstract and Brief Summary of the Invention contained in the specification of the ‘675 patent. In Qualcomm’s view, the Abstract “explicitly states that the unit current sources ‘replicate’ the reference scale current which again describes the function of a current mirror.”⁸⁰⁵ Qualcomm also cites to the Brief Summary of the Invention as making it clear that the unit current sources function as the output side of the current mirror.⁸⁰⁶ Finally, Qualcomm argues that the inventor’s testimony is consistent with its construction of the term “unit current sources.”⁸⁰⁷

The Staff notes that the parties agree that unit current source “generally means circuitry that generates some arbitrary unit of current.”⁸⁰⁸ According to the Staff, the parties also agree that “the unit current sources must generate a current that is proportional to a reference scale current.”⁸⁰⁹ In the Staff’s view, the parties’ dispute lies in “the manner in which the proportionality between the

⁸⁰² *Id.* at 18 (citing CX-1662C (Milor Direct) at 22; CX-1978C (Milor Rebuttal) at 5; Gutierrez, Tr. 1488-89; and *nCube v. SeaChange Int’l, Inc.*, 436 F.3d 1317, 1321-22 (Fed. Cir. 2006) (“*nCube*”).

⁸⁰³ RIB 16.

⁸⁰⁴ *Id.* (emphasis in original)(citing JX-4 (the ‘675 patent) at col. 18:18-19).

⁸⁰⁵ *Id.* at 17 (citing JX-4 (the ‘675 patent) at Abstract).

⁸⁰⁶ *Id.* (citing JX-4 (the ‘675 patent) at col. 2:35-42; 3:1-9).

⁸⁰⁷ *Id.* at 18 (citing Gomez, Tr. 937:9-938:17).

⁸⁰⁸ SIB 33 (citing SX-1 (Dictionary) at 166; CX-1662C (Milor Direct) at 19; RX-839C (Gutierrez Direct) at 13).

⁸⁰⁹ *Id.* (citing RX-839C (Gutierrez Direct) at 13; CX-1662C (Milor Direct) at 22).

current generated by the unit current sources and the reference scale current must be established.”⁸¹⁰

The Staff contends that “*each* unit current source (i) is arranged in a group which can be activated by a capacitor control signal; (ii) when activated, is simultaneously scaled to the reference scale current; and (iii) when activated, generates at least a portion of the reference pump current.”⁸¹¹ The Staff’s argument focuses on the assertion that “*each* of the unit current sources must be simultaneously scaled (or made proportional) to the reference scale current before summing their outputs to form the reference pump current.”⁸¹² According to the Staff, the “simultaneous scaling of each unit current source was repeatedly emphasized as the distinguishing characteristic of the invention throughout the file history.”⁸¹³ Furthermore, the Staff contends that both Dr. Milor and Dr. Gomez “agree that claim 33 requires simultaneous scaling of each of the unit current sources.”⁸¹⁴

In addition, the Staff disagrees with Qualcomm’s proposed construction. According to the Staff, “claim 33 does not require the reference scale current to be the input to the current mirror,”⁸¹⁵ as the claim language “does not limit the signal effectuating the scaling.”⁸¹⁶

With respect to the issue of “simultaneously scaling,” Broadcom asserts that, in the context of claims 33 and 35, it did not clearly and unmistakably disavow any subject matter that does not include “simultaneously scaling” the unit current sources.⁸¹⁷ According to Broadcom, it did, in response to a rejection, amend certain claims (*e.g.*, claim 1) during prosecution to recite the express

⁸¹⁰ *Id.*

⁸¹¹ *Id.* at 33-34 (emphasis in original).

⁸¹² *Id.* at 33.

⁸¹³ *Id.* at 34 (emphasis in original).

⁸¹⁴ *Id.* (citing Gomez, Tr. 940-41; Milor, Tr. 1643).

⁸¹⁵ *Id.* at 36.

⁸¹⁶ *Id.* at 35.

⁸¹⁷ CIB 22.

limitation of “simultaneously scaling,” the unit current sources.⁸¹⁸ However, Broadcom asserts that during prosecution it argued “that amended claim 1 was allowable, among other reasons, because Rotzoll does not teach ‘simultaneous scaling’ the unit current sources ‘according to a PLL control signal that is representative of either reference frequency, loop bandwidth, and damping factor of said PLL,’”⁸¹⁹ and that “claims 15, 24, and 27 were amended to include the scaling feature discussed with respect to claim 1.”⁸²⁰ However, Broadcom contends that it did not “clearly and unmistakably” indicate that claims 33 and 35 should also include the simultaneous scaling feature, especially in light of the fact that claims 33 and 35 were not pending at the time the relevant remarks were made to the Examiner.⁸²¹

Furthermore, Broadcom contends that it never relied on the simultaneous scaling feature as a basis for patentability of claims 33 and 35. Instead, Broadcom indicates that it argued the new claims (including 33 and 35) were allowable “‘for the same reasons’ that the examiner had allowed the previous claims (*id.* at BCMITC73850) – that is, that ‘[n]one of the cited references discloses nor suggests the claimed invention including a gain compensator circuit that [is] responsive to both a capacitor control signal and a PLL control signal which determines a reference pump current for a charge pump in a PLL, as set forth in the claims (*id.* BCMITC73843).”⁸²²

In addition, Broadcom argues that it did not need the “simultaneous scaling” feature to distinguish claims 33 and 35 from the Rotzoll patent because claims 33 and 35 also recite “weighted current sources that generate a reference scale current” and could have been distinguished on that

⁸¹⁸ *Id.* at 23 (citing JX-9 (the ‘675 prosecution history) at BCMIT73836).

⁸¹⁹ *Id.* (citing JX-9 (the ‘675 prosecution history) at BCMITC73831).

⁸²⁰ *Id.* at 23 (citing JX-9 (the ‘675 prosecution history) at BCMITC73832).

⁸²¹ *Id.* at 24.

⁸²² *Id.*

basis alone.⁸²³ Nor, according to Broadcom, can a “clear disavowal of claim scope be extracted from Dr. Gomez’s statement that the BCM3415-A1 did not include the feature of “simultaneously scaling’ the unit current sources based on a PLL control signal.”⁸²⁴

To the contrary, Qualcomm argues that Broadcom disclaimed implementations of the claimed invention that do not do simultaneous scaling. According to Qualcomm, “Broadcom amended the claims and distinguished the Rotzoll ‘325 patent on the basis that in the amended claims the ‘unit current sources are simultaneously scaled according to a phase lock loop control signal that is representative of either a damping factor, reference frequency, or loop bandwidth of the PLL.”⁸²⁵ Qualcomm further argues that after claim 33 was added by amendment, Broadcom submitted remarks to the Examiner indicating that the new claims “are thought to be allowable for the same reasons’ that an earlier set of claims had been allowed” which was “clearly a reference to simultaneous scaling.”⁸²⁶ In addition, according to Qualcomm, the Gomez declaration “conceded that the BCM 3415-A1 had incorporated aspects of the claimed gain compensation circuitry,” and that “Gomez affirmed that the BCM 4515-A1 ‘did not include the feature of simultaneously scaling the unit current sources responsive to a PLL control signal that represents characteristics of the PLL.”⁸²⁷

The phrase "unit current sources" appears in both elements of claim 33:

. . . a plurality of *unit current sources* that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated, wherein said capacitor control

⁸²³ *Id.* at 25.

⁸²⁴ *Id.*

⁸²⁵ RIB 14.

⁸²⁶ *Id.* at 15.

⁸²⁷ *Id.*

signal also controls a corresponding fixed capacitor of a voltage controlled oscillator (VCO) in the PLL; and

a current mirror including one or more weighted current sources that generate a reference scale current responsive to a PLL control signal, the PLL control signal representative of one or more characteristics of the PLL, each of said *unit current sources* generating a unit current proportional to said reference scale current, said unit currents summed together to form the reference pump current.⁸²⁸

The parties agree that "unit current source" generally means circuitry that generates some arbitrary unit of current.⁸²⁹ The parties also appear to agree that the unit current sources must generate a current that is proportional to a reference scale current.⁸³⁰

From the language of claim 33, it is clear only that the "unit current sources" are "arranged into at least one group" and "generat[e] a portion of the reference pump current."⁸³¹ Two questions present themselves with respect to the meaning of the term "unit current sources:" (1) whether within the context of claim 33, the unit current sources must be a part of the current mirror that is recited in the second element of the claim; and (2) whether Complainant has disavowed any subject matter that does not include "simultaneously scaling" the unit current sources by a PLL control signal.

With respect to the first question, there is no explicit limitation within the claim itself as to what the output of the current mirror must be, as Qualcomm's expert has conceded.⁸³² The language of claim 33 establishes only that the unit current sources must generate a current that is "proportional to [the] reference scale current."⁸³³ Citing to the Abstract, Qualcomm makes the assertion that the patent "explicitly states that the current sources 'replicate' the reference scale current which again

⁸²⁸ JX-4 (the '675 patent) at 18:7-20 (emphasis added).

⁸²⁹ See SX-1 at 166; CX-1662C (Milor Direct) at 19; RX-839C (Gutierrez Direct) at 13.

⁸³⁰ RX-839C (Gutierrez Direct) at 13; CX-1662C (Milor Direct) at 22.

⁸³¹ JX-4 (the '675 patent) at 18:4-21 (claim 33).

⁸³² Gutierrez, Tr. 1484-85, 1490-91.

⁸³³ JX-4 (the '675 patent) at 18:18 (claim 33).

describes the function of a current mirror.”⁸³⁴ However, Qualcomm’s expert testified that the unit current sources do not have to be a part of the current mirror to generate a current that is “proportional” to the reference scale current.⁸³⁵ Specifically, Mr. Gutierrez stated “[t]here are a lot of circuits that can establish proportionality between two quantities.” Nor does the prosecution history provide any indication that the unit current sources must be part of the current mirror. Accordingly, the undersigned finds that the unit current sources in claim 33 are not required to be the output of the current mirror.

With respect to whether Complainant has disavowed any subject matter that does not include “simultaneously scaling” the unit current sources by a PLL control signal, the undersigned does not agree that Complainant has made such a disavowal. A close examination of the prosecution history is necessary to understanding the reasons for this conclusion.

The application for the '675 patent was filed on March 20, 2001 in the name of Ramon Gomez. The original application contained 35 claims with claims 1-22 directed toward a gain compensator circuit and claims 23-35 directed toward a method of compensating the gain of a phase lock loop.⁸³⁶ Application claims 1, 15, 23 and 27 were independent claims. As filed, independent application claim 1 read:

A gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL), comprising:

a plurality of unit current sources that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated, wherein said capacitor control signal also controls a

⁸³⁴ RIB 17.

⁸³⁵ Gutierrez, Tr. 1484.

⁸³⁶ JX-9 (the '675 prosecution history) at BCMITC0000073500-73506.

corresponding fixed capacitor; and

means for scaling said unit current sources responsive to a phase lock loop control signal.⁸³⁷

Independent application claim 15 read:

A gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL), comprising:

a plurality of unit current sources that are arranged into at least one group, said group generating a portion of the reference pump current when said group is activated;

a voltage generator that generates a gate voltage based on a PLL control signal; and

a switch that is connected to said group of unit current sources, wherein said switch is controlled by a corresponding capacitor control signal that also controls a fixed capacitor in a VCO tuning circuit, wherein said switch connects said gate voltage to said corresponding group of unit current sources according to said capacitor control signal.⁸³⁸

Independent application claim 23 read:

A method of compensating the gain of a phase lock loop (PLL), comprising the steps of:

- (1) generating a reference scale current;
- (2) switching a fixed capacitor into a VCO tuning circuit that is part of a VCO to tune a frequency of said VCO;
- (3) replicating said reference scale current a number of times when said fixed capacitor is switched-in to said VCO tuning circuit, wherein the number of times said reference scale current is replicated is based on said fixed capacitor; and
- (4) contributing said replicated currents to a reference charge pump

⁸³⁷ JX-9 (the '675 prosecution history) at BCMITC0000073500.

⁸³⁸ JX-9 (the '675 prosecution history) at BCMITC0000073502.

current for said PLL.⁸³⁹

Independent application claim 27 read:

A method of compensating the gain of a phase lock loop (PLL), comprising the steps of:

- (1) receiving at least one capacitor control signal that controls a corresponding fixed capacitor in a VCO tuning circuit;
- (2) generating a reference scale current;
- (3) activating a group of unit current sources based on said capacitor control signal;
- (4) replicating said reference scale current a number of times in said activated group, wherein the number of times said reference scale current is replicated is based on said fixed capacitor that is controlled by said capacitor control signal; and
- (5) summing together said replicated currents to form a reference charge pump current for said PLL.⁸⁴⁰

On April 17, 2002, the Patent Examiner rejected application claims 1-11, 15, 23-28 and 31-33 as anticipated under 35 U.S.C. §102(b) by U.S. Patent No. 5,625,325 ("Rotzoll") and claims 12-13, 19-22, 29 and 30 as obvious in light of the combination of Rotzoll with Shearer *et al.*, U.S. Patent No. 5,126,692, under 35 U.S.C. §103.⁸⁴¹ The Examiner characterized Rotzoll as disclosing "a phase lock loop (PLL) with VCO that has gain compensation circuitry including unit current sources controlled by the means of scaling the current."⁸⁴²

In response to the rejection, on August 19, 2002, the applicant amended each independent claim to recite the requirement that the unit current sources be scaled based upon a PLL control

⁸³⁹ JX-9 (the '675 prosecution history) at BCMITC0000073503-04.

⁸⁴⁰ JX-9 (the '675 prosecution history) at BCMITC0000073504-73505.

⁸⁴¹ JX-9 (the '675 prosecution history) at BCMITC0000073598-73599.

⁸⁴² JX-9 (the '675 prosecution history) at BCMITC0000073600.

signal. Only two of those claims, claims 1 and 27, were amended to include the requirement that the unit current sources must be “simultaneously scaled.” For example, amended claim 1 read:

A gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL), comprising:

a plurality of unit current sources that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated, wherein said capacitor control signal also controls a corresponding fixed capacitor; and

means for simultaneously scaling said unit current sources responsive to a [phase lock loop] **PLL control signal that is representative of at least one of a reference frequency; a loop bandwidth, and a damping factor of said PLL.**⁸⁴³

Claim 15 was amended to read:

A gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL), comprising:

a plurality of unit current sources that are arranged into at least one group, said group generating a portion of the reference pump current when said group is activated;

a voltage generator that generates a gate voltage based on a PLL control signal; and

a switch that is connected to said group of unit current sources, wherein said switch is controlled by a corresponding capacitor control signal that also controls a fixed capacitor in a VCO tuning circuit, wherein said switch connects said gate voltage to said corresponding group of unit current sources according to said capacitor control signal;

wherein said voltage generator includes:

a current scaler that generates a reference scale current

⁸⁴³ JX-9 (the ‘675 prosecution history) at BCMITC0000073836 (underscoring provided to show the language that was added)(emphasis added).

according to a PLL control signal, and

means for generating said gate voltage based on said reference scale current.⁸⁴⁴

Independent claim 23 was cancelled and the features of claim 23 were combined with claim 24 to make amended claim 24, an independent claim. Claim 24, as amended, read:

[The method of claim 23, further] A method of compensating the gain of a phase lock loop (PLL) comprising the steps of:

- (1) generating a reference scale current;
- (2) switching a fixed capacitor into a VCO tuning circuit that is part of a VCO to tune a frequency of said VCO;
- (3) replicating said reference scale current a number of times when said fixed capacitor is switched-in to said VCO tuning circuit, wherein the number of times said reference scale current is replicated is based on said fixed capacitor;
- (4) contributing said replicated currents to a reference charge pump current for said PLL; and
- (5) adjusting said reference scale current based on a PLL control signal that indicates characteristics of said PLL.**⁸⁴⁵

Independent claim 27 was amended to read:

A method of compensating the gain of a phase lock loop (PLL) comprising the steps of:

- (1) receiving at least one capacitor control signal that controls a corresponding fixed capacitor in a VCO tuning circuit;
- (2) generating a reference scale current;

⁸⁴⁴ JX-9 (the '675 prosecution history) at BCMITC0000073836-37 (underscoring provided to show the language that was added)(emphasis added).

⁸⁴⁵ JX-9 (the '675 prosecution history) at BCMITC0000073837-73838 (emphasis added)(underscoring provided to show the language that was added)(emphasis added)..

(3) activating a group of unit current sources based on said capacitor control signal;

(4) replicating said reference scale current a number of times in said activated group, wherein the number of times said reference scale current is replicated is based on said fixed capacitor that is controlled by said capacitor control signal; [and]

(5) summing together said replicated currents to form a reference charge pump current for said PLL [;] and

(6) adjusting said reference scale current based on a PLL control signal that is representative of characteristics of the PLL, and thereby simultaneously adjusting said replicated currents that form said reference pump current according to said characteristics of the PLL.⁸⁴⁶

According to the patent applicant, claim 1 was amended to convey that, in the claimed invention "the unit current sources are *simultaneously* scaled according to a *phase lock loop control signal that is representative of either a desired damping factor, reference frequency, or loop bandwidth* of the PLL."⁸⁴⁷ It was indeed asserted that this simultaneous scaling of the unit current sources was not found in Rotzoll because in Rotzoll, the output (904) was not fed to all the programmable current amplifiers (94, 95, 96).⁸⁴⁸ However, the applicant further argued that "[e]ven assuming Rotzoll could scale the current amplifiers 94, 95, and 96 simultaneously, Rotzoll does not teach or suggest scaling based" on reference frequency, loop bandwidth, or a damping factor of the

⁸⁴⁶ JX-9 (the '675 prosecution history) at BCMITC0000073838 (underscoring provided to show the language that was added)(emphasis added).

⁸⁴⁷ JX-9 (the '675 prosecution history) at BCMITC0000073830 (emphasis in original).

⁸⁴⁸ JX-9 (the '675 prosecution history) at BCMITC0000073831. The applicant also distinguished Rotzoll on the basis that in the applicant's invention, the unit current sources could be arranged arbitrarily in any combination of groups whereas in Rotzoll they had to be arranged in a polynomial relationship (such that the output of each "group" generates the x^2 , x and c components to form an output analog current corresponding to $(x^2 + x + c)$). This made the claimed invention more flexible. JX-9 (the '675 prosecution history) at BCMITC0000073830-73831.

PLL.⁸⁴⁹ Thus, the applicant asserted that "Rotzoll does not teach each and every feature of amended claim 1, or the corresponding dependent claims."⁸⁵⁰

With respect to claim 15, the applicant indicated that the claim had been amended to include "the current scaling features of claim 20, and similar to those recited in claim 1."⁸⁵¹ The applicant concluded that claim 15 would be allowable for at least the same reason as discussed for claim 1.⁸⁵² Likewise, with respect to claim 24, the applicant indicated that claim 24 included the scaling features discussed above with reference to claim 1 and was, therefore, allowable.⁸⁵³ Finally, for claim 27, the applicant indicated that the claim had been amended "to include the current scaling features discussed above," and was "allowable for at least the same reasons as discussed for claim 1 above."⁸⁵⁴

On September 12, 2002, the Examiner allowed amended claims 1-9, 11-19, 21, 22, 24-30 and 32-35.⁸⁵⁵ The Examiner, however, did not base patentability upon the "simultaneous scaling" feature, but instead stated that "[n]one of the cited references discloses nor suggests the claimed invention including a gain compensator circuit that [is] **responsive to both a capacitor control signal and a PLL control signal**, which determines a reference pump current for a charge pump in

⁸⁴⁹ JX-9 (the '675 prosecution history) at BCMITC0000073781.

⁸⁵⁰ *Id.* The applicant represented to the PTO that all of the independent claims were amended to include the scaling feature discussed above with reference to claim 1 and for this reason, all of the independent claims (and all of the respective dependent claims) were allowable "for at least the same reasons as discussed above for claim 1." JX-9 (the '675 prosecution history) at BCMITC0000073831-32. The applicant never provided any independent reasons to support the patentability of any of the other claims.

⁸⁵¹ *Id.* at BCMITC0000073832.

⁸⁵² *Id.*

⁸⁵³ *Id.*

⁸⁵⁴ *Id.*

⁸⁵⁵ *Id.* at BCMITC0000073843.

a PLL, as set forth in the [amended] claims.”⁸⁵⁶

On December 13, 2002, the patent applicant requested continued examination and filed a preliminary amendment adding claim 37 that ultimately issued as claim 33, which has been asserted in this investigation, and claim 39 that ultimately issued as claim 35, which has also been asserted in this investigation. The applicant argued “Claims 1-9, 11-19, 21-22, 24-30, and 32-35 were previously allowed. New claims 36-43 are thought to be allowable for the same reasons.”⁸⁵⁷ Without further comment, the Examiner issued a Notice of Allowability for claims 1-9, 11-19, 21, 22, 24-30, and 32-35 and newly added claims 36-43 on February 7, 2003.⁸⁵⁸

Based upon the applicant’s representations at the USPTO, the undersigned concludes that the applicant did not disavow any interpretation of claim 33 that does not include simultaneously scaling the unit current sources. Though a patentee may narrow the meaning of a claim term by disavowing claim scope during the prosecution of a patent, that disavowal must be unequivocal.⁸⁵⁹ Here, the undersigned finds any disavowal of claim scope with respect to the “simultaneously scaling feature” to be ambiguous, at best because any “disavowal” is not consistently made by the applicant.

While it is true that the inventor amended independent claims 1, 15, 24, and 27 in response to a rejection by the Examiner to include certain “current scaling features,” the Staff and Qualcomm assume that “current scaling features” refers to “simultaneously scaling” the unit current sources. The undersigned, however, finds that, when referring to “current scaling features,” the applicant was referring instead to the assertion that the unit current sources are scaled responsive to a PLL control

⁸⁵⁶ *Id.* (emphasis added).

⁸⁵⁷ *Id.* at BCMITC0000073850.

⁸⁵⁸ *Id.* at BCMITC0000073855.

⁸⁵⁹ See *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) (“*Omega*”).

signal, one of the features upon which the Examiner based allowance of the initial set of claims. For example, the applicant argued that “claim 15 has been amended to include the current scaling features of claim 20, and similar to those recited in claim 1;” thereby, defining “current scaling features” to mean those of original claim 20, which are “similar” to those of claim 1.⁸⁶⁰ The “current scaling features” of claim 20 were described as “a current scaler that generates a reference scale signal **according to a PLL control signal.**”⁸⁶¹ Application claim 20, made no mention of simultaneously scaling the unit current sources. Nor does amended claim 15. Furthermore, with respect to amended claim 24, the applicant indicated that claim 24 “includes” the scaling features discussed above with reference to claim 1, not that it was “amended to include” those features. Prior to its amendment, application claim 24, a method claim, included the step of “adjusting said reference scale current **based on a PLL control signal that indicated characteristics of said PLL.**”⁸⁶² Original claim 24 included no reference to simultaneously scaling the unit current sources. Significantly, neither does amended claim 24. Finally, while application claim 27 was amended to include “simultaneously scaling” the unit current sources, the limitation of “adjusting said reference current based on a PLL control signal was also added.”

Based upon these assertions made to the Examiner, the undersigned concludes that the applicant was arguing patentability based on the fact that the claimed gain compensator circuit was responsive to a PLL control signal, along with a capacitor control signal. Thus, when the patentee indicated to the Examiner that “[n]ew claims 36-43 are thought to be allowable for the same reasons” as the initial set of claims, the patentee was referring to the reasons for allowance of that initial set

⁸⁶⁰ JX-9 (the ‘675 prosecution history) at BCMITC0000073832.

⁸⁶¹ *Id.* at BCMITC0000073504 (emphasis added).

⁸⁶² *Id.* (emphasis added).

of claims that the Examiner articulated, which is bolstered by the fact that each of the new claims included both requirements cited by the Examiner, but not the limitation that the unit current sources must be simultaneously scaled.⁸⁶³ Thus, there is no evidence of any disavowal of claim scope with respect to claims 1, 15, 24 and 27.

The Staff and Qualcomm submit that a declaration from the named inventor of the '675 patent confirms that the claimed gain compensator must simultaneously scale the unit current sources. This Declaration of Inventor Gomez was filed on January 30, 2003, along with a First Supplemental Information Disclosure Statement and a copy of a Broadcom press release to allow the Patent Office to consider "certain activities related to the development of the present invention."⁸⁶⁴ Specifically, Broadcom disclosed a December 6, 1999 press release announcing the BCM 3400 line of integrated circuit chips and stating that "[t]he BCM3415 chip, the first product in the BCM3400 family, is . . . available priced at \$10 in sample quantities."⁸⁶⁵

Inventor Gomez declared that "[m]ultiple versions of the BCM 3415 were designed and sampled during the development of the BCM 3415."⁸⁶⁶ The BCM 3415-A1 was the version of the chip available at the time of Broadcom's press release. According to Dr. Gomez, the gain compensator for the PLL in the BCM 3415-A1 included:

. . . a plurality of unit current sources arranged into multiple groups. Each group of unit current sources are [sic] responsive to a corresponding capacitor control signal, and generate [sic] a portion of the reference pump current when the group is activated, wherein the capacitor control signal also controls a corresponding fixed capacitor.

⁸⁶³ Only new claims 36 and 43 (final claims 32 and 37) contained the simultaneously scaling limitation.

⁸⁶⁴ JX-9 (the '675 prosecution history) at BCMITC0000073897-73904.

⁸⁶⁵ *Id.* at BCMITC0000073903.

⁸⁶⁶ *Id.* at BCMITC0000073897.

The BCM 3415-A1 did not include the feature of simultaneously scaling the unit current sources responsive to a PLL control signal that represents characteristics of the PLL (hereinafter known as the "scaling feature"). The PLL characteristics of the scaling feature can include for example, a reference frequency, a loop bandwidth, or a damping factor of the PLL.⁸⁶⁷

The undersigned finds these statements to be consistent with the arguments made previously to the Examiner regarding the patentability of the claimed invention. Dr. Gomez in his January 2003 declaration distinguished the claimed invention from the prior BCM 3415-A1 chip based on the presence of a "scaling feature," meaning that the scaling was responsive to a PLL control signal. Hence, the Gomez Declaration does not alter the undersigned's conclusion that the applicant made no clear disavowal with respect to a "simultaneous scaling" requirement such that the requirement should be read into claims 33 and 35. Accordingly, the undersigned finds based on the plain meaning as understood by one of ordinary skill in the art that "unit current sources" are "current sources that generate an amount of current."

c. "PLL control signal" (claim 33)

Broadcom argues that a "PLL control signal" is a control signal that is "representative of one or more characteristics of the PLL."⁸⁶⁸ According to Broadcom, examples of such characteristics are "control signals that are related to frequency, loop bandwidth, or damping factor of the PLL."⁸⁶⁹

Qualcomm asserts that the term "PLL control signal" has no standard meaning in the art and contends that "[t]he most one can glean from the patent specification is that a 'PLL control signal' includes signals that are used to set the value of the three PLL parameters explicitly identified in the

⁸⁶⁷ JX-9 (the '675 prosecution history) at BCMITC0000073898.

⁸⁶⁸ CIB 18.

⁸⁶⁹ *Id.* (citing CX-1662C (Milor Direct) at 19).

patent: the bandwidth, the damping factor and the input reference frequency of the PLL.”⁸⁷⁰ In support of its interpretation, Qualcomm references that ‘675 patent which states that “the PLL control signal 810 dictates various PLL characteristics such as the frequency of the reference signal 201, the PLL loop bandwidth, and PLL loop damping, etc.”⁸⁷¹

The Staff agrees with Qualcomm that the term does not have a specialized meaning to one of ordinary skill in the art, but maintains that the claim language only requires that a “PLL control signal” is “representative of some PLL characteristic.”⁸⁷² In support of its interpretation, the Staff cites to the language of the claim itself which defines that “PLL control signal” as “a signal representative of one or more characteristics of a PLL.”⁸⁷³ According to the Staff, there is no reason to limit claim 33 to its preferred embodiment as Qualcomm would suggest. Rather, the Staff argues that “the ‘675 specification makes clear that the identified PLL characteristics, *i.e.*, the frequency of the reference signal, the PLL bandwidth, and the PLL damping factor are merely exemplary.”⁸⁷⁴ Furthermore, the Staff argues that “dependent claim 34 covers a gain compensation circuit where one of the PLL characteristics must include the frequency of the reference signal, the PLL bandwidth or the PLL damping factor.”⁸⁷⁵ Therefore, the Staff concludes that under the doctrine of claim differentiation, “claim 33 merely requires a PLL control signal that is representative of some PLL characteristics.”⁸⁷⁶

⁸⁷⁰ RIB 18 (citing RX-839C (Gutierrez Direct) at 14-15).

⁸⁷¹ *Id.* at 18-19 (citing JX-4 (the ‘675 patent) at 11:64-67).

⁸⁷² SIB 36-38.

⁸⁷³ *Id.* at 36-37.

⁸⁷⁴ *Id.* at 37 (quoting JX-4 (the ‘675 patent) at cols. 3:3-6 and 11:63-67).

⁸⁷⁵ *Id.* at 38.

⁸⁷⁶ *Id.* (citing *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001) (“*Wenger*”)).

The phrase “PLL control signal” appears in claim 33 in the context of “a current mirror including one or more weighted current sources that generate a reference scale current responsive to a PLL control signal, the PLL control signal representative of one or more characteristics of the PLL.”⁸⁷⁷ The parties agree that “PLL control signal” does not have a specialized standard meaning to those of ordinary skill in the art.⁸⁷⁸ The claim language itself then, only requires that the PLL control signal is representative of one or more characteristics of a PLL, it does not specify which ones. Furthermore, the language of claim 34 specifically covers the gain compensation circuit of claim 33 where one of the PLL characteristics must include “at least one of a reference frequency, a loop bandwidth, and a damping factor.”⁸⁷⁹ Under the doctrine of claim differentiation “each patent claim is presumptively different in scope.”⁸⁸⁰ Moreover, the specification makes clear that the specified PLL characteristics are merely exemplary:

The PLL control signal [specifies] various PLL characteristics, *such as* the frequency of the reference signal, the PLL bandwidth, and the PLL damping factor, *etc.*

The current scaler 804 sets the reference scale current 812 based on a PLL control signal 810, where the PLL control signal 810 dictates various PLL characteristics *such as* the frequency of the reference signal 210, the PLL loop bandwidth, and PLL loop damping, *etc.*⁸⁸¹

The prosecution history also does not provide a justification for limiting the term “PLL control signal” to what is disclosed in the preferred embodiment. Accordingly, the undersigned finds that “PLL control signal” means “a control signal representative of some characteristic of the PLL.”

⁸⁷⁷ JX-4 (the ‘675 patent) claim 33.

⁸⁷⁸ SFF103 (undisputed).

⁸⁷⁹ JX-4 (the ‘675 patent) claim 34; SFF105 (undisputed).

⁸⁸⁰ *Wenger*, 239 F.3d at 1233.

⁸⁸¹ JX-4 (the ‘675 patent) at 3:3-6 and 11:63-67 (emphasis added).

d. “current mirror” (claim 33)

The parties dispute the meaning of “current mirror” within the context of claim 33. Broadcom asserts that a “current mirror” is a well-known “electrical circuit that replicates or ‘mirrors’ a current to produce one or more proportional currents.”⁸⁸² According to Broadcom, the language of claim 33 indicates that the current mirror includes “one or more weighted current sources that generate a reference scale current” but “does not, however, require the reference scale current to be the input current that is replicated by the current mirror.”⁸⁸³ Furthermore, Broadcom asserts that the specification supports its construction because it describes an embodiment in which the “drain currents of the selected unit current sources 906 copy or ‘mirror’ a reference scale current 812 ... and the size of the unit current sources can be scaled relative to the size of the diode-connected transistor 802 to generate unit currents that are proportional to the reference scale current.”⁸⁸⁴

Broadcom rejects Qualcomm’s construction of the “current mirror” which requires the reference scale current to be the input current to the current mirror, as improperly attempting to import limitations into claim 33. According to Broadcom, by requiring the current mirror to have the reference scale current on its input side and the unit current sources on its output side, Qualcomm is treating the claim language as if it were written in means-plus-function language.⁸⁸⁵ Broadcom concludes that Qualcomm “should not be permitted to narrow the plain, ordinary, and well known meaning of ‘current mirror’ when the patentee did not provide a specialized meaning for the term

⁸⁸² CIB 20 (citing CX-1662C (Milor Direct) at 14, 21; RX-839C (Gutierrez Direct) at 15; Qualcomm’s pre-trial brief at 22; CDX-6).

⁸⁸³ *Id.* (citing CX-1662C (Milor Direct) at 22).

⁸⁸⁴ *Id.* (citing JX-4 (the ‘675 patent) at col. 11:18-21).

⁸⁸⁵ CRB 3.

‘current mirror’ or disclaim certain types of current mirrors.”⁸⁸⁶

On the other hand, Qualcomm asserts that the parties do not dispute that the general definition of a current mirror is “a set of transistors that generates an output current that replicates or is proportional to an input current.”⁸⁸⁷ According to Qualcomm, the dispute lies in “the place and function of the current mirror as described within the Claim.”⁸⁸⁸ Qualcomm further asserts that the ‘675 patent “describes a very specific function for the current mirror.”⁸⁸⁹ According to Qualcomm, claim 33 “requires a current mirror that has a ‘reference scale current’ on its input side, and on its output side contains ‘unit current sources’ that generate ‘unit currents.’ These unit currents on the output side of the current mirror are proportional to the reference scale current on the input side.”⁸⁹⁰ In Qualcomm’s view, the ‘675 specification only describes one current mirror that meets those requirements: the current mirror depicted in Figures 8 and 9.⁸⁹¹ Qualcomm further relies on its expert, Mr. Gutierrez for support of its interpretation. Mr. Gutierrez testified that one of ordinary skill in the art would understand that “the purpose of a current mirror [at the beginning of the second element of claim 33] is to generate a current or currents, proportional to some other current. Knowing that, it would be self-evident that the second half of the second element of claim 33, which describes that the ‘unit current sources’ generate currents ‘proportional to [the] reference scale current,’ refers to the output of the current mirror.”⁸⁹²

Furthermore, Qualcomm argues that the interpretation set forth by Broadcom’s expert, Dr.

⁸⁸⁶ CIB at 20 (citing *Phillips*, 415 F.3d at 1316).

⁸⁸⁷ RIB 19.

⁸⁸⁸ *Id.*

⁸⁸⁹ *Id.*

⁸⁹⁰ *Id.*

⁸⁹¹ *Id.*

⁸⁹² *Id.* at 19-20 (citing Gutierrez, Tr. 1486:17-1487:10; RX-839C (Gutierrez Direct) at 19-20).

Milor, renders the term “current mirror” as surplusage.⁸⁹³ Qualcomm indicates Dr. Milor testified that “the claim says nothing about what the output of the ‘current mirror’ might be connected to, or how it might be related to the other elements of the claim.”⁸⁹⁴ In Qualcomm’s view, “if the output of the current mirror is not connected to any other element of the claim, then it serves no purpose for the gain compensation apparatus that the patent describes.”⁸⁹⁵ Thus, Qualcomm argued that Dr. Milor’s construction is improper because it “renders an element of the invention purposeless” and is therefore, disfavored.⁸⁹⁶

The Staff asserts that the parties all agree that the term “current mirror” is “well-understood in the field of analog design to refer to circuitry that replicates an input current or outputs a current proportional to that input current.”⁸⁹⁷ As support for its interpretation, the Staff indicates that such construction of “current mirror” is consistent with the definition from a contemporary electronics dictionary.⁸⁹⁸

The Staff criticizes Qualcomm as not providing convincing support for its proposed construction.⁸⁹⁹ According to the Staff, Qualcomm relies “exclusively on the extrinsic evidence of its expert and the description of the preferred embodiment of the specification.”⁹⁰⁰ In addition, the Staff asserts that Qualcomm’s analysis “focuses heavily on the ‘function’ served by the current

⁸⁹³ *Id.* at 20.

⁸⁹⁴ *Id.* (citing Milor, Tr., 811:3-23).

⁸⁹⁵ *Id.*

⁸⁹⁶ *Id.* (citing *Elektra Instr. S.A. v. OUR Sci. Int’l*, 214 F.3d 1302, 1307 (Fed. Cir. 2000) (“*Elektra*”).)

⁸⁹⁷ SIB 38 (citing CX-1662C (Milor Direct) at 14, 21; RX-839C (Gutierrez Direct) at 15; Gutierrez, Tr. 1392).

⁸⁹⁸ *Id.* (citing SX-1(Dictionary) at 165).

⁸⁹⁹ SRB 2.

⁹⁰⁰ *Id.*

mirror,” even though “the elements of claim 33 are written as structural requirements not functional ones.”⁹⁰¹

The term “current mirror” appears in claim 33 within the context of “a current mirror including one or more weighted current sources that generate a reference scale current responsive to a PLL control signal.” The parties agree that the ordinary meaning of a “current mirror” refers to “circuitry that replicates an input current or outputs a current proportional to that input current.”⁹⁰² There is a “heavy presumption” that a claim term is given its ordinary and customary meaning.⁹⁰³

There are, however, several ways to overcome that presumption:

First, the claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history. Second, a claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention.

Third, ... a claim term also will not have its ordinary meaning if the term “chosen by the patentee so deprive[s] the claim of clarity” as to require resort to the other intrinsic evidence for the definite meaning. Last, as a matter of statutory authority, a claim term will cover nothing more than the corresponding structure or step disclosed in the specification, as well as equivalents thereto, if the patentee phrased the claim in step-or means-plus-function format. (internal citations omitted).⁹⁰⁴

Applying these principles, it is apparent that Qualcomm has not pointed to anything in the specification or prosecution history that overcomes the “heavy presumption” that “current mirror” carries its ordinary meaning. The specification does not clearly assign a unique definition to “current

⁹⁰¹ *Id.*

⁹⁰² SFF 106 (undisputed).

⁹⁰³ See *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (“*CCS Fitness*”) (citing *Johnson Worldwide Assoc, Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999) (“*Johnson Worldwide*”).

⁹⁰⁴ *Id.* at 1367-68.

mirror,” *e.g.*, require a particular input or output to the current mirror of claim 33, as argued by Qualcomm. Instead Figures 8 and 9, referenced by Qualcomm, illustrate a particular embodiment. Furthermore, the specification does not distinguish “current mirror” based on the prior art, disclaim subject matter, or describe the current mirror with the particular structures depicted in Figures 8 and 9 as important to the invention. In addition, the prosecution history does not contain any clear statements that would narrow the ordinary meaning of the claimed “current mirror” and Qualcomm does not rely on statements from the prosecution history. Finally, claim 33 is an apparatus claim and, therefore, is not drafted in mean-plus-function language. As a result, the claimed “current mirror” cannot be limited to the structure disclosed in the specification on that basis.

Instead, in support of its contention, Qualcomm relies almost exclusively on expert testimony, but this testimony does not establish that the term “current mirror” lacks clear meaning such as to justify deviation from the ordinary meaning of the term. The undersigned finds that the ordinary meaning of the claimed “current mirror” can be resolved by resort only to intrinsic evidence. Thus, the undersigned need not consider expert testimony at all, and he declines to do so with respect to the construction of this claim term. The undersigned finds from the intrinsic evidence that there is no support for altering the ordinary meaning of “current mirror” to which all parties have agreed.⁹⁰⁵ Accordingly, the undersigned finds that a “current mirror” refers to “circuitry that replicates an input current or outputs a current proportional to that input current.”

e. “reference scale current responsive to a PLL control signal”(claim 33)

The parties disagree as to the definition of “reference scale current responsive to a PLL

⁹⁰⁵ See SFF 106.

control signal.” Broadcom argues that the term means “a current that is responsive to a PLL control signal.”⁹⁰⁶ In support of its interpretation, Broadcom points to the claim language itself, indicating that “claim 33 explains that the reference scale current is generated ‘responsive to a PLL control signal.’ According to Broadcom, this simply means that the PLL control signal influences the magnitude of the reference scale current.”⁹⁰⁷ Furthermore, Broadcom argues that the specification uses the term “reference scale current” consistently with the claim language, “teaching that the reference scale current is an intermediate current used to adjust the overall reference pump current based on one or more of the characteristics of the PLL.”⁹⁰⁸ Broadcom points to Figure 8 as “one example of a structure that may be implemented to perform this function of adjusting the reference pump current for one or more characteristics of the PLL through the use of a ‘reference scale current.’”⁹⁰⁹ Finally, Broadcom argues that, as with the “unit current source” and “current mirror,” there is “nothing in the claim language or the specification [that] limits the ‘reference scale current’ to an input current that is replicated by the current mirror.”⁹¹⁰

To the contrary, Qualcomm argues that “[t]he patent explains that the ‘reference scale current’ is a current that is scaled in response to a PLL control signal.”⁹¹¹ In support of its interpretation, Qualcomm argues that the specification “uses the term ‘reference scale current’ to refer to an input signal (element 812) appearing in figures 8 and 10.”⁹¹² Qualcomm states that the current is a ‘reference’ because the current mirror replicates it. Qualcomm asserts that it is a

⁹⁰⁶ CIB 21 (citing CX-1662C (Milor Direct) at 20).

⁹⁰⁷ *Id.* (citing CX-1662C (Milor Direct) at 20-21).

⁹⁰⁸ *Id.* (citing CX-1662C (Milor Direct) at 21).

⁹⁰⁹ *Id.* at 22 (citing JX-4 (the ‘675 patent) at col. 11:18-51 & Figure 8).

⁹¹⁰ *Id.* (citing CX-1662C (Milor Direct) at 22; CX-1978C (Milor Rebuttal) at 4).

⁹¹¹ RIB 21.

⁹¹² *Id.* (citing JX-4 (the ‘675 patent) at cols. 11:26-27, 31; 12:16, 57; 14:1-2, 16-17).

reference 'scale' current because it is the product of the current scaler that 'adjusts the reference scale current 812 to address changing PLL characteristics.'⁹¹³

The Staff asserts that "[t]he parties appear to agree that this phrase means a current scaled in response to a PLL control signal."⁹¹⁴ Broadcom, however, notes that "this is not entirely correct."⁹¹⁵ While Broadcom agrees that "the reference scale current" is "generated in response to a PLL control signal," Broadcom indicates that the "reference scale current" is "not necessarily itself scaled by the PLL control signal; instead, it is used to scale the currents from the unit current sources."⁹¹⁶ Broadcom further asserts that both experts agree on this construction.⁹¹⁷

The term "reference scale current" appears in claim 33 in the context of "a current mirror including one or more weighted current sources that generate a reference scale current responsive to a PLL control signal."⁹¹⁸ At issue with respect to this claim term is whether the reference scale current is scaled by the PLL control signal or merely responsive to it.

The language of the claim itself only requires the reference scale current to be "responsive" to a PLL control signal and the specification supports that interpretation of claim 33. Though several of the other claims contain references to the "reference scale current," none of them further inform the interpretation of that term. In the abstract, the patentee noted only that "the reference scale current is generated *based on* a PLL control that specifies certain PLL characteristics such as

⁹¹³ *Id.* at 21-22 (citing JX-4 (the '675 patent) at cols. 14:24-27; 11:63-67).

⁹¹⁴ SIB 39 (citing CX-1662C (Milor Direct) at 20; RX-839C (Gutierrez Direct) at 13; Gomez, Tr. 935).

⁹¹⁵ CRB 6.

⁹¹⁶ *Id.*

⁹¹⁷ *Id.* (citing Milor, Tr. 804-05; RX-839C (Gutierrez Direct) at 23).

⁹¹⁸ JX-4 (the '675 patent) claim 33.

reference frequency, loop bandwidth, and loop damping.”⁹¹⁹ The Brief Summary of the Invention makes a similar statement noting that “[a] further advantage of the gain compensator invention is that the reference scale current for the gain compensator cells is generated *based on* a PLL control signal.”⁹²⁰ Neither of those passages places any restrictions on the reference scale current other than to require that it be “responsive” to a PLL control signal. Thus, Broadcom’s claim construction appears to be at least partially correct.

Mr. Gutierrez indicates that a “reference scale current” is one that is “used in many circuits to refer to a current that serves as a master control on the magnitude of the currents generated inside the circuit.”⁹²¹ Dr. Milor describes a “reference scale current” as “the current that does the scaling function, so it relates to the way the PLL control signal is implemented and goes and scales the unit current sources.”⁹²² Thus, expert testimony indicates that Broadcom’s construction is only partially correct in that the reference scale current must also scale another current. Accordingly, the undersigned finds that “reference scale current” means “a current that is responsive to a PLL control signal but which also scales another current.”

B. Infringement

Each Qualcomm chip includes a PLL.⁹²³ The “loop” of each PLL includes a [

] ⁹²⁴ Each of the accused Qualcomm chips also includes a [

⁹¹⁹ JX-4 (the ‘675 patent) at Abstract (emphasis added).

⁹²⁰ *Id.* at col. 3:1-3 (emphasis added).

⁹²¹ RX-839C (Gutierrez Direct) at 13.

⁹²² Milor, Tr. 804-05.

⁹²³ CX-3C (ZIFTIC VCO LDDR) at QBB77320; JX-21C (Dunworth Dep) at 31, 45.

⁹²⁴ *See*, Milor, Tr. 737-38, CX-1662C (Milor Direct) at 25; RX-839C (Gutierrez Direct) at

] which is a gain compensator circuit that [

].⁹²⁵ As a general rule, [

]⁹²⁶ However, Qualcomm uses the terms []⁹²⁷

[] adjusts a reference current [(] that is supplied to the charge pump in the PLL.⁹²⁸ The [] adjusts this charge pump reference current based on []⁹²⁹

[

]

The [] in the accused Qualcomm chips is built of transistors that form

[⁹³⁰

⁹²⁵ See BFF 561 (undisputed); *see also* various schematics: CX-4C; CX-8C; CX-9C; CX-11C; CX-12C.

⁹²⁶ See BFF 562 (undisputed).

⁹²⁷ See BFF 563 (undisputed).

⁹²⁸ See BFF 568 (undisputed).

⁹²⁹ See BFF 569 (undisputed).

⁹³⁰ See BFF 574 (undisputed).

] is included

in each of Qualcomm's RFT6100, RTF 6102, RTR6200, and RTR6300 products.⁹³² In all relevant respects, the [] in the RFT6120, RFT6170, and RTR6250 chips are the same as the [] in the RFT6100 and will be considered simultaneously for purposes of this infringement analysis.⁹³³ The [] circuit in the RFT6150 only differs slightly in its [].⁹³⁴ Accordingly, the undersigned will consider the RFT6150 separately when it is necessary to do so for purposes of this infringement analysis.

1. Claim 33

a. Literal Infringement

Literal infringement exists when the accused product practices each element of a claim.⁹³⁵ The undersigned will conduct an analysis to determine whether the accused Qualcomm chips literally infringe claims 33 and 35 of the '675 patent.

(1) "A gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL)"

The parties agree that the [] in the accused Qualcomm chips is "[a] gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL)."⁹³⁶ That conclusion is supported by a Qualcomm design review document that describes the [] as shown in CX-3C above, as[

⁹³¹ See BFF 575 (undisputed) and BFF 582 (undisputed).

⁹³² See BFF 566 (undisputed).

⁹³³ See *id.*

⁹³⁴ See *id.*

⁹³⁵ See *Glaxo*, 262 F.3d at 1338.

⁹³⁶ See BFF 591 (undisputed).

Accordingly, the undersigned finds that each of the accused Qualcomm chips contains a gain compensator circuit that determines a reference pump current for a charge pump in a phase lock loop (PLL) as described in the preamble to claim 33.

- (2) **“a plurality of unit current sources that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated, wherein said capacitor control signal also controls a corresponding fixed capacitor of a voltage controlled oscillator (VCO) in the PLL”**

There is no dispute that the accused Qualcomm chips each include “a plurality of unit current sources that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated, wherein said capacitor control signal also controls a corresponding fixed capacitor of a voltage controlled oscillator (VCO) in the PLL.”⁹³⁸ This conclusion is supported by the testimony of both Dr. Milor and Mr. Gutierrez.⁹³⁹ Accordingly, the undersigned finds that each of the accused Qualcomm chips contain the first element of claim 33.

- (3) **“a current mirror including one or more weighted current sources that generate a reference scale current responsive to a PLL control signal”**

Broadcom argues that there is no disagreement that the [] in the Qualcomm accused chips contains [] to perform a “scaling” function by []

⁹³⁷ CX-3C (ZIFTIC VCO LDDR) at QBB077320.

⁹³⁸ See BFF 596 (undisputed).

⁹³⁹ See Milor, Tr. 739-47; Gutierrez, Tr. 1443.

] ⁹⁴⁰ According to Broadcom, however, the parties disagree as to whether the [] in the accused chips “implements the scaling function by using “‘weighted current sources’ to generate a reference scale current responsive to the [] ⁹⁴¹

As to each accused product except the RFT6150, Broadcom argues that the chips do contain weighted current sources that generate a reference scale current responsive to the [] ⁹⁴²
In particular, Broadcom points to []
that “act as ‘weighted current sources.’” ⁹⁴³ According to Broadcom, []

] ⁹⁴⁴ Broadcom further

argues that []

] ⁹⁴⁵ With respect to the RFT6150, Broadcom argues that Qualcomm does not dispute that the chip has “weighted current sources” that generate a reference scale current responsive to the [] ⁹⁴⁶

In addition, Broadcom argues that, for the purpose of an infringement analysis, it does not matter that the [] in any of the accused chips, except the

⁹⁴⁰ CIB 65 (citing Milor, Tr. 761-62; CX-1662C (Milor Direct) at 28; Gutierrez, Tr. 1444-45, 1462-63, 1472, 1480-81; RX-839C (Gutierrez Direct) at 27, JX-21C (Dunworth Dep) at 152-53).

⁹⁴¹ *Id.*

⁹⁴² *See id.* at 66.

⁹⁴³ *Id.* at 67(citing CX-1662C (Milor Direct) at 46).

⁹⁴⁴ *Id.* at 67 (citing Gutierrez, Tr. 1459-60).

⁹⁴⁵ *Id.* at 67-68 (citing Milor, Tr. 751-52; CDX-11.06C (citing CX-4C); CX-1662C (Milor Direct) at 27; CDX-11.07C; Gutierrez, Tr. 1461-62, 1465).

⁹⁴⁶ *See id.* at 65 (citing Qualcomm’s pretrial brief at 57).

RFT6150 and RTR6250.⁹⁴⁷ According to Broadcom, “[c]laims 33 and 35 do not require actual operation of the circuitry to infringe; the claims only require that the unit current sources generate a portion of the reference pump current “when said group is activated.”⁹⁴⁸ In support of its argument, Broadcom cites to *Intel Corp. v. ITC* and *Fantasy Sports Props. Inc. v. Sportsline.com*.⁹⁴⁹

Based upon Dr. Milor’s definition of “current source” as “a circuit that generates either a fixed current (an ‘independent’ current source) or a current whose magnitude is determined by a control signal (a ‘dependent’ current source),” Qualcomm concludes that the “weighted current sources” identified by Broadcom “do not meet the definition of current sources.”⁹⁵⁰ Qualcomm argues that the [] are not current sources because the []

] ⁹⁵¹ Rather, according to Qualcomm, the amount of current []

] ⁹⁵²

The Staff does not provide an argument on this point.

Broadcom’s Dr. Milor defined two different types of current sources during her testimony: independent and dependent current sources. According to Dr. Milor, an independent current source is a circuit that generates a “fixed current,”⁹⁵³ and a dependent current source is one “that generates

⁹⁴⁷ See *id.* at 75.

⁹⁴⁸ *Id.* at 76 (citing JX-4 (the ‘675 patent) at col. 18:9-10)(emphasis added by Broadcom).

⁹⁴⁹ See *id.* at 75-76 citing *Intel Corp. v. ITC*, 946 F.2d 821, 832 (Fed. Cir. 1991) (“*Intel*”) and *Fantasy Sports Props. Inc. v. Sportsline.com*, 287 F.3d 1108 (Fed. Cir. 2002) (“*Fantasy Sports*”).

⁹⁵⁰ RIB 61.

⁹⁵¹ *Id.*

⁹⁵² *Id.*

⁹⁵³ Milor, Tr. 1648:6-8; *accord* SX-1 defining “current source” as “a point from which conventional current flows (electrons flow toward it)” or “an output type of switch or analog device in which current flows from it into the load at high voltage when it is turned on.”

a current as a function of another voltage or current.”⁹⁵⁴ A “weighted current source” was then defined by Dr. Milor as “a current source that generates a current proportional to another current.”⁹⁵⁵ Mr. Gutierrez further clarifies that the claim language “weighted current sources that generate a reference scale current ” indicates that those sources must “originate a current that didn’t begin anywhere else.”⁹⁵⁶ The common thread among all of these definitions is that a current source must generate current.⁹⁵⁷

The schematic below represents the [] of each of the accused products except for the RFT6150 chip. At issue is whether Broadcom has properly identified the [] highlighted in pink in the top plane of CX-4C as “weighted current sources.”

[

]

⁹⁵⁴ *Id.* at 1648:19-20.

⁹⁵⁵ CX-1978C (Milor Rebuttal) at 6.

⁹⁵⁶ Gutierrez, Tr. 1460:20-1461:15.

⁹⁵⁷ *See* QFF 1088 (undisputed).

Those [] are labeled []

Before determining whether the highlighted transistors are “weighted” current sources, it is necessary to ascertain whether they are current sources at all. In each of the Qualcomm accused products, except the RFT6150, the [

] ⁹⁵⁸ Broadcom’s expert gave the following concurring testimony on the subject:

[

] ⁹⁵⁹

In addition, Mr. Gutierrez confirms that the [] of the Qualcomm accused products (except the RFT6150):

[

]

⁹⁵⁸ QFF897 (undisputed).

⁹⁵⁹ Milor, Tr. 1653:17-1654:3. *See also* RX-844C (Dunworth Direct) at 7 in which Mr Dunworth, confirms that the [

]

[]⁹⁶⁰

Based upon the testimony of the two experts, the undersigned concludes that since the [] of the gain compensation circuit in the Qualcomm chips (except the RFT6150) does [] rather than “current sources.” Although Dr. Milor indicates that the [] referred to by Mr. Gutierrez []

[] she does not further conclude that is how the products were actually designed.⁹⁶¹ Thus, the undersigned finds the weight of the evidence indicates that, with respect to each accused product except the RFT6150, the highlighted [] in CX-4C are not current sources, and therefore, also cannot be “weighted current sources” as required by the claim. Accordingly, because they do not read on an element of claim 33, the RFT6100, RFT6102, RFT6120, RFT6170, RTR6200, RTR6250, and RTR6300 chips do not literally infringe the ‘675 patent.⁹⁶²

Qualcomm does admit, however, that the RFT6150 is different from the other accused chips []

] ⁹⁶³ Thus, the undersigned finds that

⁹⁶⁰ RX-839C (Gutierrez Direct) at 29. Broadcom and the Staff agree that a current divider is not a current source. See QFF 1103 (undisputed).

⁹⁶¹ CX-1978C (Milor Rebuttal) at 6 (emphasis added).

⁹⁶² See *Wolverine World Wide, Inc. v. Nike, Inc.*, 38 F.3d 1192, 1199 (Fed. Cir. 1994) (“*Wolverine*”)(There can be no literal infringement as a matter of law if an express claim limitation is missing from the accused product).

⁹⁶³ RIB 61 n.8.

the RFT6150 chip does contain current sources in the [] Furthermore, each of those current sources is weighted according to [] as identified in CX-4C. Accordingly, the undersigned finds that the RFT6150 chip does contain weighted current sources. As the RFT6150 chip is the only accused product that contains weighted current sources, the undersigned's remaining infringement analysis will address only the RFT6150 product.

The undersigned will address whether the weighted current sources [] of the RFT6150 generate a "reference scale current responsive to a PLL control signal" in conjunction with the analysis to determine whether that PLL control signal is "representative of one or more characteristics of the PLL" in subsection "d" below. The resolution of both issues centers on whether the [] is a "PLL control signal."

(4) "the PLL control signal representative of one or more characteristics of the PLL"

Broadcom argues that "[t]here is no dispute that the [] in the accused Qualcomm chips is 'a control signal.'" Broadcom contends that [] is a "PLL control signal" because it is "representative of a [] which indisputably is a characteristic of the PLL."⁹⁶⁴ In support of its argument, Broadcom cites to the testimony of Messrs. Walker, Reeves, and Dunworth, as well as several Qualcomm technical documents, as evidence that [] is "representative of a [] in the PLL of the accused chips."⁹⁶⁵ Furthermore, Broadcom asserts that "[t]here is also no dispute that the value of the []

⁹⁶⁴ *Id.*

⁹⁶⁵]] *Id.* at 68-70 (citing JX-120C (Walker Dep) at 73; RX-833C (Reeves Direct) at 8; RX-844C (Dunworth Direct) at 2; CX-1C (ZIFTIC Zero IF specification) at QBB88647; CX-3C (ZIFTIC VCO LDDR) at QBB77311; CX-10C (RFT6150 specification) at QBB92664; CX-13C (CZIFTIC specification) at QBB89067; CX-14C (RFT6170 ZIFTIC specification) at QBB90311; CX-15C (GZIFTRIC specification) at QBB88972; CX-24C (GZIFTRIC2 document) at QBB90141-42).

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Qualcomm argues that the [] parameter, identified by Dr. Milor as a PLL control signal in accordance with claim 33, “cannot serve as a control signal that controls, specifies or dictates a substantial PLL parameter” because “the [] ⁹⁶⁷ Qualcomm further argues that “[t]he fact that a product can, with modification, be used in an infringing manner is not sufficient to establish infringement.” ⁹⁶⁸ In addition, Qualcomm argues that [] is not a PLL control signal representative of one or more characteristics of the PLL. According to Qualcomm, “the substantial PLL parameters identified in the ‘675 patent specification such as the output frequency and bandwidth may change, but the [] parameter cannot.” ⁹⁶⁹ Qualcomm, therefore, concludes that [] cannot be controlling these PLL parameters and thus, cannot be “representative of one or more characteristics of the PLL.” ⁹⁷⁰

The Staff does not provide an argument on this particular point.

The undersigned has construed a “PLL control signal” as “a control signal representative of some characteristic of the PLL.” ⁹⁷¹ Dr. Milor has defined a control signal as something that “has got to be changeable,” so that it can exercise control, and the undersigned adopts that definition. ⁹⁷²

⁹⁶⁶ *Id.* at 70 (citing CX-1662C (Milor Direct) at 27, 49; Gutierrez, Tr. 1471).

⁹⁶⁷ RIB 56. Qualcomm notes that “[t]he REF parameter is determined by a value programmed into a register. The value of this register is fixed by driver ... software that is written by Qualcomm and provided to Qualcomm’s customers exclusively in binary (or object) format. The driver software sets the REF parameter to a single specific value during initialization and then never changes the value of REF subsequently.”

⁹⁶⁸ RIB 57 (citing *Fantasy Sports*, 287 F.3d at 1117-18; *Telemac*, 247 F.3d at 1330 (Fed. Cir. 2001); *Certain Personal Computers*, Comm’n Op. at 6-7).

⁹⁶⁹ RIB 56 (citing RX-844C (Dunworth Direct) at 8-9).

⁹⁷⁰ *Id.*

⁹⁷¹ *See supra*, section VI(A)(3)(c).

⁹⁷² Milor, Tr. 779:22-780:20; 783:15-22.

In this case, Dr. Milor has identified the [] signal in the RFT6150 as a “PLL control signal” representative of the []⁹⁷³

Jeremy Dunworth described the function of the [] signal as follows:

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The RFT6150 is different in that the [] the current.⁹⁷⁶

Although Mr. Dunworth indicated that in his original idea, [

] Mr. Dunworth

further explained that [] has never been used in that way.⁹⁷⁷ Instead, “the value of [

] ⁹⁷⁸ The undersigned concludes that

because the [

] signal does not meet Dr. Milor’s

⁹⁷³ CX-1662C (Milor Direct) at 48-49.

⁹⁷⁴ With respect to the driver, Mr. Reeves further noted that because the [

] See RX-833C (Reeves Direct) at 4-5.

⁹⁷⁵ RX-844C (Dunworth Direct) at 8.

⁹⁷⁶ *Id.*

⁹⁷⁷ *Id.* at 8-9.

⁹⁷⁸ *Id.* at 8-9.

requirements for a “control signal,” and therefore, cannot be a “PLL control signal.”

Broadcom argues that it does not matter for purposes of the infringement analysis that the value of [] in the accused products as sold because Qualcomm can [] if it so chooses.⁹⁷⁹ The undersigned, however, disagrees. The Federal Circuit has stated that “a device does not infringe simply because it is possible to alter it in a way that would satisfy all the limitations of a patent claim.”⁹⁸⁰ Instead, “[a]n accused device must be presently and reasonably capable of performing the claimed function.”⁹⁸¹ In the present case, purchasers of the RFT6150 chip are [] and despite Jeremy Dunworth’s initial conception of the [] Thus, the undersigned concludes that the [] signal in the RFT6150 chip is not “presently and reasonably capable of” being a control signal. Accordingly, the undersigned concludes that the RFT6150 chip does not contain a PLL control signal and, therefore, does not infringe the ‘675 patent.

b. Doctrine of Equivalents

Broadcom raises the doctrine of equivalents, but only with respect to the “proportional” limitation of claim 33. Regardless of whether the “proportional” limitation may be satisfied through the doctrine of equivalents, the undersigned still cannot make a finding of infringement. As noted above, the Qualcomm accused products are lacking other requirements of the claim.

2. Literal Infringement of Claim 35

Claim 35 is dependent on claim 33 of the ‘675 patent. As the undersigned has found the

⁹⁷⁹ CIB 70; CRB 32.

⁹⁸⁰ *High Tech Med. Instr. v. New Image Indus., Inc.*, 49 F.3d 1551, 1555 (Fed. Cir. 1995)(“*High Tech*”).

⁹⁸¹ *Certain Personal Computers*, Comm’n Op. at 7 (citing *Stryker, supra*).

accused products do not infringe claim 33, those products cannot infringe claim 35.

C. Domestic Industry

In a patent-based complaint, a violation of Section 337 can be found “only if an industry in the United States, relating to the articles protected by the patent ... concerned, exists or is in the process of being established.”⁹⁸² This “domestic industry requirement” has both an “economic prong” and a “technical prong.”

1. Technical Prong

Dr. Gomez, Dr. Milor, and Qualcomm's expert, Mr. Gutierrez, all testified that Broadcom's BCM3440 tuner chip contains each and every element of claim 33 of the '675 patent.⁹⁸³ The undersigned finds that the BCM3440 has a PLL that includes a [

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⁹⁸² 19 U.S.C. § 1337(a)(2).

⁹⁸³ Gutierrez, Tr. 1509-10; CX-1337C (Gomez Direct) at 12; CX-1662C (Milor Direct) at 58; CX-40C (BCM3440 schematics); *see* CDX-16.

⁹⁸⁴ *See* CX-1337C (Gomez Direct) at 11-12; CX-1662C (Milor Direct) at 59; *see* CDX16.01C.

⁹⁸⁵ CX-1662C (Milor Direct) at 59; *see* CDX-16.01C.

⁹⁸⁶ CX-1662C (Milor Direct) at 59; *see* CDX-16.02C.

⁹⁸⁷ CX-1662C (Milor Direct) at 59-60; *see* CDX-16.03C.

⁹⁸⁸ CX-1662C (Milor Direct) at 59-60; *see* CDX-16.03C.

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] ⁹⁹⁴ Accordingly, the undersigned finds that the BCM3440 tuner chip practices claim 33 of the '675 patent.

2. Economic Prong

The undersigned issued an initial determination on January 24, 2006 granting Broadcom's motion for partial summary determination on the economic prong of the domestic industry requirement.⁹⁹⁵ On February 17, 2006, the Commission issued a notice of decision not to review the initial determination granting Broadcom's unopposed motion for partial summary determination that it satisfies the economic prong of the domestic industry requirement. Accordingly, no further discussion regarding the economic prong is required.

⁹⁸⁹ CX-1337C (Gomez Direct) at 12; CX-1662C (Milor Direct) at 60; *see* CDX-16.04C.

⁹⁹⁰ CX-1662C (Milor Direct) at 60; *see* CDX-16.05C.

⁹⁹¹ CX-1662C (Milor Direct) at 60; *see* CDX-16.05C.

⁹⁹² CX-1337C (Gomez Direct) at 12; CX-1662C (Milor Direct) at 60-61; *see* CDX-16.06C.

⁹⁹³ CX-1662C (Milor Direct) at 61; *see* CDX-16.07C.

⁹⁹⁴ CX-1662C (Milor Direct) at 61; *see* CDX-16.08C.

⁹⁹⁵ *See* Order No. 19 (January 24, 2006).

D. Validity

1. Anticipation

a. U.S. Patent No. 5,6245,325 (“Rotzoll”)

Qualcomm argues that Dr. Milor’s construction of claims 33 and 35 of the ‘675 patent is anticipated by the Rotzoll ‘325 patent. Importantly, in support of its contention that Rotzoll contains every limitation of claims 33 and 35, Qualcomm argues that “[t]he technical witnesses all agree that persons of ordinary skill in the art reading the Rotzoll patent would understand that ‘D/A converter 91’ could be implanted as a current mirror composed of a plurality of unit current sources mirroring the ‘internal reference current 908.’”⁹⁹⁶ In addition, Qualcomm contends that “the current copier 92 is a ‘current mirror’ and programmable current amplifier 95 is a weighted current source that generates an output current 906 the qualifies as a ‘reference scale current’ under Dr. Milor’s construction, since the output of the amplifier 95 is scaled by a programmable scaling factor.”⁹⁹⁷

Broadcom notes that during prosecution, the “examiner considered, discussed, and allowed the claims of the ‘675 patent to issue over Rotzoll.”⁹⁹⁸ Broadcom submits that the Examiner allowed the claims of the ‘675 patent over Rotzoll because Rotzoll fails to disclose several limitations found in the ‘675 patent including: (1) “a plurality of unit current sources”; (2) a “current mirror;” (3) a circuit with “weighted current sources;” (4) a “reference scale current generated by weighted current sources;” or (5) “the scaling feature of the asserted claims.”⁹⁹⁹

The Staff agrees with Broadcom that Rotzoll does not disclose “a plurality of unit current

⁹⁹⁶ RIB 85 (citing RX-839C (Gutierrez Direct) at 32-33; Gomez, Tr. 949:1-950:22).

⁹⁹⁷ *Id.* (citing RX-17 (the ‘325 patent), 5:23-28; RX 839C (Gutierrez Direct) at 33-34).

⁹⁹⁸ CIB 120 (citing JX-9 (the ‘675 prosecution history) at BCMITC73842; Gutierrez, Tr. 1513).

⁹⁹⁹ *Id.* at 120-21.

sources” or a “current mirror.”¹⁰⁰⁰

The undersigned finds that Qualcomm has failed to show by clear and convincing evidence that the Rotzoll ‘325 patent discloses every limitation of claims 33 and 35 at issue here. To anticipate, a single reference must disclose every limitation of a claim.¹⁰⁰¹ That is, “[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the [relevant art].”¹⁰⁰² Proving invalidity “is especially difficult when the prior art was before the PTO examiner during prosecution of the application.”¹⁰⁰³

According to Qualcomm's own expert, Rotzoll does not expressly or inherently show “a plurality of unit current sources that are arranged into at least one group, said group responsive to a capacitor control signal and generating a portion of the reference pump current when said group is activated,” as required by claim 33. Indeed, according to Mr. Gutierrez, Rotzoll does not disclose unit current sources at all.¹⁰⁰⁴ The gist of Mr. Gutierrez’s testimony is that Rotzoll shows a black-box analog-to-digital converter that *could* be implemented as an array of unit current sources arranged into groups.¹⁰⁰⁵ Specifically Mr. Gutierrez testified:

- Q. I'm taking this step by step, sir. The Rotzoll patent shows a DAC, but it does not show a plurality of unit current sources; correct?
- A. Correct, it doesn't show one how to build a DAC.

¹⁰⁰⁰ SIB 116.

¹⁰⁰¹ *Nystrom v. TREX Co., Inc.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005) (“*Nystrom*”).

¹⁰⁰² *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1988) (“*Scripps*”); *see also Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677 (Fed. Cir. 1988) (“*Diversitech*”)(“[E]very element of the claimed invention must be identically shown in a single reference”).

¹⁰⁰³ *HP*, 909 F.2d at 1467.

¹⁰⁰⁴ *See* Gutierrez, Tr. 1523.

¹⁰⁰⁵ RX-839C (Gutierrez Direct) at 32-33; Gutierrez, Tr. 1518-19, 1559.

Q. Now, a DAC is a digital-to-analog converter; correct?

A. Correct.

Q. And digital-to-analog converters don't need to be built using unit current sources, do they?

A. That's correct.

Q. And there is nothing in the Rotzoll patent that would tell you to build the digital-to-analog converter, or DAC, described in that patent using unit current sources, is there?

A. There's no such -- it doesn't say to do it one way or the other. It doesn't recommend any particular way of building a DAC.¹⁰⁰⁶

Similarly, Rotzoll does not show a current mirror that includes one or more weighted current sources even though one *could* build a D-to-A converter using a current mirror.¹⁰⁰⁷ Mr. Gutierrez testified at trial that Rotzoll does not disclose a “current mirror” including one or more weighted current sources. Specifically Mr. Gutierrez stated:

Q. Rotzoll doesn't have a current mirror, either, does it?

A. It doesn't show a current mirror, but one of ordinary skill in the art would know that a very popular way of building a D-to-A converter in setting a template reference would be using a current mirror.

Q. Does the Rotzoll patent say that its circuit has a current mirror?

A. No, it doesn't. It doesn't go into transistor-level details on how to build every block in the circuit.¹⁰⁰⁸

Similarly, Dr. Gutierrez asserted that one *could* configure the Rotzoll circuit to match claim 33 as interpreted by Dr. Milor.¹⁰⁰⁹ However, it is not sufficient for purposes of anticipation that, using

¹⁰⁰⁶ Gutierrez, Tr. 1518:23-1519:15.

¹⁰⁰⁷ See Gutierrez, Tr. 1520, 1559; Milor, Tr. 1581-82; CX-1978C (Milor Rebuttal) at 11.

¹⁰⁰⁸ Gutierrez, Tr. 1520:7-17.

¹⁰⁰⁹ Gutierrez, Tr. 1413.

claim 33 for guidance, one *could* implement the claimed invention from the prior art.¹⁰¹⁰ Each element of the claim at issue must be explicitly or inherently disclosed in the prior art reference itself. Accordingly, the undersigned concludes that the Rotzoll '325 patent does not anticipate claims 33 of the '675 patent. As the Rotzoll '325 patent does not anticipate claim 33, it also does not anticipate dependent claim 35.

b. The BCM3415-A1

Qualcomm also argues that the '675 patent is invalid under §102(b) on-sale bar provision due to sales or offers for sale of Broadcom's BCM 3415 chip. Based upon the Gomez Declaration, Qualcomm argues that "the BCM 3415 was publicized, offered for sale and distributed to customers in 2000" prior to March 21, 2001.¹⁰¹¹ Furthermore, according to Qualcomm, "reference designs based on various versions of the BCM 3415 were sampled to customers on at least 25 occasions from December 1999 to October 2000, and that Broadcom sold over \$3000 worth of BCM 3415-B1 devices in August and September 2000."¹⁰¹² Qualcomm further argues that the 3415-A1 satisfies every limitation of claims 33 and 35, as construed by Dr. Milor.¹⁰¹³

Broadcom argues that the 3415-A1 cannot be considered prior art to the '675 patent because Qualcomm has failed to prove "by clear and convincing evidence that the BCM 3415-A1 was publicly used, offered for sale, or sold prior to the critical date."¹⁰¹⁴ Broadcom further disputes that

¹⁰¹⁰ See *Continental Can*, 948 F.2d at 1268-69 (indicating that a reference that is silent about an asserted characteristic anticipates only if "the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.").

¹⁰¹¹ RIB 83 (citing JX 9 (the '675 prosecution history) at BCMITC0073897-73899).

¹⁰¹² *Id.* at 84 (citing JX-70C (Kirchoff Dep) at 98:16-107:11; RX-257C (BCM3415 spreadsheet)).

¹⁰¹³ *Id.* at 81-83.

¹⁰¹⁴ CIB 119.

the BCM 3415-A1 anticipates the '675 patent under Mr. Gutierrez's construction of claim 33.¹⁰¹⁵

The Staff agrees that under Dr. Milor's proposed construction, the BCM3415-A1 does practice every limitation of claim 33 of the '675 patent.¹⁰¹⁶ However, Staff also agrees with Broadcom that "Qualcomm has not shown by clear and convincing evidence that the BCM-3415-A1 was offered for sale or sold more than one year prior to the March 20, 2001 filing date of the '675 application."¹⁰¹⁷

A patent is invalid "if the invention was in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States."¹⁰¹⁸ The '675 patent application was filed on March 20, 2001.¹⁰¹⁹ Therefore, the "critical" date that triggers the on-sale bar provision is March 20, 2000. The Supreme Court set forth a two-part test in *Pfaff v. Wells Electronics* to determine whether a patent is invalid under the on-sale bar provision.¹⁰²⁰ First, the product must be the subject of a commercial offer for sale. Second, the invention must be ready for patenting.¹⁰²¹

Based upon the evidence, the undersigned finds that Qualcomm has not shown by clear and convincing evidence that the BCM-3415-A1 was offered for sale or sold more than one year prior to the March 20, 2001 filing date of the '675 patent application. As disclosed in the patent prosecution history, Broadcom issued a press release dated December 6, 1999 that stated the BCM-

¹⁰¹⁵ *Id.*

¹⁰¹⁶ SIB 114.

¹⁰¹⁷ *Id.*

¹⁰¹⁸ 35 U.S.C. §102(b).

¹⁰¹⁹ *See* JX-4 (the '675 patent).

¹⁰²⁰ *See Pfaff v. Wells*, 525 U.S. 55 (1998) ("*Pfaff*").

¹⁰²¹ *Id.* at 67-68.

3415-A1 was available and could be had for \$10 in sample quantities.¹⁰²² Promotional materials, however, generally do not meet the standard for a commercial offer for sale under Federal Circuit precedent.¹⁰²³ Furthermore, there is no evidence in the record further indicating that a commercial sale or offer for sale of the BCM 3415-A1 actually took place. Instead Qualcomm provides evidence only of the distribution of the BCM 3415-B0 and B1 parts which Qualcomm argues “have gain compensation circuits similar to the BCM 3415-A1.”¹⁰²⁴ The undersigned finds that sales or offers for sale of the BCM3415-B0 and B1 parts cannot trigger the on-sale bar provision. First, Qualcomm has only made allegations that the BCM 3415-A1 triggers the on-sale bar, and therefore, the undersigned will not apply an on-sale bar based upon the sales of the BCM3415-B0 and B1 parts. Second, even if the undersigned agreed that the BCM3415-B0 and B1 parts could trigger the on-sale bar, there has been no evidence presented that the BCM3415-B0 and B1 parts were sold or offered for sale prior to the critical date. Indeed, the Gomez Declaration indicates that the internal evaluation of the BCM 3415-B0 was not even completed prior to March 30, 2000, and that the “BCM 3415-B1 reference board designs were first sampled to customers in, August 2000, under a non-disclosure agreement.”¹⁰²⁵

¹⁰²² See JX-9 (the ‘675 prosecution history) at BCMITC0000073903.

¹⁰²³ See *Group One, Ltd. v. Hallmark Cards, Inc.*, 254 F.3d 1041, 1048 (Fed. Cir. 2001) (“*Group One*”) (citing *Restatement (Second) of Contracts* § 26 (1981)) (“We do note in passing that contract law traditionally recognizes that mere advertising and promoting of a product may be nothing more than an invitation for offers, while responding to such an invitation may itself be an offer.”); see also *Mesaros v. United States*, 845 F.2d 1576, 1581 (Fed. Cir. 1988) (“*Mesaros*”) (“Thus, if goods are advertised for sale at a certain price, it is not an offer, and no contract is formed by the statement of an intending purchaser that he will take a specified quantity of the goods at that price.” Rather, this is merely an invitation to enter into a bargain) (citation omitted).

¹⁰²⁴ RIB 84 (citing Gomez, Tr. 940:11-943:21; RX-200 (BCM3415 schematics) at BCMITC00847530).

¹⁰²⁵ JX-9 (the ‘675 prosecution history) at BCMITC0000073899.

Likewise, Qualcomm has not shown by clear and convincing evidence that there was public use of the BCM-3415-A1 prior to March 20, 2000.

The proper test for the public use prong of the § 102(b) statutory bar is whether the purported use: (1) was accessible to the public; or (2) was commercially exploited. Commercial exploitation is a clear indication of public use, but it likely requires more than, for example, a secret offer for sale. Thus, the test for the public use prong includes the consideration of evidence relevant to experimentation, as well as, *inter alia*, the nature of the activity that occurred in public, public access to the use, confidentiality obligations imposed on members of the public who observed the use; and commercial exploitation.¹⁰²⁶

While potential customers may have been able to obtain a sample of the chip prior to March 20, 2000, there is no evidence in the record that the BCM3415-A1 was available commercially.¹⁰²⁷ Nor is there any evidence in the record that those samples were not provided subject to a confidentiality provision as was Broadcom's standard procedure.¹⁰²⁸ Thus, the undersigned finds Qualcomm has failed to prove also a public use prior to the critical date and accordingly, the undersigned finds that Qualcomm has not shown by clear and convincing evidence that the '675 patent is invalid under §102(b).

2. Obviousness Under 35 U.S.C. § 103

Respondent does not argue in its post-trial brief that the '675 patent is obvious. That issue is, therefore, waived.¹⁰²⁹

3. Enablement Under 35 U.S.C. § 112

Respondent does not argue in its post-trial brief that the '675 patent is not enabled. That

¹⁰²⁶ *Invitrogen*, 424 F.3d at 1380.

¹⁰²⁷ *See* JX-9 (the '675 prosecution history) at BCMITC0073898.

¹⁰²⁸ *See* JX-9 (the '675 prosecution history) at BCMITC0073898-73899.

¹⁰²⁹ *See* Ground Rule 11.1.

issue is, therefore, waived.¹⁰³⁰

4. Indefiniteness Under 35 U.S.C. § 112

Respondent does not argue in its post-trial brief that the '675 patent is indefinite. That issue is, therefore, waived.¹⁰³¹

VII. Domestic Industry - Economic Prong

As noted above, the undersigned issued an initial determination on January 24, 2006 granting Complainants' motion for summary determination on domestic industry, economic prong.¹⁰³² On February 17, 2006, the Commission issued a notice of decision not to review the initial determination granting Complainant's motion for summary determination that it satisfies the economic prong of the domestic industry requirement. Accordingly, no further discussion regarding the economic prong is required.

¹⁰³⁰ See Ground Rule 11.1.

¹⁰³¹ See Ground Rule 11.1.

¹⁰³² See Order No. 19 (January 24, 2006).

CONCLUSIONS OF LAW

1. The Commission has subject matter jurisdiction in this investigation.
2. The Commission has personal jurisdiction over Respondent Qualcomm Incorporated.
3. Qualcomm's accused products do not infringe, either directly, or indirectly, claims 1-5, 7, 8, 13, 14, and 16-19 of U.S. Patent No. 6,374,311 in violation of 35 U.S.C. § 271(a).
4. Qualcomm's accused products directly infringe claims 1, 4, 8, 9, and 11 of U.S. Patent No. 6,714,983 in violation of 35 U.S.C. § 271(a). In addition, Qualcomm induces infringement of claims 1, 4, 8, 9, and 11 of U.S. Patent No. 6,714,983 in violation of 35 U.S.C. § 271(a). Qualcomm does not, however, contributorily infringe claims 1, 4, 8, 9, and 11 of U.S. Patent No. 6,714,983 in violation of 35 U.S.C. § 271(a).
5. Qualcomm's accused products do not infringe, either directly, or indirectly, claims 14 and 17-24 of U.S. Patent No. 6,714,983 in violation of 35 U.S.C. § 271(a).
6. Qualcomm's accused products do not infringe claims 33 and 35 of U.S. Patent No. 6,583,675 in violation of 35 U.S.C. § 271(a).
7. An industry in the United States exists with respect to Broadcom's products that is protected by claim 1 of U.S. Patent No. 6,374,311, as required by 19 U.S.C. § 1337(a)(2) and (3).
8. An industry in the United States exists with respect to Broadcom's products that is protected by claim 1 of U.S. Patent No. 6,714,983, as required by 19 U.S.C. § 1337(a)(2) and (3).
9. An industry in the United States exists with respect to Broadcom's products that is protected by claim 33 of U.S. Patent No. 6,583,675, as required by 19 U.S.C. § 1337(a)(2) and (3).
10. Claims 1-5, 7, 8, 13, 14, and 16-19 of U.S. Patent No. 6,374,311 are not invalid under 35 U.S.C. § 102 for anticipation based on any of the following references:

- a. Mobitex Terminal Specification (“MTS”);
 - b. Global System for Mobile Communications (“GSM”) technical specification;
 - c. the COGNITO System; and
 - d. CDMA Draft Revision 0.
11. Claims 1-5, 7, 8, 13, 14, and 16-19 of U.S. Patent No. 6,374,311 are not invalid under 35 U.S.C. § 112 ¶ 1 for lack of written description.
 12. Claims 1, 4, 8, 9, 11, 14, and 17-24 of U.S. Patent No. 6,714,983 are not invalid under 35 U.S.C. § 102 for anticipation based on any of the following references:
 - a. Global System for Mobile Communications (“GSM”) technical specification;
 - b. CDMA Draft Revision 0;
 - c. U.S. Patent No. 4,964,121 (“Moore”);
 - d. U.S. Patent No. 5,203,020 (“Sato”); and
 - e. U.S. Patent No. 5,128,938 (“Borras”).
 13. Claims 1, 4, 8, 9, 11, 14, and 17-24 of U.S. Patent No. 6,714,983 are not invalid under 35 U.S.C. § 103 for single-reference obviousness.
 14. Claims 1, 4, 8, 9, 11, 14, and 17-24 of U.S. Patent No. 6,714,983 are not invalid under 35 U.S.C. § 112 ¶ 1 for lack of enablement.
 15. Claims 33 and 35 of U.S. Patent No. 6,583,675 are not invalid under 35 U.S.C. § 102 for anticipation based on U.S. Patent No. 5,624,325 (“Rotzoll”).
 16. Claims 33 and 35 of U.S. Patent No. 6,583,675 are not invalid under 35 U.S.C. § 102’s on-sale bar provision due to sales or offers for sale of Broadcom’s BCM 3415 chip.

INITIAL DETERMINATION

Based on the foregoing opinion, findings of fact, conclusions of law, the evidence, and the record as a whole, and having considered all pleadings and arguments, including the proposed findings of fact and conclusions of law, it is the Administrative Law Judge's Initial Determination that a violation of Section 337 of the Tariff Act of 1930, as amended, has been found in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain baseband processor chips and chipsets, transmitter and receiver (radio) chips, power control chips, and products containing same, including cellular telephone handsets in connection with claims 1, 4, 8, 9, and 11 of U.S. Patent No. 6,714,983, and that a violation of Section 337 has not been found in connection with claims 1-5, 7, 8, 13, 14, and 16-19 of U.S. Patent No. 6,374,311; claims 14 and 17-24 of U.S. Patent No. 6,714,983; and claims 33 and 35 of U.S. Patent No. 6,583,675. Furthermore, the Administrative Law Judge hereby determines that a domestic industry in the United States exists that practices U.S. Patent Nos. 6,374,311; 6,714,983; and 6,583,675.

The Administrative Law Judge hereby CERTIFIES to the Commission this Initial Determination, together with the record of the hearing in this investigation consisting of the following: the transcript of the evidentiary hearing, with appropriate corrections as may hereafter be ordered by the Administrative Law Judge; and further the exhibits accepted into evidence in this investigation as listed in the attached exhibit lists.

Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the determination of the Commission unless a party files a petition for review pursuant to 19 C.F.R. § 210.43(a) or the Commission, pursuant to 19 C.F.R. § 210.44, orders on its own motion a review of the Initial

Determination or certain issues therein.

RECOMMENDED DETERMINATION ON REMEDY AND BOND

Pursuant to Commission Rules 210.36(a) and 210.42(a)(1)(ii), the Administrative Law Judge is to consider evidence and argument on the issues of remedy and bonding and issue a recommended determination thereon.

VIII. Remedy and Bonding

A. Limited Exclusion Order

Under Section 337(d), the Commission may issue either a limited or a general exclusion order. A limited exclusion order instructs the U.S. Customs Service to exclude from entry all articles that are covered by the patent at issue and that originate from a named respondent in the investigation. A general exclusion order instructs the U.S. Customs Service to exclude from entry all articles that are covered by the patent at issue, without regard to source. Broadcom requests that a limited exclusion order be issued that prohibits the importation of all infringing products, including but not limited to the following chips:

- 1) the MSM5550 chip, which supports and implements the CDMA 1xEV-DO protocol;
- 2) the MSM6200, MSM6225, MSM6245, MSM6250, MSM6255, MSM6260, MSM6275, and MSM6280 chips, which support and implement the GSM/GPRS/WCDMA protocol;
- 3) the MSM6300 chip, which is a dual-mode chip that supports and implements the 1xRTT and GSM/GPRS protocols;
- 4) the MSM6500, MSM6550, MSM6800, and MSM7500 chips, which support and implement both EV-DO and GSM/GPRS; and
- 5) RFT6100, RFT6102, RFT6120, RFT6150, RFT6170, RFT6200, RFT6250, and RFT6300

chips.¹⁰³³

Broadcom argues that because Broadcom has shown Qualcomm’s chipsets infringe the asserted patents, an exclusion order must be issued against the chipsets as a matter of right under §1337(d)(1).¹⁰³⁴ Broadcom further argues that because the accused chipsets are produced abroad by Qualcomm’s contractors, the exclusion order should extend to all accused chipsets manufactured and imported by or on behalf of Qualcomm in order to prevent evasion.¹⁰³⁵ According to Broadcom, such an order should include those accused chipsets manufactured and imported by its affiliates, subsidiaries, contractors, licensees, and other business related entities.¹⁰³⁶ In addition, Broadcom contends that there is “no legal basis to support an exception to the mandatory language of Section 1337(d)(1) to allow Qualcomm to import infringing chips into the United States for testing purposes” as Qualcomm asserts.¹⁰³⁷

Qualcomm argues that even if liability is found, under any party’s theory of infringement, a baseband chip only infringes the asserted patents when it is combined with certain software containing instructions enabling the accused functionality.¹⁰³⁸ Qualcomm further argues that because the chips themselves are not infringing and can be used in non-infringing ways, chips that have not been enabled by particular software to operate in an infringing manner should not be excluded and that Qualcomm should be able to import non-infringing chips.¹⁰³⁹ Thus Qualcomm concludes that “any remedial order must be carefully tailored to allow the importation and use of chips in ways that

¹⁰³³ CIBR 10.

¹⁰³⁴ CIBR 12.

¹⁰³⁵ CIBR 13.

¹⁰³⁶ CIBR 13.

¹⁰³⁷ CIBR 13.

¹⁰³⁸ RIBR 2.

¹⁰³⁹ RIBR 11.

do not infringe the asserted patents.¹⁰⁴⁰ In addition, Qualcomm argues that “Broadcom has also conceded that Qualcomm must be allowed to continue to provide the chipsets, research, development, and other related activities essential to the development and manufacture of baseband chips for PDAs, smartphones and data cards.”¹⁰⁴¹ Qualcomm further contends that Broadcom should not be permitted to restrict Qualcomm’s legitimate research, development and testing activities. According to Qualcomm, “the remedies Broadcom seeks would preclude Qualcomm from engaging in a wide range of activities, including research, development, and testing that do not employ the claimed techniques [in the asserted patents].”¹⁰⁴² Qualcomm further argues that “[a]ny order prohibiting Qualcomm’s research, development, and testing activities must be based on a careful inquiry into whether or not such activities would actually constitute inducement under United States patent law and whether or not the order would impair legitimate commerce.”¹⁰⁴³

Qualcomm also contends that Broadcom should be estopped from obtaining a remedy “related in any way to networks operated by Verizon” under the principles of judicial estoppel.¹⁰⁴⁴ According to Qualcomm, Broadcom has disclaimed treating Verizon as a direct or indirect infringer to avoid its counsels’ conflict of interest.¹⁰⁴⁵ Thus, Qualcomm asserts that it should be able to conduct all activities relating to Verizon Wireless networks regardless of any infringement findings, including research, development, and testing.¹⁰⁴⁶

The Staff takes the position that barring infringing chips “programmed to enable the battery-

¹⁰⁴⁰ RIBR 11.

¹⁰⁴¹ RIBR 4 citing IFFR 645.

¹⁰⁴² RIBR 12.

¹⁰⁴³ RIBR 13.

¹⁰⁴⁴ RIBR 3.

¹⁰⁴⁵ RIBR 3.

¹⁰⁴⁶ RIBR 14.

saving features of the patents at issue is appropriate” but should be commensurate in scope with the violation found and should be considered for each of the patents at issue.¹⁰⁴⁷ The Staff makes the following recommendations. First, if the Commission finds infringement of the ‘675 patent, then any chips manufactured and imported by or on behalf of Qualcomm that are covered by claims 33 and 35 of the ‘675 patent should be barred.¹⁰⁴⁸ Second, under the Staff’s construction, only accused chips that are [] infringe claims 1, 4, 8, 9, or 11 of the ‘983 patent. Thus, any exclusion order should be limited to those accused chips that are programmed with source code that infringes and that are manufactured abroad by or on behalf of, or imported by or on behalf of Qualcomm and its affiliates, parents, subsidiaries or related business entities.¹⁰⁴⁹ Third, under the Staff’s construction, only accused chips that are [] of claims 1-5, 7, 8, 14, and 16-19 of the ‘311 patent should be excluded because no direct infringement of these claims was found.¹⁰⁵⁰ Thus, any exclusion order should be limited to those accused chips that are programmed with source code that infringes and that are manufactured abroad by or on behalf of, or imported by or on behalf of Qualcomm and its affiliates, parents, subsidiaries or related business entities.¹⁰⁵¹

In addition, the Staff argues that Qualcomm’s testing exceptions are not appropriate. According to the Staff, Qualcomm asserted a new “exception” to an exclusion order to allow for the testing of chips for research and development purposes which appeared to be based on inherent

¹⁰⁴⁷ SIBR 7.

¹⁰⁴⁸ SIBR 7-8 citing *Certain Systems for Detecting and Removing Viruses and Worms, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-510, Comm’n Op. (Aug. 23, 2005) (“*Viruses and Worms*”).

¹⁰⁴⁹ SIBR 8.

¹⁰⁵⁰ SIBR 9-10.

¹⁰⁵¹ SIBR 10.

“obligations” that Qualcomm has with respect to products that are allowed to be imported under Broadcom’s proposed exclusion order.¹⁰⁵² However, the Staff argues that Qualcomm “has cited no precedent for its position.”¹⁰⁵³

Based on the undersigned’s above infringement findings, the chips that have been found to infringe should be subject to a limited exclusion order. Specifically, the undersigned found direct infringement of claims 1, 4, 8, 9, and 11 of the ‘983 patent and an exclusion order directed to accused chips that are programmed with source code that infringes and that are manufactured abroad by or on behalf of, or imported by or on behalf of Qualcomm and its affiliates, parents, subsidiaries or related business entities is appropriate.

As to Qualcomm’s argument that there should be an exception to allow importation of infringing chips for testing purposes, no such exception is mandated by the statute and Qualcomm points to no such legal support. In addition, Qualcomm failed to preserve this as a remedy issue in its initial pre-trial brief, filed on January 30, 2006. Although the pre-trial was filed before the motions to intervene were filed and the investigation was bifurcated into liability and remedy phases, this is an issue that Qualcomm should have been able to foresee at the time the initial pre-trial brief was filed. Accordingly, under the undersigned’s ground rules, the issue is waived.¹⁰⁵⁴

B. Downstream Products

Under Section 337, the Commission has broad discretion in selecting the form, scope, and

¹⁰⁵² SIBR 11-12.

¹⁰⁵³ SIBR 12.

¹⁰⁵⁴ See Qualcomm’s pretrial brief at 111-22 filed on January 30, 2006, and Ground Rule 8.2. In addition, during the remedy phase, Qualcomm asserted that “testing” evidence should be permitted as evidence of non-infringement, but the undersigned ruled that such arguments should have been raised in the liability phase. See Order No. 50 (June 22, 2006) and Bullock, R.Tr. 10-20 (July 6, 2006).

extent of the remedy in a Section 337 proceeding. If the Commission finds a violation of Section 337, the Commission may issue an exclusion order that not only covers the articles found to infringe, but also covers “downstream products,” which are products that incorporate the infringing articles as components. The Commission has identified relevant factors to be considered in deciding whether to include downstream products in an exclusion order, commonly referred to as the *EPROMs* factors, including: (1) the value of the infringing articles compared to the value of the downstream products in which they are incorporated; (2) the identity of the manufacturer of the downstream products, i.e., whether it can be determined that the downstream products are manufactured by the respondent or by a third party; (3) the incremental value to the complainant of the exclusion of downstream products; (4) the incremental detriment to respondents of exclusion of such products; (5) the burdens imposed on third parties resulting from exclusion of downstream products; (6) the availability of alternative downstream products that do not contain the infringing articles; (7) the likelihood that the downstream products actually contain the infringing articles and are thereby subject to exclusion; (8) the opportunity for evasion of an exclusion order that does not include downstream products; (9) the enforceability of an order by Customs; and any other factors the Commission determines to be relevant.¹⁰⁵⁵ In deciding whether to exclude downstream products, the Commission balances all of the above factors and nothing in the case law puts the burden of proof on any particular party with respect to the *EPROMs* factors.

Broadcom requests that the exclusion order not only cover the allegedly infringing chips that are found to infringe, but also cover certain “downstream products” that incorporate the infringing

¹⁰⁵⁵ See *Certain Erasable Programmable Read-Only Memories*, Inv. No. 337-TA-276, USITC Pub. 2196, Comm’n Op. at 124-126, 136 (May 1989) (“*EPROMs*”) *aff’d sub nom. Hyundai Elec. Indus. Co. v. U.S. Int’l Trade Comm’n*, 899 F.2d 1024 (Fed. Cir. 1990) (“*Hyundai*”).

chips as components. The specific types of “downstream products” that Broadcom wishes to exclude are handsets that contain the accused chips.¹⁰⁵⁶ Broadcom does not, however, wish to exclude downstream “converged devices,” *i.e.* PDAs, smartphones, or datacards that contain the accused chips.

Broadcom contends that the downstream products are handsets containing the accused chips and that those accused chips are vital to the operation of those handsets.¹⁰⁵⁷ Broadcom contends that in order to have complete and effective relief, any limited exclusion order must include downstream products.¹⁰⁵⁸ Broadcom concludes that the *EPROMs* factors weigh in favor of an exclusion order. Broadcom only requests that downstream exclusion apply to chips in handsets that have been accused under the ‘311 or ‘983 patents.¹⁰⁵⁹ Broadcom does not seek downstream exclusion on the basis that handsets contain a chip that infringes the ‘675 patent.¹⁰⁶⁰

The Intervenors argue that “[b]ecause the exclusion of EV-DO capable handsets would not benefit Broadcom and would inflict devastating harm on third parties who stand accused of no wrongdoing, the Commission should deny Broadcom’s request.”¹⁰⁶¹

The Staff submits that “the fact that Complainant will effectively be given no relief without a downstream product remedy and the fact that the intervening manufacturers and service providers have done little or nothing to try to mitigate the potential harms they might face tips the balance of the *EPROMs* factors toward granting an exclusion order that extends to at least some downstream

¹⁰⁵⁶ CIBR 14.

¹⁰⁵⁷ CIBR 16.

¹⁰⁵⁸ CIBR 1.

¹⁰⁵⁹ SFFR 24.

¹⁰⁶⁰ SFFR 23.

¹⁰⁶¹ IIBR 18.

products.¹⁰⁶²

1. Factor 1: The value of the infringing articles compared to the value of the downstream products in which they are incorporated

With respect to the first *EPROMs* factor, Broadcom makes both a qualitative and a quantitative analysis. First, Broadcom argues that qualitatively, the accused chipsets are “vital” components of the handset because without them, the handsets designed to incorporate those chipsets cannot access a wireless network.¹⁰⁶³ According to Broadcom, Qualcomm’s own executives and expert witnesses indicate that the accused “MSMs are the ‘brain’ of the handset.”¹⁰⁶⁴

Broadcom’s quantitative analysis compares the price paid by the handset manufacturers for the accused chips to the total price paid by the manufacturer to make the handset.¹⁰⁶⁵ According to Broadcom, such a methodology reveals that the accused chips account for a “significant percentage of the total cost of a handset.”¹⁰⁶⁶ Broadcom performs its quantitative calculations in two ways to make its point. First, Broadcom determines that the accused chips account for [] of the total bill of materials to the manufacturer.¹⁰⁶⁷ Broadcom then calculates that the accused chips account for [] of the cost of goods sold.¹⁰⁶⁸

The Intervenors argue that qualitatively, the patented technology “is not essential to the operation of the downstream handsets that Broadcom seeks to exclude” and that “if the patented technology could be easily removed from the downstream handsets, the handsets would continue to

¹⁰⁶² SIBR 40.

¹⁰⁶³ CIBR 17.

¹⁰⁶⁴ CIBR 17.

¹⁰⁶⁵ CIBR 18.

¹⁰⁶⁶ CIBR 18.

¹⁰⁶⁷ CIBR 18 citing CFFR 128.

¹⁰⁶⁸ CIBR 19 citing CFFR 130.

function normally.”¹⁰⁶⁹ According to the Intervenor’s quantitative calculations, which is based on the price paid by the manufacturers as compared to the wholesale price of the handset that the carriers pay, the relative value of the accused baseband chips ranges from [] of the value of the handsets incorporated them.¹⁰⁷⁰ The Intervenor’s also criticize the methodology used by Broadcom’s expert, Ms. Mulhern.¹⁰⁷¹

According to Staff, “the Commission considers the value of the components at issue relative to the targeted downstream products, both in terms of the monetary value of the components and the importance of the components to the operation of the downstream products in which they are incorporated.”¹⁰⁷² Staff asserts that the Commission has never set a minimum percentage of value but considers percentage along with the functional significance of the component part.¹⁰⁷³ As for the quantitative analysis, Staff agrees that the Intervenor’s methodology, which compares the values accused chip relative to the wholesale price of a handset, rather than Broadcom’s methodology, which uses the cost of goods sold or bill of materials, more accurately reflects the total cost of producing the downstream product. Staff asserts that, regardless of whether the value is [

] the chip is “highly significant” because it is essential to the operation of the handset and is not interchangeable or replaceable.¹⁰⁷⁴ Thus Staff concludes that the first *EPROMs* factor weighs in favor of a downstream exclusion order.¹⁰⁷⁵

¹⁰⁶⁹ IIBR 20-21, citing IFFR 247.

¹⁰⁷⁰ IIBR 18-19 citing IFFR 240-41.

¹⁰⁷¹ IIBR 19-20.

¹⁰⁷² SIBR 19 citing *Integrated Circuit Telecommunication Chips*, Comm’n Op. at 30-31.

¹⁰⁷³ SIBR 20 citing *Certain Electrical Connectors and Articles Containing the Same*, Inv. No. 337-TA-374, USITC Pub. 2981 Comm’n Op. at 11 (July 1996) (“*Electrical Connectors*”).

¹⁰⁷⁴ SIBR 21 citing SFFR 35.

¹⁰⁷⁵ SIBR 21.

Both Broadcom and Staff dispute the Intervenor's contention that the Commission does not look to the value of the accused product that is incorporate into a downstream product. According to Broadcom and Staff there is no support that the Commission looks to the value of the patented technology relative to the downstream product, rather than the accused product.¹⁰⁷⁶

The undersigned agrees with Staff that the first *EPROMs* factor weighs in favor of including downstream products in the exclusion order, at least on a qualitative basis. Specifically, the parties do not dispute that the baseband processor chip is an important part of the handset. In fact, a Motorola employee testified that the MSM chipset is the handset's "brain" and is essential to the handset's operation.¹⁰⁷⁷ In addition, the undersigned agrees that there is no support for the Intervenor's contention that the Commission looks to the value of the patented technology relative to the downstream product, rather than the accused product. The undersigned declines to make any specific quantitative findings because regardless of which methodology is used, it is clear that the baseband processor chip provides significant value to the handset. Accordingly, the first *EPROMs* factor weighs in favor of including downstream products in the exclusion order.

2. Factor 2: The identity of the manufacturer of the downstream products (i.e., are the downstream products manufactured by the party found to have committed the unfair act, or by third parties)

Broadcom argues that, although Qualcomm doesn't manufacture handsets itself, Intervenor's Kyocera, LG, Motorola, and Samsung cumulatively imported [] of all CDMA handsets shipped into the United States in 2005.¹⁰⁷⁸ Broadcom further argues that the Intervenor's

¹⁰⁷⁶ CRBR 14-16; SRBR 12-14.

¹⁰⁷⁷ JX-459C (Bush Dep) at 66; JX-447C (Froehling Dep) at 252-53; CX-2409C (Mulhern Direct) at 13.

¹⁰⁷⁸ CIBR 19-20 citing CFFR 135.

collaborate with Qualcomm “regarding the design, function and use of Qualcomm’s accused chips.”¹⁰⁷⁹

The Intervenors argue that “this inquiry focuses on whether the downstream products are manufactured by the party found to have committed that unfair act, or by third parties.”¹⁰⁸⁰ According to the Intervenors, the burden of complying with a downstream exclusion order falls entirely on third-party handset manufacturers, which are not limited to, the intervening manufacturers.¹⁰⁸¹ The Intervenors assert that Broadcom chose not to include any manufacturers as respondents in this Investigation and is now attempting to shift the huge burden of identifying all parties that import downstream products to Customs.¹⁰⁸² Specifically, the Intervenors note that non-intervening handset manufacturers imported [] into the United States in 2005.¹⁰⁸³ The Intervenors also assert that the Commission lacks authority under Section 337(d)(1) to exclude articles imported by persons not found to have violated Section 337.¹⁰⁸⁴

The Staff submits that it is undisputed that the downstream products are not made by Qualcomm, but are manufactured by non-respondent third parties and intervening manufacturers.¹⁰⁸⁵ Thus, according to the Staff, this factor “weighs against the issuance of an order covering handsets.”¹⁰⁸⁶ Staff also notes, however, that given the fact that almost all the accused chips enter the United States as part of handset, consideration of this factor would not necessarily preclude issuance

¹⁰⁷⁹ CIBR 20 citing CFFR 14-19.

¹⁰⁸⁰ IIBR 22 citing *EPROMs* at 53.

¹⁰⁸¹ IIBR 22.

¹⁰⁸² IIBR 23.

¹⁰⁸³ IIBR 22; IFFR 256.

¹⁰⁸⁴ IIBR 25.

¹⁰⁸⁵ SIBR 22.

¹⁰⁸⁶ SIBR 22.

of a limited exclusion order extending to downstream products.¹⁰⁸⁷

The undersigned rejects the Intervenor's (particularly Verizon's) argument, that the Commission lacks authority under Section 337(d)(1) to exclude articles imported by persons not found to have violated Section 337. As noted above, the Commission has broad discretion in selecting the form, scope, and extent of the remedy in a Section 337 proceeding and that if the Commission finds a violation of Section 337, the Commission may issue an exclusion order that not only covers the articles found to infringe, but also covers "downstream products" imported by persons not found to have violated Section 337.¹⁰⁸⁸

However, the undersigned agrees with the Intervenor that the second *EPROMs* factor weighs heavily against including downstream products in the exclusion order. While there is no requirement under Section 337 that a complainant name every potential respondent in an investigation, it has been the Commission's policy to encourage complainants to include in an investigation all those foreign manufacturers which it believes have entered, or are on the verge of entering the domestic market with infringing articles.¹⁰⁸⁹

The undersigned finds that, at the time the Complaint was filed, Broadcom knew that Qualcomm did not manufacture any handsets.¹⁰⁹⁰ The undersigned also finds that, at the time the Complaint was filed, Broadcom knew the identity of the handset manufacturers that manufacture handsets containing the accused infringing chips and could have named such manufacturers as

¹⁰⁸⁷ SIBR 22.

¹⁰⁸⁸ *EPROMs*, Comm'n Op. at 124-126, 136.

¹⁰⁸⁹ *Crystalline Cefadroxil Monohydrate*, Comm'n Op. at 10-11 quoting *Certain Airless Spray Pumps*, Inv. No. 337-TA-90, Comm'n Op. at 12, n. 14 (November 24, 1981) ("*Airless Spray Pumps*"). While this Commission Opinion relates to a general exclusion order, rather than downstream products, the undersigned finds it equally applicable here.

¹⁰⁹⁰ See Complaint, ¶¶ 12-13, 58-93.

respondents to this investigation.¹⁰⁹¹ In addition, the undersigned finds that, at the time the Complaint was filed, Broadcom knew that almost all of the accused chips that entered the United States were incorporated in a handset, rather than being imported separately.¹⁰⁹² Had Broadcom named the handset manufacturers as respondents, the *EPROMs* factors analysis would probably have been unnecessary. In fact, bifurcation and extension of the target date in this investigation would have been unnecessary as well, which would have conserved public and judicial resources. While Staff notes that, even if Broadcom named the manufacturer Intervenor as respondents, the manufacturer Intervenor constitute [] of the U.S. market for handsets and an *EPROMs* analysis would still be necessary to cover the remaining [] of the market, the undersigned finds that additional handset manufacturers that did not intervene in the investigation could have also been named as respondents.

The undersigned finds that Broadcom made a tactical litigation decision and chose not to name any of these handset manufacturers as respondents when it filed the Complaint. The undersigned does not dispute that Broadcom was within its legal rights to do so. But the undersigned is unpersuaded that the limited exclusion order must include downstream products in order for Broadcom to have “complete and effective relief” because of the way in which Broadcom crafted its Complaint.

Accordingly, the undersigned finds that the second *EPROMs* factor weighs heavily against including downstream products in the exclusion order.

¹⁰⁹¹ *Id.* (specifically naming LG, Motorola, and Samsung handsets as containing the accused infringing products).

¹⁰⁹² *Id.* at ¶¶ 83-94.

3. Factor 3: The incremental value to the complainant for excluding the downstream products

Broadcom argues that the incremental benefit of excluding downstream products to Broadcom is substantial because absent such an order, Broadcom will be deprived of any effective relief since there is no importation of the accused chipsets alone outside of a handset.¹⁰⁹³ According to Broadcom, “[t]he Commission routinely reaches this conclusion given this fact pattern.”¹⁰⁹⁴ Broadcom concludes that “[w]here there is little to no importation of the accused products except as components of downstream products,” downstream exclusion should be ordered as a matter of law.¹⁰⁹⁵ In addition, Broadcom argues that it could experience increased sales of its own chipsets that operate on the competing WCDMA standard if an appropriate exclusion order is entered.¹⁰⁹⁶

The Intervenor argues that Broadcom will not gain any incremental economic benefit because it does not manufacture a substitute for the accused MSM chips, nor did it present any evidence that Broadcom will gain sales of any of its other products.¹⁰⁹⁷ Furthermore, the Intervenor, argue that Broadcom introduced no evidence of the value of its intellectual property, and its expert, Ms. Mulhern, effectively conceded that the value is trivial in comparison to the threatened harm.¹⁰⁹⁸ Finally, the Intervenor advocates the crafting of a more narrow exclusion order directed only to handsets incorporating Qualcomm’s accused WCDMA baseband processors (namely, the MSM6200, MSM6225, MSM6245, MSM6250, MSM6255, MSM6260, MSM6275 and MSM6280

¹⁰⁹³ CIBR 21.

¹⁰⁹⁴ CIBR 20 citing *Certain Display Controllers & Products Containing Same*, Inv. No. 337-TA-491, 337-TA-481 (consolidated), Comm’n Determination at 28 (February 4, 2005) (“*Display Controllers*”).

¹⁰⁹⁵ CIBR 20.

¹⁰⁹⁶ CIBR 20-22 citing CFFR 154.

¹⁰⁹⁷ IIBR 25-26.

¹⁰⁹⁸ IIBR 26, 29-30.

chips).¹⁰⁹⁹

The Staff contends that the third *EPROMs* factor weighs heavily in favor of an exclusion order that extends to handsets because Broadcom will be effectively deprived of any relief without an exclusion order “since there is virtually no importation of the infringing products themselves into the United States other than as components of the downstream handsets.”¹¹⁰⁰ The Staff asserts that the legislative history of the 1988 amendments to Section 337 indicate that Congress’s intent was to provide domestic industries with “the most complete protection possible from infringing imports.”¹¹⁰¹ In response to the Intervenor’s argument that there would be little incremental benefit to Broadcom, the Staff asserts that the incremental benefit to Broadcom is not limited to an assessment of head-to-head competition as advocated by Intervenor because as stated in *EPROMs*, there is no reason to limit relief to “products corresponding to those currently manufactured by the domestic industry.”¹¹⁰²

Broadcom counters the Intervenor’s arguments, asserting that the Intervenor is misapplying the third *EPROMs* factor by focusing on the absolute value of a downstream exclusion order, rather than the incremental value. According to Broadcom, the Commission has repeatedly stated that the “incremental value” refers to the difference in value to the complainant between an order that excludes infringing product only and one that also excludes downstream products.¹¹⁰³ Broadcom asserts that the value to Broadcom of an exclusion order against only the infringing chips is minimal

¹⁰⁹⁹ IIBR 31.

¹¹⁰⁰ SIBR 22-23 citing *Display Controllers* at 60; *Integrated Circuit Telecommunication Chips* at 32; *Electrical Connectors* at 11.

¹¹⁰¹ SIBR 23 citing *EPROMs* at 124.

¹¹⁰² SIBR 24-25.

¹¹⁰³ CRBR 20 citing *Display Controllers*, Comm’n Op., 2005 WL 996252 at 31; *Electrical Connectors*, Comm’n Op., 1996 WL 1056313 at 12-13.

because there is virtually no importation of infringing chips themselves into the United States, while many millions of infringing Qualcomm chips are imported and sold in the United States that are incorporated into handsets. Therefore, according to Broadcom, the incremental value to Broadcom of a downstream exclusion order is high.¹¹⁰⁴

The undersigned disagrees with Broadcom and Staff that Broadcom will be effectively deprived of any relief without an exclusion order because of the allegation that there is virtually no importation of the infringing products themselves into the United States other than as components of the downstream handsets. As discussed above in the second *EPROMs* factor analysis, Broadcom was in complete control of how it crafted its Complaint. Broadcom is only being deprived of relief because it chose not to name the handset manufacturers as respondents, knowing full well that there is virtually no importation of infringing chips themselves into the United States.¹¹⁰⁵

The undersigned also finds that the third *EPROMs* factor weighs against including downstream products in the exclusion order. The undersigned rejects the Intervenor's argument that because Broadcom does not manufacture a substitute for the accused MSM chips, Broadcom will not gain any incremental economic benefit. There is no requirement that the incremental value to Broadcom must be directly correlated with exclusion of downstream products, although it would be more persuasive. That being said, the record reflects no substantive evidence that Broadcom's sales will increase if the downstream products are covered by the exclusion order. Broadcom itself speculates that it may realize increased sales of its baseband processors that operate on the WCDMA and HSDPA standards.¹¹⁰⁶ However, Broadcom's speculation, without corroborating evidence, is

¹¹⁰⁴ CRBR 21.

¹¹⁰⁵ See Complaint, ¶¶ 12-13, 58-93.

¹¹⁰⁶ CIBR 22.

insufficient to include the third *EPROMs* factor in support of Broadcom's position. Accordingly, the undersigned finds that the third *EPROMs* factor weighs against including downstream products in the exclusion order.

4. Factor 4: The incremental detriment to respondents if the products are excluded

Broadcom contends that Qualcomm failed to admit any evidence at trial that it will suffer an incremental detriment from a downstream exclusion order.¹¹⁰⁷ In fact, according to Broadcom, Qualcomm withdrew the witness statement of Dr. Manning, "the only evidence cited for this proposition in [Qualcomm's] pretrial brief."¹¹⁰⁸

The Intervenor argues that a downstream exclusion order gives Broadcom far more than the necessary recompense.¹¹⁰⁹ According to the Intervenor, such an order will also stifle innovation in wireless broadband technology by Qualcomm and others, and will hinder Qualcomm's effort to compete in this rapidly developing technology.¹¹¹⁰ The Intervenor asserts that the Commission has never issued a downstream order that wiped out the sole supplier of a product and left an entire industry with no alternative suppliers, which itself provides a significant reason not to issue an exclusion order covering downstream handsets.¹¹¹¹

Staff argues that an exclusion order extending to handsets would be detrimental to Qualcomm's sale of accused chips to foreign third party manufacturers, and may also negatively impact sales of chips that are not accused of infringement, but have been designed to work with the

¹¹⁰⁷ CIBR 23 citing Qualcomm's pretrial brief at 31-32.

¹¹⁰⁸ CIBR 23.

¹¹⁰⁹ IIBR 33.

¹¹¹⁰ IIBR 33.

¹¹¹¹ IRBR 13.

infringing chips within a cell phone such as power management integrated circuits.¹¹¹² Thus, Staff contends that “the incremental detriment to Qualcomm of an order covering handsets weighs against the exclusion of downstream products.”¹¹¹³ Staff disagrees, however, that innovation will be stifled because the EV-DO standard will still be available for PDAs and Smartphones.¹¹¹⁴

The undersigned finds that the fourth *EPRoMs* factor weighs against including downstream products in the exclusion order because of the incremental detriment to Qualcomm, including [

] Specifically, in 2005, over [] accused chips entered the United States incorporated in handsets manufactured by [

] so the effect of an exclusion order covering these handsets is significant.¹¹¹⁵ The undersigned makes no findings regarding the arguments that an exclusion order would stifle innovation in wireless broadband technology, as that factor goes more towards public interest considerations that should be addressed directly to the Commission.

5. Factor 5: The burden borne by third parties as a result of excluding downstream products

a. Views of the private parties with respect to handset manufacturers

Broadcom argues that the burden on third party handset manufacturers will be “smaller than [the] Intervenors project” because many sales lost because of an exclusion of EV-DO handsets can

¹¹¹² SIBR 26.

¹¹¹³ SIBR 26.

¹¹¹⁴ SRBR 21.

¹¹¹⁵ SFFR 40, SAMDX-2C; SAMX-130C at 10-11; JX-323C at MOT/BQ 62731, Mulhern, R.Tr. at 96, 147, 157, 164; Hausman, R.Tr. at 387-88.

be regained through sales of non-EV-DO handsets.¹¹¹⁶ Broadcom further argues that revenue earned on EV-DO handsets and services represents [] For example, according to Broadcom, from []

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] ¹¹¹⁸ In addition, Broadcom asserts that for 2005, LG sales revenue for its EV-DO handsets represented [] of its overall sales revenue worldwide for all of its mobile devices.¹¹¹⁹ According to Broadcom, though LG claims it will lose approximately []

[] LG employee Mr. Gralak testified that future handset revenues were []

] ¹¹²⁰

With respect to Motorola, Broadcom argues that for 2005, []

] ¹¹²¹ Broadcom further argues

that []

] ¹¹²² In addition, Broadcom contends that for 2005, Samsung's sales revenue for its EV-DO handsets represented only [] of its overall sales revenue.¹¹²³ Furthermore, Broadcom asserts that Samsung has no projections of the number of handsets that it expects to sell in 2006 or 2007, or projections of expected profits.¹¹²⁴ Thus, Broadcom concludes that "there is simply no basis

¹¹¹⁶ CIBR 23.

¹¹¹⁷ CIBR 24 citing CFFR 171 & CFFR 175.

¹¹¹⁸ CIBR 25.

¹¹¹⁹ CIBR 25 citing CFFR 197.

¹¹²⁰ CIBR 26.

¹¹²¹ CIBR 24 citing CFFR 206, 215.

¹¹²² CIBR 26-27.

¹¹²³ CIBR 24 citing CFFR 237.

¹¹²⁴ CIBR 27 citing CFFR 238-39.

to find that Samsung would be significantly burdened by an exclusion order.”¹¹²⁵

Moreover, Broadcom contends that if the manufacturers believed their own projections, they would have taken steps to mitigate the potential harm, but they have not.¹¹²⁶ Broadcom suggests that the manufacturers could have taken any of the following steps: (i) work with chip manufacturers to incorporate an alternative, non-infringing baseband processor; (ii) develop handsets that operate on non-EV-DO standards, such as WCDMA; (iii) manufacture at least one EV-DO capable PDA, smartphone, or data card; or (iv) sell EV-DO handsets in non-US markets, such as Japan, Korea, or China.¹¹²⁷

The Intervenor argue that an exclusion order covering downstream products will result in losses of “hundreds of millions of dollars in lost sales revenue and research and development (“R&D”) investment [to handset manufacturers] in addition to loss of customer and end-consumer good will.”¹¹²⁸ According to the Intervenor, a downstream exclusion order will force handset manufacturers to redesign handsets, with each redesign costing between []¹¹²⁹ Furthermore, the Intervenor estimate that it would take [] to redesign each handset affected by the proposed exclusion order.¹¹³⁰ According to the Intervenor, a redesign will also “impose significant opportunity costs, because engineers will be pulled away from other projects to work on the redesign effort.”¹¹³¹

¹¹²⁵ CIBR 27.

¹¹²⁶ CIBR 28-29.

¹¹²⁷ CIBR 28-29.

¹¹²⁸ IIBR 62 citing IFFR 349.

¹¹²⁹ IIBR 63 citing IFFR 355, 477.

¹¹³⁰ IIBR 64 citing IFFR 359, 479.

¹¹³¹ IIBR 64 citing IFFR 361.

(1) Motorola

The Intervenors argue that “[a]n exclusion order covering Motorola handsets incorporating accused Qualcomm baseband chips would bar importation of [] of Motorola’s 2005 CDMA-compatible handsets,” which include [

] ¹¹³² With respect to revenues, the Intervenors argue that in 2005 [] that would be subject to the proposed exclusion order” and of those handsets [] for Motorola.” ¹¹³³ According to the Intervenors, Motorola would also [] ¹¹³⁴ Finally, the Intervenors predict that [] ¹¹³⁵

(2) Samsung

The Intervenors point also to specific burdens that Samsung will face. In particular, the Intervenors indicate that “nearly [] of Samsung’s worldwide CDMA-compatible handsets are sold in the United States.” ¹¹³⁶ In addition, the Intervenors argue that the proposed exclusion order “will prevent [] of Samsung’s EV-DO-compatible models and [] of its CDMA-compatible models currently under development from entering the United States market.” ¹¹³⁷ Further, the Intervenors contend that the exclusion order will “significantly reduce Samsung’s

¹¹³² IIBR 64 citing IFFR 372.

¹¹³³ IIBR 65 citing IFFR 375.

¹¹³⁴ IIBR 66.

¹¹³⁵ IIBR 68 citing IFFR 393-94.

¹¹³⁶ IIBR 69 citing IFFR 412.

¹¹³⁷ IIBR 69 citing IFFR 413.

expected revenues,” indicating that if an exclusion order had been in effect in 2005, Samsung would have lost “the entire[] in revenue from the sale of [the affected] handsets.”¹¹³⁸ According to the Intervenor, revenues and sales of EV-DO-compatible handsets are expected to grow between now and 2010.¹¹³⁹ In addition, the Intervenor argues that Samsung will also lose R&D expenditures including approximately [] Samsung has invested in the development of the affected handsets.¹¹⁴⁰ Moreover, according to the Intervenor, there will be additional costs associated with using a chipset supplier other than Qualcomm. In total, the Intervenor estimates that it will cost Samsung between [] dollars and take [] months to develop each new handset from concept to the point of mass production.¹¹⁴¹ Finally, the Intervenor asserts that an exclusion order will require Samsung to reduce its workforce in the United States.¹¹⁴²

(3) LG

The Intervenor argues that the proposed exclusion order will cause “substantial financial and competitive harm to LGEMU.” According to the Intervenor, “LGEMU’s success in the cellular handset market stems from its ability to deliver devices to consumers that contain cutting-edge technology. The proposed exclusion order could affect all of LGEMU’s high-end devices in the United States, for both CDMA/EV-DO and GSM/WCDMA networks, and would cause LGEMU to start essentially from scratch with new chipsets, devices, and technologies.”¹¹⁴³

The Intervenor indicated that Qualcomm is LGEMU’s sole supplier of CDMA-compatible

¹¹³⁸ IIBR 69 citing IFFR 414-15.

¹¹³⁹ IIBR 69 citing IFFR 88.

¹¹⁴⁰ IIBR 69 citing IFFR 406.

¹¹⁴¹ IIBR 70 citing IFFR 405, 407, 359, 400.

¹¹⁴² IIBR 71 citing IFFR 397.

¹¹⁴³ IIBR 71.

baseband chips for its U.S. CDMA-compatible handsets and is the only supplier of EV-DO-compatible baseband chips for use in the United States.¹¹⁴⁴ According to the Intervenor, LGEMU

[] which account for[

] ¹¹⁴⁵ The Intervenor further assert that [

] ¹¹⁴⁶

With respect to redesigning handsets, the Intervenor estimate that it would cost LGEMU between [] per handset to incorporated non-accused chips.¹¹⁴⁷ Furthermore, the Intervenor argue that it would [] to redesign handsets affected by the proposed exclusion order.¹¹⁴⁸

(4) Kyocera

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¹¹⁴⁴ IIBR 71 citing IFFR 370, 542.

¹¹⁴⁵ IIBR 71.

¹¹⁴⁶ IIBR 73 citing IFFR 439-440.

¹¹⁴⁷ IIBR 73 citing IFFR 434.

¹¹⁴⁸ IIBR 73 citing IFFR 433, 441.

¹¹⁴⁹ IIBR 74.

] ¹¹⁵¹

The Intervenors contend that alternatives proposed by Broadcom are “unattractive or unavailable.”¹¹⁵² [

] redesign of Kyocera Wireless’s handsets will take [] months and require at least an expenditure of [

] ¹¹⁵³ The Intervenors further argue that [

] ¹¹⁵⁴

b. Views of the private parties with respect to wireless carriers

Broadcom argues that “the harm that the wireless carriers project is overstated primarily because, if an exclusion order issues, consumers still could purchase EV-DO capable converged

¹¹⁵⁰ IIBR 75 citing IFFR 456, 462.

¹¹⁵¹ IIBR 76.

¹¹⁵² IIBR 77.

¹¹⁵³ IIBR 77 citing IFFR 479, 477.

¹¹⁵⁴ IIBR 77-78 (citing IFFR 480, 475).

devices.”¹¹⁵⁵ Specifically, with respect to an exclusion order, Broadcom argues that Verizon overstates its potential burden because [

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] ¹¹⁵⁷ According to Broadcom, [

] ¹¹⁵⁸ In addition,

Broadcom contends that [

] ¹¹⁵⁹

In addition, Broadcom argues that [

] ¹¹⁶⁰ According to Broadcom, [

] ¹¹⁶¹ Furthermore,

Broadcom contends that most consumers will not leave Verizon Wireless simply because of an exclusion order.¹¹⁶² According to Broadcom, most consumers do not choose Verizon because of VCast, but rather because Verizon has a reliable network and good network coverage.¹¹⁶³

Broadcom also contends that the expert opinion of Dr. Carlton is “meaningless” because the

¹¹⁵⁵ CIBR 29 citing CFFR 271.

¹¹⁵⁶ CIBR 30 citing CFFR 266.

¹¹⁵⁷ CIBR 31 citing CFFR 301.

¹¹⁵⁸ CIBR 31.

¹¹⁵⁹ CIBR 33 citing CFFR 312, 46.

¹¹⁶⁰ CIBR 33, 37.

¹¹⁶¹ CIBR 33-34 citing CFFR 331-335.

¹¹⁶² CIBR 36.

¹¹⁶³ CIBR 36 citing CFFR 339 and 347.

projections upon which they are based were developed during litigation.¹¹⁶⁴ Broadcom points to examples which purport to show that Verizon manipulated inventory and customer churn rates for the purpose of litigation in order to magnify the amount of harm that might be caused by an exclusion order.¹¹⁶⁵ Finally Broadcom argues that Verizon has not taken steps to mitigate potential harm from an exclusion order.¹¹⁶⁶ Broadcom concludes that “due to the methodology utilized and the magnitude of the underlying actual subscriber and revenue data, the Verizon Wireless Impact Analysis model is subject to widely varying projected impact results based upon changes in underlying assumptions; and therefore, is “simply unreliable in evaluating the level of harm Verizon would suffer if a downstream exclusion order was entered.”¹¹⁶⁷

Broadcom argues that Sprint similarly overstates its potential burden from an exclusion order. According to Broadcom, “historical data suggests that the impact on Sprint Nextel of an exclusion order of Sprint Nextel’s bottom line would be minimal.”¹¹⁶⁸ For example, Broadcom contends that Sprint would have lost [] of its revenues if an exclusion order had been in effect in 2006.¹¹⁶⁹ Broadcom also argues that,[

¹¹⁶⁴ CIBR 34.

¹¹⁶⁵ CIBR 34-35.

¹¹⁶⁶ CIBR 37.

¹¹⁶⁷ CIBR 37-38.

¹¹⁶⁸ CIBR 38.

¹¹⁶⁹ CIBR 38 citing CFFR 428.

¹¹⁷⁰ CIBR 39.

] ¹¹⁷¹ Broadcom

also contends that nearly all of the services on the EV-DO network are also available on Sprint's lx-RTT network.¹¹⁷²

[

] ¹¹⁷³ According to Broadcom, Sprint plans

to add [

] ¹¹⁷⁵ In support of its argument, Broadcom cites to statements from the Intervenor's witnesses indicating that no one knows yet whether VCast-type services will be successful.¹¹⁷⁶

The Intervenor's argue that Verizon will suffer both financial and competitive harm. First, the Intervenor's explain that Verizon Wireless has invested [] to upgrade its network to be able to provide the nation's first broadband wireless data network, based on the EV-DO technology developed by Qualcomm.¹¹⁷⁷ If the proposed exclusion order is entered, the Intervenor's argue that [

¹¹⁷¹ CIBR 39.

¹¹⁷² CIBR 39.

¹¹⁷³ CIBR 39.

¹¹⁷⁴ CIBR 40 citing CFFR 419, 422.

¹¹⁷⁵ CIBR 40 .

¹¹⁷⁶ CIBR 41 citing CFFR 435, 69.

¹¹⁷⁷ IIBR 37.

] ¹¹⁷⁸ According to the Intervenors, [

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] ¹¹⁸⁰

In addition, the Intervenors argue that if the proposed exclusion order issues, Verizon Wireless will not be able to [

] ¹¹⁸¹ According to the Intervenors, [

] ¹¹⁸²

The Intervenors project that Verizon Wireless will [

] ¹¹⁸³ Furthermore, the

Intervenors assert that [

] ¹¹⁸⁴ The Intervenors also argue

that [

] In response to

Broadcom's arguments, the Intervenors assert that "[n]othing in the record casts any doubt on [the]

conclusion that Verizon Wireless would incur [] of lost profits as a result of

¹¹⁷⁸ IIBR 40.

¹¹⁷⁹ IIBR 38, 40 citing IFFR 135, 152.

¹¹⁸⁰ IIBR 39 citing VX-302C (Straight Direct) at 18, IFFR 147.

¹¹⁸¹ IIBR 40 citing VX-302C (Straight Direct) at 25, IFFR 297, 304.

¹¹⁸² IIBR 40 citing VX-302C (Straight Direct) at 26.

¹¹⁸³ IIBR 42 citing VX-352C (Table 1); IFFR 336-337.

¹¹⁸⁴ IIBR 41 citing IFFR 300; VX-302C (Straight Direct) at 25.

Broadcom's proposed exclusion order."¹¹⁸⁵

In addition to the financial and competitive harms that Verizon Wireless will suffer, the Intervenor contend that the proposed exclusion order will also "threaten future innovation and capital investment."¹¹⁸⁶ For example, the Intervenor argue that [

] ¹¹⁸⁷ Further, the Intervenor contend that [

] ¹¹⁸⁸ Finally, the Intervenor assert that the proposed exclusion order will [

] ¹¹⁸⁹ According to the Intervenor, it will take from [] to bring replacement handsets to the market, and potentially much longer if Verizon Wireless uses a new baseband chip.¹¹⁹⁰

With respect to Sprint, the Intervenor argue that the proposed exclusion order will [

] ¹¹⁹¹ The Intervenor first explain how Sprint Nextel's EV-DO services are used. For example, the Intervenor indicate Sprint Nextel's EV-DO services permit users "to watch live television on their handsets, or to download and listen to

¹¹⁸⁵ IIBR 44.

¹¹⁸⁶ IIBR 47.

¹¹⁸⁷ IIBR 48 citing VX-300C (Lynch Direct) at 30.

¹¹⁸⁸ IIBR 48-49 citing IFFR 315; VX-302C (Straight Direct) at 26.

¹¹⁸⁹ IIBR 49 citing VX-299C (Garavaglia Direct) at 20; IFFR 300.

¹¹⁹⁰ IIBR 49 citing VX-299C (Garavaglia Direct) at 12.

¹¹⁹¹ IIBR 49.

high-quality digital music on the go.”¹¹⁹² The Intervenors further indicate that a number of other data services are “vastly improved” using EV-DO’s high data download speed.¹¹⁹³ In addition, the Intervenors state that Sprint Nextel [

] ¹¹⁹⁴

The Intervenors argue that Sprint Nextel’s 1xRTT and iDEN networks are [

] ¹¹⁹⁵ According to the Intervenors, Sprint Nextel has “invested [] building out the infrastructure of its EV-DO network [

] and further argue that Sprint Nextel presented “uncontroverted evidence that EV-DO [] ¹¹⁹⁶ The

Intervenors also assert that Sprint Nextel’s iDEN network, which serves the “Push-to-Talk” customers, [] ¹¹⁹⁷ According to the Intervenors, the push-to-talk feature

is “used by a very large population of businesses that have come to rely on the ability to use handsets like walkie-talkies and the near-instant communication that provides.”¹¹⁹⁸ The Intervenors contend that [

] ¹¹⁹⁹ The Intervenors further criticize Ms. Mulhern’s analysis because it did not take [

¹¹⁹² IIBR 51 citing IFFR 191.

¹¹⁹³ IIBR 51.

¹¹⁹⁴ IIBR 52 citing IFFR 207.

¹¹⁹⁵ IIBR 53 citing IFFR 217, 219, 345.

¹¹⁹⁶ IIBR 53 citing IFFR 215, 218.

¹¹⁹⁷ IIBR 54.

¹¹⁹⁸ IIBR 54 citing IFFR 178.

¹¹⁹⁹ IIBR 56 citing IFFR 218,220, 345-46, 348.

] and the

goals of the Sprint Nextel merger into account.¹²⁰⁰

The Intervenors quantify the harm to Sprint-Nextel arguing that EV-DO-capable handset customers will account for more than [] of Sprint Nextel's annual subscriber revenue for 2006, and more than [] of annual subscriber revenue as early as 2008."¹²⁰¹ Further the Intervenors argue that "[a]s of the end of May 2006, Sprint Nextel had more than [] EV-DO subscribers," with "more than [] [of those customers] using EV-DO handsets."¹²⁰² According to the Intervenors, the proposed exclusion [

] ¹²⁰³

The Intervenors argue that [

] In support of

that contention, the Intervenors rely upon the testimony of Chetan Sharma who [

] ¹²⁰⁴ According to the Intervenors, "Mr. Sharma's testimony [] provides support for the reasonableness of Sprint Nextel's EV-DO revenue projections showing large-scale adoption of EV-DO, and an explanation for why Sprint Nextel's launch has been so successful to date."¹²⁰⁵ The Intervenors further assert that "Sprint Nextel has also

¹²⁰⁰ IIBR 56.

¹²⁰¹ IIBR 57 citing IFFR 221.

¹²⁰² IIBR 57 citing IFFR 223.

¹²⁰³ IIBR 57 citing IFFR 345, 347-48.

¹²⁰⁴ IIBR 58 citing IFFR 99.

¹²⁰⁵ IIBR 59.

shown that the conclusions reached by Broadcom’s expert Dr. Lehr, are unsupported” because Dr. Lehr “has not performed any economic analysis to quantify the harm to Sprint Nextel of the proposed downstream exclusion order.” The Intervenor conclude that “the proposed downstream exclusion order would essentially [

]”¹²⁰⁶

c. Views of the private parties with respect to consumers

Broadcom contends that the “Intervenor’s suggestion that consumers will be harmed by Broadcom’s proposed exclusion order is contradicted by the evidence.”¹²⁰⁷ First, Broadcom argues that other than the ability to download videos or listen to music, the lx-RTT network offers the same services as EV-DO.¹²⁰⁸ According to Broadcom, because [

]”¹²⁰⁹ Broadcom

further argues that consumers who want video and music downloading capabilities can do so using a PDA or smartphone.¹²¹⁰ In addition, Broadcom contends that because Qualcomm monopolizes the EV-DO market, a decrease in price will be realized when handset manufacturers have to find alternative suppliers for EV-DO chips, thereby benefitting the manufacturers, carriers, and

¹²⁰⁶ IIBR 62 citing IFFR 348.

¹²⁰⁷ CIBR 41.

¹²⁰⁸ CIBR 41.

¹²⁰⁹ CIBR 41 citing CFFR 65, 70.

¹²¹⁰ CIBR 41 citing CFFR 491.

consumers.¹²¹¹

The Intervenors argue that ultimately any impact on wireless carriers and handset manufacturers will be passed onto consumers. First, the Intervenors assert that [c]onsumers will be significantly harmed by the proposed exclusion order because the resulting lack of demand for CDMA-compatible products would likely lead to GSM emerging as the dominant wireless broadband standard, resulting in reduced competition, unfavorable pricing, and less innovation.”¹²¹² There would be less competition in the wireless network providers, and potentially higher prices. Furthermore, the Intervenors argue that for those consumers who do switch to Cingular will not be able to access mobile broadband service, due to Cingular’s more limited network coverage.¹²¹³ In addition, the Intervenors contend that consumers will be relegated to inferior 1xRTT phones that have less features than EV-DO phones and face lower quality of service because they will not have access to more spectrum-efficient EV-DO compatible handsets.¹²¹⁴ Furthermore, consumers will face higher handset prices due to handset redesign costs.¹²¹⁵

d. Views of the private parties with respect to Other Third Party Businesses

Private Label services – or Mobile Virtual Network Operators (“MVNOs”) lease space on the networks of wireless carriers.¹²¹⁶ Broadcom argues that “[w]hile Intervenors suggest that MVNOs will be harmed by an exclusion order, the evidence suggests otherwise.”¹²¹⁷ According to

¹²¹¹ CIBR 41 citing CFFR 450.

¹²¹² IIBR 79 citing IFFR 497.

¹²¹³ IIBR 80 citing IFFR 596.

¹²¹⁴ IIBR 81 citing IFFR 68, 325, 507, 514, 562.

¹²¹⁵ IIBR 81 citing SAMX-132C (Hausman Supp. Report) ¶65; SAMX-130C (Hausman Direct) at 15; IFFR 352, 355, 357, 367.

¹²¹⁶ CIBR 42 citing CFFR 455.

¹²¹⁷ CIBR 42.

Broadcom, “with or without an exclusion order, there is no indication that there will be a significant market demand for MVNOs.”¹²¹⁸ Broadcom cites as an example that though Sprint is projecting [

] wholesale EV-DO subscribers by the end of 2006, Sprint added [] users for both EV-DO and 1xRTT services in the first quarter of 2006.¹²¹⁹ In addition, Broadcom contends that the Intervenor has not presented evidence to support the notion that component suppliers will be harmed by a downstream exclusion order.¹²²⁰

With respect to other third parties business that would be harmed by the proposed exclusion order, the Intervenor argues that Mobile Service Delivery Platforms (“MSDP”), which provide content on EV-DO networks for Verizon and Sprint, will lose significant sales revenue.¹²²¹ According to the Intervenor, Mr. Sharma testified that “software developers that have already invested in EV-DO-related services will be forced to expend a great deal of time and resources reallocating their relationships to carriers that do not operate EV-DO networks.”¹²²² The Intervenor further argues that MVNOs have invested significantly on EV-DO networks in its infrastructures, devices, applications, and marketing. The Intervenor explains that [

] ¹²²³ According to the Intervenor, [

] ¹²²⁴ Finally, the Intervenor argues that components

¹²¹⁸ CIBR 42.

¹²¹⁹ CIBR 42 citing CFFR 459-460.

¹²²⁰ CIBR 42 citing CFFR 463.

¹²²¹ IIBR 82 citing IFFR 534, 537.

¹²²² IIBR 82 citing IFFR 536.

¹²²³ IIBR 83 citing IFFR 525, 533.

¹²²⁴ IIBR 83 citing IFFR 529.

suppliers to the handset makers will be adversely affected because an exclusion will require them “to stop production as well.”¹²²⁵

e. Views of the Staff with respect to all Third Parties

The Staff argues that financial burdens on third parties “appear to be substantial” despite disagreements that the Staff has with certain quantitative analyses of losses set forth by the Intervenors. For example, the Staff criticizes Verizon’s projections of loss because they were “based solely upon its business plan – a plan that was finalized this year after Verizon was fully aware of this investigation and the possible exclusion of EV-DO handsets.”¹²²⁶ The Staff indicates that

[

] ¹²²⁷ The Staff argues that [

] ¹²²⁸ The Staff

also challenges [

] ¹²²⁹

The Staff also finds burdens on handset manufacturers from the proposed exclusion order to be “substantial,” but makes similar criticisms of projections that the handset manufacturers have set forth.¹²³⁰ Specifically, the Staff argues that handset manufacturers have [

¹²²⁵ IIBR 83 citing IFFR 519.

¹²²⁶ SIBR 22-23 citing Carlton, R.Tr. at 654, 656.

¹²²⁷ SIBR 22 citing Carlton, R.Tr. at 689, 719; IFFR 334.

¹²²⁸ SIBR 22 citing Lynch, R.Tr. at 483-84; CFFR 348; IFFR 494-96.

¹²²⁹ SIBR 22 citing Carlton, R.Tr. at 790-91.

¹²³⁰ SIBR 23.

] ¹²³¹ Furthermore, the Staff argues that [

] ¹²³²

In addition, the Staff notes that the Intervenors have made “conclusory statements ... in a vacuum” about how jobs may be affected, without providing supporting data.¹²³³ According to the Staff, “this alleged ‘burden’ has not been proven and thus should not carry much weight.”¹²³⁴ Similarly, the Staff argues that the Intervenors have made conclusory statements regarding MVNO’s, MSDPs, and suppliers to those services. The Staff further argues that “[n]o party sought discovery from a single MVNO, MSDP or supplier to document its claim” and thus, “these arguments should be disregarded or at the very least significantly discounted.” The Staff concluded, however, that “the financial burdens borne by the EV-DO service providers and the handset manufacturers remain substantial” and “they are the types of burdens that cannot be alleviated by Broadcom’s suggestion of a certification provision.”¹²³⁵

The Staff further indicates that the Intervenors have completely failed to mitigate any potential harms that they may suffer. The Staff points to the fact that even after [

¹²³¹ SIBR 23 citing Zeran, R.Tr. 980-81.

¹²³² SIBR 24 citing IIBR at 63, 67, 70.

¹²³³ SIBR 24 citing IIBR at 64, 71.

¹²³⁴ SIBR 24.

¹²³⁵ SIBR 25 citing CIBR 43.

] ¹²³⁶ With respect to

the handset manufacturers, the Staff notes that [

] and [

] ¹²³⁷ The Staff concludes that “failure to do anything to mitigate the substantial harms they face diminishes the weight of this factor.” ¹²³⁸

f. Analysis and Conclusion as to Factor 5

The undersigned finds that, based on a review of the parties arguments, the fifth EPROMs factor weighs heavily against including downstream product in the exclusion order. While the parties dispute the actual dollar value of the burden that will be borne by third parties, including handset manufacturers and wireless network carriers, it is clear that there will be a significant financial burden borne by these third parties in the millions, if not billions, of dollars. ¹²³⁹ It is undisputed that there currently no alternatives to Qualcomm’s EV-DO-compatible chips. ¹²⁴⁰ While Broadcom and Staff argue that Intervenors have done nothing to mitigate the potential harm, the undersigned finds that there are significant barriers to mitigating harm, including the cost and timing required to re-design handsets, which the Intervenors estimate would cost anywhere between [] per

¹²³⁶ SIBR 26 citing IFFR 123; CFFR 383; IIBR 41.

¹²³⁷ SIBR 27-28.

¹²³⁸ SIBR 28.

¹²³⁹ Mulhern, R.Tr. 112-13; Lynch, R.Tr. 510-11; VX-300C (Lynch Direct) at 27-28.

¹²⁴⁰ Hausman, R.Tr. 408.

handset, and could take anywhere from []¹²⁴¹ Therefore, in the undersigned's view, the Intervenor's failure to mitigate the substantial harms they face does not diminish the weight of this factor.

The undersigned also finds that consumers will also bear a burden if there is an exclusion order covering handsets. Consumers will be faced with less choice of handsets with less features and network providers, and may face higher costs by being forced into buying a more expensive PDA or smartphone, or if redesign costs are passed onto consumers.¹²⁴²

The undersigned agrees with Staff that the arguments regarding harm to MVNOs and MSDPs are conclusory, at best, as there was no discovery from any MVNOs or MSDPs. Therefore, such arguments are rejected.

Accordingly, the undersigned finds that the fifth *EPROMs* factor weighs heavily against including downstream products in the exclusion order because of the significant financial burden borne by third parties, including handset manufacturers, wireless carriers, and consumers, as a result of excluding downstream products.

6. Factor 6: The availability of alternative downstream products that do not contain the infringing articles

Broadcom does not dispute that, currently, there are no commercially available alternatives to Qualcomm's EV-DO chips and that Qualcomm is a virtual "monopolist" when it comes to baseband processors that operate on the EV-DO standard.¹²⁴³ Nevertheless, Broadcom asserts that

¹²⁴¹ SAMX-130C (Hausman Direct) at 12, KX-246C (Zeran Direct) at 17, Zeran, R. Tr., 996-1001, KX-245C (Meyer Direct) at 12-13; KX-226C (Meyer Rebuttal) at 13, KX-195C.

¹²⁴² SAMX-130C (Hausman Direct) at 12, 14-15, 18; Hausman, R.Tr. 433-34; VX-300C (Lynch Direct) at 36.

¹²⁴³ CIBR 43, Hausman, R.Tr. 408.

there are plenty of reasonable alternative downstream products that offer similar functionality. Broadcom asserts that, or consumers that intend to use their handset for voice and other non-EV-DO data services, 1x-RTT handsets are reasonable alternatives and that for consumers desiring video, music downloads, and gaming services, which can only be supported by an EV-DO network, Cingular's WCDMA network is a reasonable alternative. Broadcom also asserts that consumers can also use PDAs and smartphones that are better equipped for accessing EV-DO-only data services.¹²⁴⁴ In addition, Broadcom asserts that there are plans by [

] ¹²⁴⁵

The Intervenor present a number of reasons why there are no viable alternatives to EV-DO compatible handsets. First, the Intervenor argue that 1x-RTT compatible handsets are not viable alternatives to EV-DO-capable handsets because it is five times less expensive to transmit data over an EV-DO network than a 1x-RTT network and EV-DO offers speeds 5-8 times faster than speeds offered by the network using 1x-RTT permitting consumers to easily transmit/receive music, video and music downloads.¹²⁴⁶ In addition, the Intervenor argue that PDAs, smartphones, and converged devices are not viable alternatives because of significant differences in form (they are bigger and bulkier), functionality (marketed to business customers versus regular consumers), and price (they are more expensive) than EV-DO compatible handsets.¹²⁴⁷

The Intervenor further contend that Broadcom has offered no credible evidence demonstrating that [

¹²⁴⁴ CIBR 43-44.

¹²⁴⁵ CIBR 47.

¹²⁴⁶ IIBR 91 citing IFFR 60, 68.

¹²⁴⁷ IIBR 87.

] ¹²⁵⁰

Staff asserts that it is undisputed that there are currently no other chips available that support the EV-DO standard besides the accused chips that, according to Staff, infringe the '311 and '983 patents.¹²⁵¹ Staff states that, there are, albeit somewhat more inconvenient and more expensive, alternatives that satisfy at least part of the existing domestic demand even if exclusion order is issued, including 1x RTT phones, and EV-DO PDAs and smartphones, and GSM/W-CSDMA devices.¹²⁵² Specifically, Staff argues that “there are a myriad of other manufacturers capable of expeditiously providing alternative GSM/W-CDMA baseband processor chips upon the exclusion of downstream products containing Qualcomm infringing chips.”¹²⁵³ Staff further argues that “[w]hile the redesign of handsets to accommodate these alternative chips would require time, inconvenience to Respondent’s customers is not an adequate basis for denying effective relief to the Complainant.¹²⁵⁴ Thus, Staff concludes that this sixth factor “weighs somewhat against an exclusion order incorporating EV-DO baseband processor chips accused of infringing the '311 and '983

¹²⁴⁸ IIBR 85-86.

¹²⁴⁹ IIBR 86 citing IFFR 551.

¹²⁵⁰ IIBR 86.

¹²⁵¹ SIBR 31.

¹²⁵² SIBR 31-32.

¹²⁵³ SIBR 33.

¹²⁵⁴ SIBR citing *Integrated Circuit Telecommunication Chips*, Comm’n Op. at 11 .

patents but does not weigh against issuing an exclusion order on downstream cellular telephone handsets incorporating GSM/W-CDMA baseband processor chips accused of infringing the '983 patent."¹²⁵⁵

The undersigned finds that the sixth *EPROMs* factor weighs against including downstream products in the exclusion order because there is no dispute among the parties that there are no commercially available alternatives to Qualcomm's EV-DO chips. The existence of non-infringing alternatives exist must be determined in light of the real world economic demands of a particular industry. Consumers in the wireless industry are cost-sensitive, and alternative devices that cost more, along with higher cost associated with service of the device, do not represent real world viable alternatives for consumers in a cost sensitive industry. Accordingly, the undersigned finds that the sixth *EPROMs* factor weighs against including downstream products in the exclusion order.

7. Factor 7: The likelihood that the downstream products actually contain the infringing article and, thus, are subject to the exclusion order

Broadcom argues that it is "certain" that downstream handsets will include the accused Qualcomm baseband processors because Qualcomm is currently the only commercial supplier of baseband processors that operate on the EV-DO standard.¹²⁵⁶ Furthermore, Broadcom indicates that all of Qualcomm's EV-DO chips are at issue in this investigation.¹²⁵⁷

The Intervenor's argue that Broadcom has not proven and is estopped from arguing that devices used on Verizon's or Sprint network infringe the '311 or the '983 patents.¹²⁵⁸ In addition, according to the Intervenor's, whether a particular device infringes under Broadcom's claim

¹²⁵⁵ SIBR 34.

¹²⁵⁶ CIBR 48.

¹²⁵⁷ CIBR 48 citing CFFR 509.

¹²⁵⁸ IIBR 96.

construction of the '983 patent depends on whether the device is adapted to operate on both the GSM and the GPRS air interfaces in the US. Because neither Sprint nor Verizon operate a GSM or GPRS network in the US, the devices imported for use on their networks are not capable of infringement.¹²⁵⁹

Staff argues that because “Qualcomm holds 100% of market share for EV-DO baseband processor chips and 16% of the market share for W-CDMA baseband processor chips, handsets utilizing EV-DO technology are certain to contain the accused Qualcomm chips.”¹²⁶⁰ According to the Staff, even though the Harmonized Tariff Schedule (“HTS”) category is broader than articles to be excluded, the Commission has come up with ways to circumvent this (*e.g.*, through certification), and thus has not been dissuaded from entering relief to which a complainant is otherwise entitled.¹²⁶¹ Thus, Staff concludes that “this factor weighs slightly against providing downstream product relief.”¹²⁶²

The undersigned finds that the seventh *EPROMs* factor weighs in favor of including downstream products in the exclusion order because there is no dispute between the parties that all current EV-DO handsets contain the accused chips, and approximately 16% market share for W-CDMA baseband processor chips.¹²⁶³ The undersigned will not consider the Intervenors’ arguments regarding non-infringement by Verizon and Sprint, as all infringement issues were decided in the liability phase of the investigation.

¹²⁵⁹ IIBR 96-97.

¹²⁶⁰ SIBR 34.

¹²⁶¹ SIBR 33-34 citing *Integrated Circuit Telecommunication Chips* at 33-34.

¹²⁶² SIBR 35.

¹²⁶³ CFF509, CX-2409C (Mulhern Direct) at 45; SFFR 47-48, Hausman, R.Tr. 408, 453; Zeran, R.Tr. 995-96; Galak, R.Tr. 934; CX-2530 at BCMIT000309296.

8. Factor 8: The opportunity for evasion of an exclusion order

Broadcom argues that the eighth *EPROMs* factor weighs in favor of a downstream exclusion order because Qualcomm could easily evade an exclusion order limited to Qualcomm's infringing processors since almost all of Qualcomm's infringing processors are imported as a component of a wireless device.¹²⁶⁴

The Intervenor argues that there is no evidence in the record that Qualcomm would not comply with an exclusion order that does not include downstream products, would attempt to evade it, or would defy customs.¹²⁶⁵ Furthermore, the Intervenor argues that there is no logical argument to be made that a downstream exclusion order would be more difficult to evade than an order without a downstream component.¹²⁶⁶

Staff argues that there will be a significant opportunity to evade an exclusion order that does not prohibit the importation of downstream products because "virtually all importation of the infringing products will be as components of wireless products and data cards."¹²⁶⁷ Thus, according to Staff, this factor weighs heavily in favor of an exclusion order covering downstream cellular telephone handsets.¹²⁶⁸

The undersigned finds that the eighth *EPROMs* factor weighs in favor of including downstream products in the exclusion order because the effectiveness of a limited exclusion order barring entry of accused chips would be minimal if it didn't extend to downstream handsets since accused chips are not imported in any significant amount except in combination with another

¹²⁶⁴ CIBR 49.

¹²⁶⁵ IIBR 97.

¹²⁶⁶ IIBR 97-98.

¹²⁶⁷ SIBR 35-36.

¹²⁶⁸ SIBR 36.

component.

9. Factor 9: The enforceability of an order by Customs

Broadcom contends that a certification provision, as part of a downstream exclusion order would be “relatively easy” for Customs to enforce.¹²⁶⁹ According to Broadcom, importers could easily certify that their product does not contain infringing Qualcomm products because manufacturers know which baseband processors are incorporated into their handsets, and are accustomed to segregating devices destined for the U.S. vs. other countries.¹²⁷⁰ Furthermore, Broadcom indicates that importers could certify that products imported under the same HTS code as excluded handsets do not contain all of the following features: (a) a higher level operating system; (b) the ability to operate a full, Microsoft office-style suite of third party applications; and (c) a full-featured data-entry mechanism, such as a QWERTY keyboard or touch screen.¹²⁷¹

The Intervenor argue that though a certification provision could help customs enforce an order, in this case an exclusion order covering downstream products would place a significant and undue burden on legitimate trade and therefore, should be avoided.¹²⁷² Furthermore, the Intervenor argue that because Broadcom has proffered several definitions of smartphones, PDAs, and hand-held e-mail devices and each definition is subject to dispute and interpretation, it not clear what devices will be subject to the exclusion order especially considering that neither Dr. Lehr nor Ms. Mulhern could define clearly distinguishing features of a higher-level operating system.¹²⁷³

¹²⁶⁹ CIBR 49.

¹²⁷⁰ CIBR 49-50.

¹²⁷¹ CIBR 50.

¹²⁷² IIBR 98 citing *Certain Light Emitting Diodes and Products Containing Same*, Inv. No. 337-TA-512, Initial Determination (May 10, 2005) (“LEDs”).

¹²⁷³ IIBR 99-100.

Staff argues that the ninth *EPROMs* factor weighs against extending an exclusion order to downstream products though certification would minimize the burden on Customs.¹²⁷⁴ The Staff further notes that the Commission “does not allow the burden on Customs and commerce to negate relief to which the complainant was entitled.”¹²⁷⁵ Staff also contends that the fact that PDA’s and smartphones will not be included in an exclusion order would not alleviate the burden on Customs or importers because Broadcom has not defined PDA or smartphone in “any meaningful way.”¹²⁷⁶

The undersigned finds that the ninth *EPROMs* factor weighs against including downstream products in the exclusion order because of the significant burdens placed on Customs and importers. The fact that Broadcom has carved out an exception for PDAs, Smartphones, and datacards only adds to the burden placed on Customs and importers if the exclusion order extended to downstream products. The evidence shows that approximately [] handsets were imported in 2005. Having Customs checking through this many handsets would cause an extraordinary amount of delay for importers and an undue burden for Customs. An additional certification requirement would alleviate the burden, but for PDAs and Smartphones, certification for these exceptions would be impractical considering that there is no agreement as to what constitutes a PDA or Smartphone. Accordingly, the undersigned finds that the ninth *EPROMs* factor weighs against including downstream products in the exclusion order.

10. Factor 10: Other

Broadcom asserts that there are no other relevant factors that weigh against a downstream

¹²⁷⁴ SIBR 39-40.

¹²⁷⁵ SIBR 37 citing *Electrical Connectors* at 11-15; *Integrated Circuit Telecommunication Chips* at 33-34.

¹²⁷⁶ SIBR 38.

exclusion order.¹²⁷⁷ Broadcom asserts that any “public interest” factors should be considered by the Commission at a later time and that the undersigned has already declined to hear evidence on such public interest factors.¹²⁷⁸

Staff, in its reply, addresses certain arguments by Qualcomm and the Intervenors. Specifically, Staff asserts that, although Broadcom waived the opportunity to prove that Verizon directly infringes, failure to assert infringement against certain goods is not a determination of non-infringement justifying an exemption from any remedial order on downstream products.¹²⁷⁹ Staff also disputes that the Commission lacks to authority to exclude articles imported by any person other than a named respondent.¹²⁸⁰

The undersigned finds that any other factors raised by the parties go towards the “public interest” and should be considered directly by the Commission, so they will not be addressed here. As to Staff’s analysis of other factors, the undersigned has already rejected Qualcomm and the Intervenors estoppel arguments in previous orders, as discussed above.

11. Conclusion

The undersigned finds that *EPROMs* factors one, seven, and eight weigh in favor of including downstream products in the exclusion order, while *EPROMs* factors two, three, four, five, six, and nine weigh against including downstream products in the exclusion order. In particular, the undersigned finds that *EPROMs* factors two and five weigh *heavily* against including downstream products in the exclusion order.¹²⁸¹ After considering all of the parties arguments, the undersigned

¹²⁷⁷ CIBR 51.

¹²⁷⁸ CIBR 51.

¹²⁷⁹ SRBR 34-35.

¹²⁸⁰ SRBR 35-37.

¹²⁸¹ See sections VIII (B)(2) & VIII(B)(5).

finds that, after balancing all of the above factors, the incremental benefit to Broadcom does not outweigh the heavy burden that will be borne by third parties if downstream products are included in the exclusion order.

Including downstream products in the exclusion order has the potential to greatly expand the coverage of the exclusion order, which increases the risk of interfering with legitimate commerce. The evidence does not show that it is necessary for the exclusion order to cover downstream products because the risk that an exclusion order covering downstream products would interfere with legitimate commerce far outweighs the incremental benefit to Broadcom in excluding downstream products. Therefore, the undersigned does not recommend that the exclusion order include downstream products.

C. Cease and Desist Order

Under Section 337(f)(1), the Commission may issue a cease and desist order in addition to, or instead of, an exclusion order. Cease and desist orders are warranted primarily when the respondent maintains a commercially significant inventory of the accused products in the United States.¹²⁸²

Broadcom requests a cease and desist order against Qualcomm because Qualcomm maintains a commercially significant inventory of accused products in the United States.¹²⁸³ Specifically, Broadcom asserts that, as of December 2004, Qualcomm had an inventory of approximately [] in its warehouse in San Diego, and that as of August 2005, the inventory was approximately []

¹²⁸² *Crystalline Cefadroxil Monohydrate*, 15 U.S.P.Q.2d at 1277-79.

¹²⁸³ CIBR 51, CRBR 67-68.

]¹²⁸⁴ Broadcom asserts that the cease and desist order should include barring Qualcomm from all of the following activities, including importing, selling for importation, assembling, testing, performing manufacturing steps with respect to, using, marketing, distributing, offering for sale, or selling, any of the infringing Qualcomm chips that are produced abroad.¹²⁸⁵

The Intervenors argue that a cease-and-desist order against Qualcomm is appropriate to prohibit it from combining chips with software in a manner that infringes use in handsets.¹²⁸⁶

Staff disagrees with Broadcom's request for a cease and desist order barring Qualcomm from "importing, selling for importation, assembling, testing, performing manufacturing steps with respect to, using, marketing, distributing, offering for sale, or selling, any of the infringing Qualcomm chips that are produced abroad" because this language is broader than what was requested in the pre-trial brief. According to Staff, Broadcom cites to the *Ink Markers* case for the above language, but notes that the Recommended Determination in *Ink Markers* did not contain the above broad language.¹²⁸⁷ In addition, Staff asserts that there is no evidence in the record that Qualcomm assembles infringing baseband processor or radio chips in the United States, or that Qualcomm performs any manufacturing steps with respect to the infringing baseband processor or radio chips in the United States.¹²⁸⁸

Staff supports, however, a cease and desist order barring Qualcomm from programming (or encouraging or enabling others in the US to program) chips with software that enables the battery

¹²⁸⁴ CFFR 516-17.

¹²⁸⁵ CIBR 51 citing *Certain Ink Markers & Packaging Thereof*, Inv. No. 337-TA-522, Order No. 30 at 70-71 (July 25, 2005) ("*Ink Markers*").

¹²⁸⁶ IIBR 103.

¹²⁸⁷ SRBR 8, see *Ink Markers*, supra.

¹²⁸⁸ SRBR 8.

saving features of the patents at issue, and barring sales and marketing activities in the US to “commercially exploit its inventory of accused chips.”¹²⁸⁹ According to the Staff, by May 31, 2006, “Qualcomm still had over [

] in its possession in the United States, though there is no evidence regarding how many of Qualcomm’s US inventoried chips are programmed to enable power-saving features at issue.¹²⁹⁰ Based upon those figures, the Staff asserts that “Qualcomm has a commercially significant inventory of imported product in the United States and that a cease and desist order against Qualcomm’s importations and sales, and also barring Qualcomm from converting the imported chips to infringing articles and marketing such infringing chips is appropriate.”¹²⁹¹

Qualcomm argues that Broadcom “cannot obtain an order restraining any actions by Qualcomm that do not either infringe directly or constitute ‘purposeful and culpable expression and infringement by other.’”¹²⁹² Specifically, Qualcomm asserts that Broadcom has not proven that there is a commercially significant inventory of infringing products present in the United States because the products must be software-enabled, and that there should be an exception for “testing,” “using,” and “marketing” chips.¹²⁹³

The undersigned agrees with Staff and finds that the evidence shows that Qualcomm maintains significant inventories of accused products in the United States and that a cease and desist order is warranted barring Qualcomm from (i) programming or encouraging or enabling others in the US to program chips with software that enables the patented features at issue (“covered product”)

¹²⁸⁹ SRBR 8-9.

¹²⁹⁰ SIBR 14-15.

¹²⁹¹ SIBR 14.

¹²⁹² RIBR 12.

¹²⁹³ RRBR 7.

except under license of the patent owner; (ii) importing or selling for importation into the United States covered product except under license; (iii) marketing, distributing, offering for sale, selling, consigning, or otherwise transferring (except for exportation) in the United States imported covered product except under license; (iv) soliciting U.S. agents or distributors for covered products except under license; and (v) aiding or abetting other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered product in the United States except under license.

D. Bond During Presidential Review Period

If the Commission enters an exclusion order or cease and desist order, parties may continue to import and sell their products during the pendency of the Presidential review under a bond in an amount determined by the Commission to be “sufficient to protect the Complainants from any injury.”¹²⁹⁴ Broadcom requests a bond in the amount of [] of the entered value of accused Qualcomm chips imported separately and a bond in the amount of [] of entered value of handsets that incorporate the accused Qualcomm chips.¹²⁹⁵ According to Broadcom, [

] ¹²⁹⁶

The Intervenor's argue that any bond imposed should be *de minimis* because Broadcom has failed to prove that Qualcomm enjoys any “competitive advantage.”¹²⁹⁷ According to the Intervenor's,

¹²⁹⁴ 19 U.S.C. § 1337(e); 19 C.F.R. § 210.50(a)(3).

¹²⁹⁵ CRBR 69.

¹²⁹⁶ CIBR 52-53; CRBR 69; CFFR 130-31.

¹²⁹⁷ IIBR 101-02.

the purpose of the bond is to offset “competitive advantage” by Qualcomm, but the Intervenor asserts that Broadcom has failed to prove that Qualcomm enjoys any competitive advantage over Broadcom because Broadcom has never made, and has no plans to make, a product with which Qualcomm competes.¹²⁹⁸ Furthermore, the Intervenor argues that because Broadcom sells no competing products, a direct price comparison to calculate the specific competitive advantage cannot be performed, nor can the Commission rely on royalty rate to use for determining bonding.¹²⁹⁹

Staff requests a bond of [] on chips imported separately and further suggests that a bond of [] of the entered value of handsets if they are covered by an exclusion order, [

] ¹³⁰⁰ Staff asserts that Broadcom’s requested bond of [] of the value of handsets is too high because [] ¹³⁰¹

The Commission frequently sets the bond by attempting to eliminate the difference in sales prices between the patented domestic product and the infringing product.¹³⁰² In the absence of reliable price information, the Commission has used other methods to determine an appropriate bond. For example, where a price comparison is unworkable, the Commission has determined that a bond of 100% is appropriate.¹³⁰³ In other instances where a direct comparison between a patentee’s product and the accused product was not possible, the Commission has set the bond at a reasonable

¹²⁹⁸ IIBR 102 citing IFFR 637; IRBR 45-47.

¹²⁹⁹ IIBR 103 citing IFFR 273-74; IRBR 45-47.

¹³⁰⁰ SIBR 42.

¹³⁰¹ SRBR 39.

¹³⁰² See *Microsphere Adhesives*, Commission Opinion at 24.

¹³⁰³ See, e.g., *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, U.S.I.T.C. Pub. No. 3003, Comm’n Op. at 27-28 and 40 (U.S.I.T.C., September 23, 1996) (“*Wind Turbines*”).

royalty rate.¹³⁰⁴

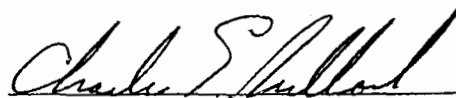
In this case, the parties did not introduce any evidence of current sales or pricing information that would permit the undersigned to determine a price differential. The parties also did not introduce any evidence of a reasonable royalty rate. In the absence of such information, a 100% bond per accused infringing imported chip is appropriate and recommended here. As the undersigned has not recommended that the exclusion order covers downstream product handsets, the undersigned makes no recommendation regarding an appropriate bond for an exclusion order that covers such downstream products.

¹³⁰⁴ See, e.g., *Certain Digital Satellite System (DSS) Receivers and Components Thereof*, Inv. No. 337-TA-392, U.S.I.T.C. Pub. No. 3418, Initial and Recommended Determinations at 245, *vacated on other grounds*, Comm'n Determination (May 13, 1999), 2001 WL 535427 (U.S.I.T.C., October 20, 1997) (“*DSS Receivers*”).

Within seven days of the date of this document, each party shall submit to the office of the Administrative Law Judge a statement as to whether or not it seeks to have any portion of this document deleted from the public version. The parties' submissions must be made by hard copy by the aforementioned date.

Any party seeking to have any portion of this document deleted from the public version thereof must submit to this office a copy of this document with red brackets indicating any portion asserted to contain confidential business information. The parties' submission concerning the public version of this document need not be filed with the Commission Secretary.

SO ORDERED.

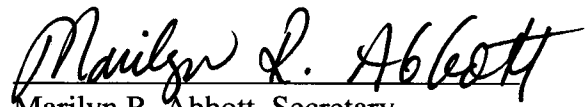


Charles E. Bullock
Administrative Law Judge

**IN THE MATTER OF CERTAIN BASEBAND PROCESSOR 337-TA-543
AND CHIPSETS, TRANSMITTER AND RECEIVER (RADIO)
CHIPS, POWER CONTROL CHIPS, AND PRODUCTS CONTAINING SAME,
INCLUDING CELLULAR TELEPHONE HANDSETS**

CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **ORDER** was served upon, Karin J. Norton, Esq., Commission Investigative Attorney, and the following parties via first class mail and air mail where necessary on January 4, 2007.



Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, S.W., Room 112A
Washington, DC 20436

FOR COMPLAINANT BROADCOM CORPORATION:

James L. Quarles III, Esq.
Michael D. Esch, Esq.

WILMER CUTLER PICKERING HALE AND DORR LLP
1875 Pennsylvania Avenue, N.W.
Washington, DC 20006

Elizabeth M. Reilly, Esq.
William F. Lee, Esq.

WILMER CUTLER PICKERING HALE AND DORR LLP
60 State Street
Boston, MA 02109

John W. Keker, Esq.
Robert A. Van Nest, Esq.
Ragesh K. Tangri, Esq.
Steven K. Taylor, Esq.
KEKER & VAN NEST LLP
710 Sansome Street
San Francisco, CA 94111

**IN THE MATTER OF CERTAIN BASEBAND PROCESSOR 337-TA-543
AND CHIPSETS, TRANSMITTER AND RECEIVER (RADIO)
CHIPS, POWER CONTROL CHIPS, AND PRODUCTS CONTAINING SAME,
INCLUDING CELLULAR TELEPHONE HANDSETS**

FOR RESPONDENT QUALCOMM INCORPORATED:

William K. West, Jr., Esq.

Cecilia H. Gonzalez, Esq.

Burt C. Reiser, Esq.

HOWREY LLP

1299 Pennsylvania Avenue, N.W.

Washington, DC 20004

Barry J. Tucker, Esq.

HELLER EHRMAN LLP

4350 LaJolla Village Drive, Suite 700

San Diego, CA 92122

FOR INTERVENOR VERIZON WIRELESS:

Reid M. Figel, Esq.

KELLOGG, HUBERT, HANSON, TODD, EVANS & FIGEL, P.L.L.C.

Sumner Square, Suite 400

1615 M Street, N.W.

Washington, DC 20036-3209

Maria T. DiGiulian, Esq.

Daniel M. Price, Esq.

Richard Wilder, Esq.

SIDLEY AUSTIN LLP

1501 K Street, N.W.

Washington, DC 20005

Peter H. Kang, Esq.

Robert B. Morrill, Esq.

Georgia K. Van Zanteen, Esq.

SIDLEY AUSTIN LLP

555 California Street

Suite 2000

San Francisco, CA 94104

IN THE MATTER OF CERTAIN BASEBAND PROCESSOR AND CHIPSETS, TRANSMITTER AND RECEIVER (RADIO) CHIPS, POWER CONTROL CHIPS, AND PRODUCTS CONTAINING SAME, INCLUDING CELLULAR TELEPHONE HANDSETS **337-TA-543**

John B. Wyss, Esq.
Kevin P. Anderson, Esq.
WILEY REIN & FIELDING LLP
1776 K Street, N.W.
Washington, DC 20006

Tom M. Schaumberg, Esq.
ADDUCI, MASTRIANI & SCHAUMBERG, LLP
1200 Seventeenth Street, N.W.
Washington, DC 20036

FOR INTERVENOR KYOCERA WIRELESS CORP.:

Don F. Livornese, Esq.
HOWREY LLP
550 South Hope Street
Suite 1100
Los Angeles, CA 90071

FOR INTERVENOR LG ELECTRONICS MOBILE COMM. U.S.A., INC.:

Timothy W. Riffe, Esq.
FISH & RICHARDSON P.C.
1425 K Street, N.W., 11th floor
Washington, DC 20005

FOR INTERVENOR MOTOROLA, INC.:

Russell E. Levine, P.C.
Nyika O. Strickland, Esq.
KIRKLAND & ELLIS LLP
200 East Randolph Drive
Chicago, IL 60601

IN THE MATTER OF CERTAIN BASEBAND PROCESSOR AND CHIPSETS, TRANSMITTER AND RECEIVER (RADIO) CHIPS, POWER CONTROL CHIPS, AND PRODUCTS CONTAINING SAME, INCLUDING CELLULAR TELEPHONE HANDSETS **337-TA-543**

FOR INTERVENOR SAMSUNG ELECTRONIC CO., LTD:

Greg Arovas, P.C.
Todd Friedman, Esq.
KIRKLAND & ELLIS LLP
Citigroup Center
153 East 53rd Street
New York, NY 10022

FOR INTERVENOR SPRINT NEXTEL CORP.:

Brian D. Fagel, Esq.
Vanessa B. M. Vergara, Esq.
Goldberg, Kohn, Bell, Black
GOLDBERG, KOHN, BELL, BLACK ROSENBLOOM & MORITZ, LTD
55 East Monroe Street, Suite 3700
Chicago, IL 60603

PUBLIC MAILING LIST

Sherry Robinson
LEXIS - NEXIS
8891 Gander Creek Drive
Miamisburg, OH 45342

Ronnita Green
Thomson West
1100 – 13th Street NW
Suite 200
Washington, DC 20005

APPENDIX OF EXHIBIT LISTS

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable Charles E. Bullock
Administrative Law Judge

In the Matter of

CERTAIN BASEBAND PROCESSOR CHIPS AND
CHIPSETS, TRANSMITTER AND RECEIVER
(RADIO) CHIPS, POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS

Inv. No. 337-TA-543

COMPLAINANT'S EXHIBIT LIST

COMPLAINANXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1C	ZIFTIC Zero IF Objective Specification; Dated 6/17/2003; QBB088621-QBB088667	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-2C	ZIFTIC Top Level LLD; Dated 9/14/2001: QBB088771-QBB088915;	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-3C	ZIFTIC VCO LLDR; Dated 6/29/2001; QBB077297-QBB077456	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-4C	RFT 6100 Schematic for Kv Compensation Circuit; QBB096799	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-5C	Schematic Kg ZIFTIC Ibias; QBB096865	Infringement of '675 patent	Milor	Admitted (03/21/2006)
CX-6C	Schematic Kg ZIFTIC Ibias; QBB096864	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-7C	Schematic Kg ZIFTIC Ibias; QBB096863	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-8C	Schematic Kg CZIFTIC VCO; QBB095705;	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-9C	Schematic Maserati VCO; QBB095899	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-10C	RFT6150 Objective Specification; Dated 12/29/2004; QBB092640-QBB092688	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-11C	Schematic GZIF2 VCO; QBB096572	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-12C	Schematic Pioneer VCO; QBB096108	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-13C	CZIFTIC Cellular Band Zero IF Transmit Integrated Circuit Objective Specification, dated 06/09/2003 QBB089045 - 089081	Infringement of '675 patent	Milor	Admitted (02/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-14C	RFT6170 ZIFTIC Objective Specification; Dated 10/14/2004; QBB090283-QBB090331	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-15C	GZIFTRIC GSM Objective Specification; Dated 4/8/2004; QBB088916-QBB089044	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-16C	ZIFTIC Notebook; QBB077457 - 077659	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-17C	ZIFTIC Notebook, Volume II; QBB077660 - 077856	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-18C	GZIFTRIC GZIF2 Notebook; QBB077857 - 078123	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-19	Patent Application 0171106; Dated 9/11/2003	Infringement of '675 patent	Reeves	Admitted (03/21/2006)
CX-20C	WITHDRAWN			
CX-21C	WITHDRAWN			
CX-22C	WITHDRAWN			
CX-23	WITHDRAWN			
CX-24C	GZIFTRIC2: SBI - Control And Test Definition Document; Dated 11/9/2004; QBB090084-QBB090150	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-25	WITHDRAWN			
CX-26C	WITHDRAWN			
CX-27C	VCO Simulations; QBB181747-QBB181748	Infringement of '675 patent	Walker	Admitted (03/21/2006)
CX-28C	VCO Simulations; QBB182335-QBB182337	Infringement of '675 patent	Walker	Admitted (03/21/2006)
CX-29C	Jd_ZIFTIC_VCO Schematics; Dated 8/20/01; QBB096796; QBB096795; QBB096804	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-30C	Pioneer VCO Schematic; QBB096105 QBB096104; QBB096111	Infringement of '675 patent	Milor	Admitted (02/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-31C	CZIFTIC Schematic; QBB095701-QBB095708	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-32C	GZIFTRIC Schematic; QBB077037; QBB077074; QBB077078	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-33C	Maserati Schematic; QBB095893-897; QBB095905	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CX-34C	WITHDRAWN			
CX-35C	WITHDRAWN			
CX-36C	WITHDRAWN			
CX-37	WITHDRAWN			
CX-38C	WITHDRAWN			
CX-39C	WITHDRAWN			
CX-40C	BCM3440 Schematics; BCMITC0000847914-BCMITC0000848115	Technical prong of Domestic Industry for the '675 patent	Milor	Admitted (02/17/2006)
CX-41C	WITHDRAWN			
CX-42	WITHDRAWN			
CX-43	WITHDRAWN			
CX-44C	Marketing Materials, BCM 3440 Product Brief; BCMITC000090638-BCMITC000090645	Technical Prong of Domestic Industry for the '675 patent	Milor	Admitted (02/21/2006)
CX-45C	BCM 3440 Data Sheets and Product Briefs; BCMITC90560-90657; BCMITC99706	Technical prong of Domestic Industry for the '675 patent	Milor	Admitted (02/17/2006)
CX-46C	WITHDRAWN			
CX-47C	WITHDRAWN			
CX-48C	WITHDRAWN			
CX-49C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-50	Broadcom's Amended Fourth Notice Of Deposition Of Qualcomm; Dated 10/14/2005; Andrus ITC Ex# 1	Witness Identification	Andrus	Admitted (03/21/2006)
CX-51	Letter To Maria Vento From Patricia Butler Regarding Response to the Fourth 30(B)(6) Designations [Excerpts]; Dated 11/21/2005; Andrus ITC Ex# 2	Witness Identification	Andrus	Admitted (03/21/2006)
CX-52C	QCT MSM Roadmap; dated 10/5/2004; ALLTEL000245-ALLTEL000246	Infringement of the '983 and '311 patents	Andrus	Admitted (03/21/2006)
CX-53C	CDMA2000 High Rate Packet Data Air Interface Specification; Dated 4/2004; QBB002381-QBB003468	Infringement of the '983 and '311 patents	Andrus	Admitted (03/21/2006)
CX-54C	Excerpts Of Source Code For MSM6550 Chipset; Not Dated; QBSC000001-QBSC00000840	Infringement of the '983 and '311 patents	Andrus	Admitted (03/21/2006)
CX-55	Subpoena Duces Tecum and Ad Testificandum; dated 10/6/2005	Witness Identification	Anetsberger	Admitted (03/21/2006)
CX-56C	Spreadsheet listing US Cellular Phones; Dated 2002-2005; USCC00060-USCC00061	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)
CX-57C	Spreadsheet titled Chipset Summary; dated 10/28/2005; USCC00019-USCC00027	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)
CX-58C	Qualcomm Phones at NDC Roll Forward; dated 12/2004; USCC00095-USCC00097	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)
CX-59C	CDMA 1X-RTR Cooperation Agreement; dated 11/28/2001; USCC00028-USCC00035	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)
CX-60C	Technology Roadmap US Cellular; dated 6/11/2004; USCC00062-USCC00090	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-61C	QCT Software and Support Overview; Dated 10/2003; USCC0039-USCC0059	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)
CX-62C	Executive Meeting; Dated 9/20/2005; USCC0001-USCC0018	Infringement of the '983 and '311 patents;Remedy	Anetsberger	Admitted (03/21/2006)
CX-63	WITHDRAWN			
CX-64	Letter To Maria Vento From Patricia Butler Regarding 30(B)(6) Designations; Dated 11/21/2005; Bullard ITC Ex #4	Witness Identification	Bullard	Admitted (03/21/2006)
CX-65	CDMA 2000 1xeV-DO Release 0; BCMITC000301088-BCMITC00301365	Infringement of '983 and '311 patents	Bullard	Admitted (03/21/2006)
CX-66	Broadcom's 4th Notice Of Deposition; Dated 10/13/2005; Grob ITC Ex # 2	Witness Identification	Grob	Admitted (03/21/2006)
CX-67	WITHDRAWN AS DUPCLATIVE OF CX-64			
CX-68C	WITHDRAWN			
CX-69C	WITHDRAWN			
CX-70	Qualcomm's CDMA Technologies Product Overview; QBB012782-QBB012801	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-71C	Qualcomm MS M3G presentation; MSM6500 Product Council Update; Dated 9/2001; QBB107480-QBB107492;	Infringement of '983 and '311 patents	Grob	Admitted (03/21/2006)
CX-72C	Feature Definition Document MSM6500; Dated 7/2002; QBB095261-QBB095274	Infringement of '983 and '311 patents;Infringement of '379 & '872 patents	Nettleton	Admitted (02/16/2006)
CX-73	TIA Document CDMA2000 High Rate Packet Data Air Interface Specification; Dated 4/2004; BCMITC000300000-BCMITC000300480	Infringement of '983 and '311 patents	Grob	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-74C	Ams6500 Release Summary; Dated 4/11/2005; QBB111600-QBB111619	Infringement of '983 and '311 patents	Grob	Admitted (03/21/2006)
CX-75C	Jaguar (MSM6500) HDD, Dated 6/11/2004; QBB083057-QBB084552	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-76C	MSM6500 Mobile Station Modem Device Specification; dated 7/15/2005; QBB080758-QBB081016	Infringement of '983 and '311 patents; Infringement of '379 and '872 patents	Nettleton	Admitted (02/16/2006)
CX-77C	Crossbow FFA (MSM6550 + ZRF6500) RF Verification Plan; dated 4/02/2004; QBB125662-QBB125700	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-78	MSM6550 Chipset Solution Diagram; Jaikumar ITC Ex# 3	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-79	Handwritten Diagram; Jaikumar ITC Ex # 4	Infringement of '983 and '311 patents	Jaikumar	Admitted (03/21/2006)
CX-80	Handwritten Diagram; Jaikumar ITC Ex # 5	Infringement of '983 and '311 patents	Jaikumar	Admitted (03/21/2006)
CX-81	Handwritten Diagram; Jaikumar ITC Ex # 6	Infringement of '983 and '311 patents	Jaikumar	Admitted (03/21/2006)
CX-82	Handwritten Diagram; Jaikumar ITC Ex # 7	Infringement of '983 and '311 patents	Jaikumar	Admitted (03/21/2006)
CX-83C	Email Chain; QBB341093-QBB341094; QBB339083; QBB339092-QBB339093; QBB339097-QBB339098; QBB341354-QBB341357; QBB341457-QBB341460	Infringement of '983 and '311 patents	Jaikumar	Admitted (03/21/2006)
CX-84	WITHDRAWN AS DUPLICATIVE OF CX-63			
CX-85C	802.11 Support Multi-Mode Controller And System Determination Impact; Dated 9/15/2004; QBB164753-QBB164853	Infringement of '983 and '311 patents	Jaikumar	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-86	ETSI TS 124 008 V5.3.0 Technical Specification; Dated 03/2005; QBB155316-QBB155787	Infringement of '983 and '311 patents	Konganda	Admitted (03/21/2006)
CX-87C	MSM6500 Mobile Station Modem Software Interface; Dated 4/29/2005; QBB633676-QBB634255	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-88C	MSM6550 schematic; Undated; Konganda ITC Ex# 6	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-89C	1x Modem Core (MSM6700/MSM6800); dated 6/30/2004; QBB074807-QBB076221	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-90C	Raven (MSM6275) and Devo (MSM6700/MSM6800) ASIC HDD; dated 6/9/2005; QBB091824-QBB092359	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-91	Letter from Meaghan Hannan attaching Subpoena Duces Tecum and Ad Testificandum to UTStarcom; Dated 10/17/2005; Levine ITC Ex# 1	Witness Identification	Levine	Admitted (03/21/2006)
CX-92C	Audiovox Product Information; Dated 11/1/2005; UTS 001-UTS 050	Infringement of '983 and '311 patents Remedy	Levine	Admitted (03/21/2006)
CX-93C	Purchase Order to High Tech Computer Corp; Dated 6/24/2005; UTS 051-UTS 057	Infringement of '983 and '311 patents	Levine	Admitted (03/21/2006)
CX-94C	Saber MSM6250 ASIC HDD; Dated 4/18/2003; QBB068178; Mollenkopf ITC Ex # 2	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-95C	MSM6250 Phone Reference Schematic; Dated 7/1/2003; QBB087831-QBB087863	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-96C	MSM6275 (Raven) Kick Off Meeting; Dated 6/15-6/16/2004; QBB300333-QBB300394	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-97C	MSM6275 RF Platform A HLD, FDD, And Rf/Vi Plan; Dated 9/20/2004; QBB090339-QBB090392	Infringement of '983 and '311 patents	Mollenkopf	Admitted (03/21/2006)
CX-98C	UTMS Modem Core; Dated 5/12/2005; QBB094165-QBB095260	Infringement of '983 and '311 patents	Mollenkopf	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-99C	Feature Definition Document MSM6300; Dated 10/16/2003; QBB089122-QBB089130	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-100C	MSM6300 Mobile Station Modem Device Specification; Dated 10/17/2003; QBB073993-QBB074216	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-101C	WITHDRAWN			
CX-102	WITHDRAWN			
CX-103C	MSM6250 Mobile Station Modem Device Specification; Dated 4/15/2004; QBB074447-QBB074676	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-104C	Email From Gwain Bayley; Dated 10/26/1998; QBB236983-QBB236984	Infringement of '983 and '311 patents	Patel	Admitted (03/21/2006)
CX-105C	Email From Upendra Patel; Dated 10/9/1997; QBB236484	Infringement of '983 and '311 patents	Patel	Admitted (03/21/2006)
CX-106C	Email From Jan Ault; Dated 10/29/1997; QBB236731	Infringement of '983 and '311 patents	Patel	Admitted (03/21/2006)
CX-107C	Email From Jim Hutchison; Dated 10/29/1997; QBB236732	Infringement of '983 and '311 patents	Patel	Admitted (03/21/2006)
CX-108	WITHDRAWN			
CX-109C	HDR Air Interface Specification (HAI); Dated 5/02/2000; QBB456816-QBB457148	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-110C	Technical Document Discrepancy Report; Dated 3/4/2004; QBB453289	Infringement of '983 and '311 patents	Rezaifar	Admitted (03/21/2006)
CX-111C	Technical Document Discrepancy Report; Dated 4/18/2005; QBB443662-QBB443664	Infringement of '983 and '311 patents	Rezaifar	Admitted (03/21/2006)
CX-112C	Technical Document Discrepancy Report; Dated 4/18/2005; QBB443669-QBB443677	Infringement of '983 and '311 patents	Rezaifar	Admitted (03/21/2006)
CX-113C	Directory of MSM6500 Computer Files; Undated; QBSC001618-QBSC001620	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)

COMPLAINANT - EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-114	CDMA2000 High Rate Packet Data Air Interface Specification; Dated 11/2000; BCMITC000308221-BCMITC000308661	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-115C	Meeting Agenda; Dated 5/6/2003; QBB417265-QBB417627	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-116C	Email Chain, including Email from Phil Price; Dated 7/12/2004; QBB369700-QBB369704	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-117C	Email string from Michael Weber; Dated 5/7/2004; QBB369761-QBB369762	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-118C	Email string from Dave Jeon; Dated 5/7/2004; QBB369768-QBB369769	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-119C	Email string from Laxmi Rayapudi; Dated 5/7/2004; QBB369765-QBB369767	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-120C	Email string from Phil Price; Dated 9/20/2004; QBB643717-QBB643719	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-121C	Email string from Brian Rodrigues; Dated 7/24/2004; QBB646235-QBB646243	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-122C	Digital QCT Program Status Report; Dated 2/8/2000; QBB366026-QBB366050	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-123C	Email string from Rachelle Hayward; Dated 8/14/2005; QBB484308-QBB484311	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-124C	Email string from Iona Chodnicka; Dated 3/4/2005; QBB341453-QBB341455	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-125C	Email string from Vikas Gupta; Dated 3/30/2005; QBB479146-QBB479148	Infringement of '983 and '311 patents	Turner	Admitted (03/21/2006)
CX-126C	QCT Source Code; QBSC000001-QBSC003193; BCMITC 000314228-BCMITC000317309	Infringement of the '983 and '311 Patents	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-127C	6250/6250A/6225 MSM Device Specification, dated 6/14/05; QBB081017-081259	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-128C	Avalanche Platform (6225, 6280, 6800, 6825) ASIC HDD, dated 12/1/2004; QBB685471-685723	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-129C	MSM6250 Chipset Solution, undated; QBB073238-073245	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-130C	MSM6250 Software Interface, 7/19/2004; QBD036776-037110	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-131C	UMTS "Hummingbird" Modem (MSM6255A/6260/6280) High Level Design, dated 5/1/05; QBD028627-029468	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-132C	WITHDRAWN			
CX-133C	GSM/GPRS/Edge Modem (MSM6255A/6260/6280) High Level Design Document, Dated 5/24/05; QBD027222-027565	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-134C	WITHDRAWN			
CX-135C	WITHDRAWN			
CX-136C	MSM6275 W-CDMA Modem DSP Microprocessor Interface Document, dated 6/3/2005; QBD037111-037256	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-137C	WITHDRAWN			
CX-138C	WITHDRAWN			
CX-139C	MSM6275 Chipset Data, undated; QBB073234-073237	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-140C	UMTS Modem Core (MSM6275) High Level Design, dated 5/12/2005; QBB094165-095260	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-141C	WITHDRAWN			
CX-142C	MSM6300 Chipset Solution, undated; QBB073226-073233	Infringement of '983 patent	Nettleton	Admitted (02/16/2006)
CX-143C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-144C	Jaguar (MSM 6500) Software Manual, 2/23/2005; QBB720678 721824	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-145C	MSM6500 Chipset Solution, undated; QBB073210-073217	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-146C	MSM6500 Device Specification, dated 2/24/2004; QBB074217-074446	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-147C	6500 Mobile Station Modem: Software Interface, dated 10/19/2005; QBB722817-723416	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-148C	Eagle (MSM6550/6150) HDD, dated 4/1/2005; QBB078291-079906	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-149C	MSM6550 Chipset Data, undated; QBB073218-073225	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-150C	WITHDRAWN			
CX-151C	MSM6550/6150 Mobile Station Modem Device Specification, dated 4/2/2004; QBB074677-074806	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-152C	WITHDRAWN			
CX-153C	Eagle MSM6550//6150 Software Manual 3/2005; QBB723417-724718	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-154C	Dora (MSM6800) 65nm Hardware Design Document, dated 4/12/2005; QBD036038-036475	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-155C	Phoenix System Test Specifications, MSM 7500, undated; QBB548816-548838	Infringement of '311 patent	Nettleton	Admitted (02/16/2006)
CX-156C	7500 High Level Design, dated 8/30/2004; QBB090517-091818	Infringement of '311 patent	Nettleton	Admitted (02/16/2006)
CX-157C	WITHDRAWN			
CX-158C	CDMA Digital Cellular Dual Mode Mobile Station Software HLD, dated 9/1990; QBB515558-515642	Infringement of '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-159C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-160C	WITHDRAWN			
CX-161C	WITHDRAWN			
CX-162C	WITHDRAWN			
CX-163C	WITHDRAWN			
CX-164C	WITHDRAWN			
CX-165C	WITHDRAWN			
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CX-181C	WITHDRAWN			
CX-182C	WITHDRAWN			
CX-183C	WITHDRAWN			
CX-184C	WITHDRAWN			
CX-185C	WITHDRAWN			
CX-186C	WITHDRAWN			
CX-187C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-188C	WITHDRAWN			
CX-189C	WITHDRAWN			
CX-190C	WITHDRAWN			
CX-191C	WITHDRAWN			
CX-192C	WITHDRAWN			
CX-193C	WITHDRAWN			
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CX-206C	WITHDRAWN			
CX-207C	WITHDRAWN			
CX-208C	WITHDRAWN			
CX-209C	WITHDRAWN			
CX-210C	WITHDRAWN			
CX-211C	WITHDRAWN			
CX-212C	WITHDRAWN			
CX-213C	WITHDRAWN			
CX-214C	WITHDRAWN			
CX-215C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-216C	WITHDRAWN			
CX-217C	WITHDRAWN			
CX-218C	WITHDRAWN			
CX-219C	WITHDRAWN			
CX-220C	WITHDRAWN			
CX-221C	WITHDRAWN			
CX-222C	WITHDRAWN			
CX-223C	WITHDRAWN			
CX-224C	WITHDRAWN			
CX-225C	WITHDRAWN			
CX-226C	WITHDRAWN			
CX-227C	WITHDRAWN			
CX-228C	WITHDRAWN			
CX-229C	WITHDRAWN			
CX-230C	WITHDRAWN			
CX-231C	WITHDRAWN			
CX-232C	WITHDRAWN			
CX-233C	WITHDRAWN			
CX-234C	WITHDRAWN			
CX-235C	WITHDRAWN			
CX-236C	WITHDRAWN			
CX-237C	WITHDRAWN			
CX-238C	WITHDRAWN			
CX-239C	WITHDRAWN			
CX-240C	WITHDRAWN			
CX-241C	WITHDRAWN			
CX-242C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-243C	August 2002 Qualcomm MSM6300 Product Brief Preliminary Presentation; SAM004629-4644	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-244C	WITHDRAWN			
CX-245C	November 2004 Qualcomm MSM6500 Product Briefing Presentation; SAM004355-4741	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-246C	WITHDRAWN			
CX-247C	WITHDRAWN			
CX-248C	July 2005 Qualcomm MSM6275 Overview Presentation; SAM005106-5115	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-249C	July 12, 2005 Qualcomm MSM6280 Product Details Presentation; SAM005116-5123	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-250C	WITHDRAWN			
CX-251C	WITHDRAWN			
CX-252C	WITHDRAWN			
CX-253C	WITHDRAWN			
CX-254C	WITHDRAWN			
CX-255C	WITHDRAWN			
CX-256C	WITHDRAWN			
CX-257C	WITHDRAWN			
CX-258C	WITHDRAWN			
CX-259C	WITHDRAWN			
CX-260C	December 2004 Qualcomm MSM6250 Capabilities Presentation; SAM005965-6018	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-261C	WITHDRAWN			
CX-262C	WITHDRAWN			
CX-263C	WITHDRAWN			
CX-264C	WITHDRAWN			
CX-265C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-266C	WITHDRAWN			
CX-267C	WITHDRAWN			
CX-268C	WITHDRAWN			
CX-269C	Qualcomm MSM6300 – Samsung Presentation; SAM006311-6312	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-270C	January 2004 MSM7500 Product Overview Presentation; SAM006398-6440	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-271C	WITHDRAWN			
CX-272C	WITHDRAWN			
CX-273C	WITHDRAWN			
CX-274C	WITHDRAWN			
CX-275C	WITHDRAWN			
CX-276C	WITHDRAWN			
CX-277C	WITHDRAWN			
CX-278C	WITHDRAWN			
CX-279C	WITHDRAWN			
CX-280C	WITHDRAWN			
CX-281C	WITHDRAWN			
CX-282C	WITHDRAWN			
CX-283C	WITHDRAWN			
CX-284C	WITHDRAWN			
CX-285C	WITHDRAWN			
CX-286C	WITHDRAWN			
CX-287C	WITHDRAWN			
CX-288C	WITHDRAWN			
CX-289C	WITHDRAWN			
CX-290C	WITHDRAWN			
CX-291C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-292C	WITHDRAWN			
CX-293C	WITHDRAWN			
CX-294C	WITHDRAWN			
CX-295C	WITHDRAWN			
CX-296C	WITHDRAWN			
CX-297C	WITHDRAWN			
CX-298C	WITHDRAWN			
CX-299C	WITHDRAWN			
CX-300C	WITHDRAWN			
CX-301C	WITHDRAWN			
CX-302C	WITHDRAWN			
CX-303C	WITHDRAWN			
CX-304C	WITHDRAWN			
CX-305C	WITHDRAWN			
CX-306C	WITHDRAWN			
CX-307C	WITHDRAWN			
CX-308C	WITHDRAWN			
CX-309C	WITHDRAWN			
CX-310C	WITHDRAWN			
CX-311C	WITHDRAWN			
CX-312C	WITHDRAWN			
CX-313C	WITHDRAWN			
CX-314C	WITHDRAWN			
CX-315C	WITHDRAWN			
CX-316C	WITHDRAWN			
CX-317C	WITHDRAWN			
CX-318C	WITHDRAWN			
CX-319C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-320C	WITHDRAWN			
CX-321C	WITHDRAWN			
CX-322C	WITHDRAWN			
CX-323C	WITHDRAWN			
CX-324C	WITHDRAWN			
CX-325C	WITHDRAWN			
CX-326	WITHDRAWN			
CX-327C	WITHDRAWN			
CX-328	WITHDRAWN			
CX-329	WITHDRAWN			
CX-330C	WITHDRAWN			
CX-331	WITHDRAWN			
CX-332C	Preliminary Data Sheet BCM2132 – EDGE/GPRS/GSM Single-Chip Multimedia Baseband Processor; dated 4/13/2005; BCMITC0000087060-BCMITC0000087208	Remedy	Nettleton	Admitted (02/16/2006)
CX-333C	Preliminary Data Sheet BCM2132 – EDGE/GPRS/GSM Single-Chip Multimedia Baseband Processor; dated 3/30/2005; BCMITC0000086912-BCMITC0000087059	Remedy	Nettleton	Admitted (02/16/2006)
CX-334C	WITHDRAWN			
CX-335	WITHDRAWN			
CX-336C	WITHDRAWN			
CX-337C	WITHDRAWN			
CX-338C	WITHDRAWN			
CX-339C	WITHDRAWN			
CX-340C	WITHDRAWN			
CX-341C	WITHDRAWN			
CX-342C	WITHDRAWN			
CX-343C	WITHDRAWN			

COMPLAINAN EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-344C	WITHDRAWN			
CX-345C	WITHDRAWN			
CX-346C	WITHDRAWN			
CX-347C	WITHDRAWN			
CX-348C	WITHDRAWN			
CX-349C	WITHDRAWN			
CX-350	WITHDRAWN			
CX-351	WITHDRAWN			
CX-352 (Confidential Designation Dropped)	Qualcomm Chipset Data Sheets, from Qualcomm website; BCMITC000312417- BCMITC000312486	Remedy	Nettleton	Admitted (02/16/2006)
CX-353	WITHDRAWN			
CX-354	WITHDRAWN			
CX-355	WITHDRAWN			
CX-356C	WITHDRAWN			
CX-357	WITHDRAWN			
CX-358	WITHDRAWN			
CX-359	WITHDRAWN			
CX-360	WITHDRAWN			
CX-361	WITHDRAWN			
CX-362	WITHDRAWN			
CX-363C	WITHDRAWN			
CX-364C	WITHDRAWN			
CX-365C	WITHDRAWN			
CX-366C	WITHDRAWN			
CX-367	WITHDRAWN			
CX-368	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-369	WITHDRAWN			
CX-370C	WITHDRAWN			
CX-371C	WITHDRAWN			
CX-372C	WITHDRAWN			
CX-373C	WITHDRAWN			
CX-374	WITHDRAWN			
CX-375	WITHDRAWN			
CX-376	WITHDRAWN			
CX-377	WITHDRAWN			
CX-378	WITHDRAWN			
CX-379	WITHDRAWN			
CX-380C	WITHDRAWN			
CX-381C	WITHDRAWN			
CX-382C	WITHDRAWN			
CX-383C	WITHDRAWN			
CX-384C	WITHDRAWN			
CX-385	WITHDRAWN			
CX-386	WITHDRAWN			
CX-387C	WITHDRAWN			
CX-388C	WITHDRAWN			
CX-389	WITHDRAWN			
CX-390C	WITHDRAWN			
CX-391	WITHDRAWN			
CX-392	WITHDRAWN			
CX-393	WITHDRAWN			
CX-394C	WITHDRAWN			
CX-395C	WITHDRAWN			
CX-396C	WITHDRAWN			

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-397	WITHDRAWN			
CX-398C	WITHDRAWN			
CX-399C	WITHDRAWN			
CX-400C	WITHDRAWN			
CX-401C	WITHDRAWN			
CX-402C	WITHDRAWN			
CX-403C	WITHDRAWN			
CX-404C	WITHDRAWN			
CX-405C	WITHDRAWN			
CX-406C	WITHDRAWN			
CX-407C	WITHDRAWN			
CX-408C	WITHDRAWN			
CX-409C	WITHDRAWN			
CX-410C	WITHDRAWN			
CX-411C	WITHDRAWN			
CX-412C	WITHDRAWN			
CX-413C	WITHDRAWN			
CX-414C	Qualcomm documents re: importation of RTR6250 chips into U.S.; QBB020400-QBB020403	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-415C	Qualcomm documents re: importation of RTR6120 chips into U.S.; QBB020483-QBB020487	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-416C	Qualcomm documents re: importation of RTR6200 and RTR6300 chips into U.S.; QBB020513-QBB020516	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-417C	Qualcomm documents re: importation of RFT6170 chips into U.S.; QBB020586-QBB020590	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-418C	Qualcomm documents re: importation of RFT6150 chips into U.S.; QBB021198-QBB021201	Importation	Admitted by Motion	Admitted (02/15/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-419C	Qualcomm documents re: importation of MSM6000 and MSM6050 chips into U.S.; QBB021340-QBB021382	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-420C	Qualcomm documents re: importation of MSM6025 chips into U.S.; QBB021862-QBB021874	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-421C	Qualcomm documents re: importation of MSM6300 chips into U.S.; QBB023531-QBB023552	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-422C	Qualcomm documents re: importation of MSM6200 chips into U.S.; QBB023572-QBB023589	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-423C	Qualcomm documents re: importation of MSM6275 chips into U.S.; QBB024069-QBB024091	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-424C	Qualcomm documents re: importation of MSM6225 chips into U.S.; QBB025369-QBB025382	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-425C	Qualcomm documents re: importation of MSM6250 chips into U.S.; QBB025480-QBB025491	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-426C	Qualcomm documents re: importation of MSM6100 chips into U.S.; QBB025517-QBB025530	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-427C	Qualcomm documents re: importation of MSM6150; MSM6500, and MSM6550 chips into U.S.; QBB032191-QBB032227	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-428C	Qualcomm documents re: importation of MSM6800 chips into U.S.; QBB035242-QBB035260	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-429C	Qualcomm documents re: importation of PM6650 chips into U.S.; QBB035610-QBB035624	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-430C	Qualcomm documents re: importation of MSM7500 chips into U.S.; QBB036388-QBB036411	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-431C	Qualcomm documents re: importation of RFT6100 chips into U.S.; QBB052155-QBB052177	Importation	Admitted by Motion	Admitted (02/15/2006)

COMPLAINANT - EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-432C	Qualcomm documents re: importation of RFT6102 chips into U.S.; QBB052284-QBB052309	Importation	Admitted by Motion	Admitted (02/15/2006)
CX-433C	WITHDRAWN			
CX-434C	WITHDRAWN			
CX-435C	WITHDRAWN			
CX-436C	WITHDRAWN			
CX-437C	WITHDRAWN			
CX-438C	WITHDRAWN			
CX-439C	WITHDRAWN			
CX-440C	WITHDRAWN			
CX-441C	Spreadsheet Of Samsung Phone Model Numbers; Ahn ITC Ex # 1	Importation; Remedy; Infringement of '311, '983, '379, and '872 patents	Ahn	Admitted (03/21/2006)
CX-442	Samsung Wireless Phone Information Webpages; Ahn ITC Ex # 2	Importation; Remedy; Infringement of '311, '983, '379, and '872 patents	Ahn	Admitted (03/21/2006)
CX-443	Default Idle State Protocol - 6.4.1 Overview; Ahn ITC Ex # 3	Infringement of '311 & '983 patents	Ahn	Admitted (03/21/2006)
CX-444C	QCT Complete Chipset Product Roadmap; Dated 8/4/2005; 004997-005005	Infringement of '311 & '983 patents	Ahn	Admitted (03/21/2006)
CX-446C	CDMA2000 Roadmap; Dated 4/2005; 005006-005009	Infringement of '311 & '983 patents	Ahn	Admitted (03/21/2006)
CX-447C	Qualcomm Chipset Solutions For 3G Products - Overview; Dated 11/2004; 005010-005032	Infringement of '311 & '983 patents	Ahn	Admitted (03/21/2006)
CX-448C	Qualcomm CDMA Technologies; 005936-005964	Infringement of '311 & '983 patents	Ahn	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-449C	WITHDRAWN			
CX-450C	WITHDRAWN			
CX-451C	CDMA2000's EV-DO Enhancements & Evolution; Dated 3/2004; 004113-004160	Infringement of '311 & '983 patents	Ahn	Admitted (03/21/2006)
CX-453	Broadcom's 1st Notice Of Deposition Of Qualcomm	Witness Qualification	Wilding	Admitted (03/21/2006)
CX-456C	Feature Definition Document MSM6100; Dated 8/22/2001; QBB118736-QBB118743	Infringement of '379 & '872 patents	Gibson	Admitted (02/15/2006)
CX-502 (Confidential Designation Dropped)	MSM6500 Chipset Solution; QBB027920-QBB027927	Infringement of '379 & '872 patents	Nettleton	Admitted (02/16/2006)
CX-511C	WITHDRAWN			
CX-518	TIA-2000.5-D - Upper Layer (Layer 3) Signaling Standard For cdma2000 Spread Spectrum Systems; Dated 3/2004; BCMITC0000850410- BCMITC0000852659; Dean ITC Ex# 2	Background	Gibson	Admitted (02/15/2006)
CX-555C	2005 CDMA Product Summary Spreadsheet; Dated 3/2005; MOT/BQ59513- MOT/BQ59537	Infringement of '675, '311, and '983 patents	Froehling	Admitted (03/21/2006)
CX-556C	Development Support Agreement; Dated 7/11/2003; MOT/BQ60311- MOT/BQ60320	Infringement of '311 and '983 patents	Froehling	Admitted (03/21/2006)
CX-562C	DMSS6300 Software Agreement; Dated 5/20/2003; MOT/BQ60276- MOT/BQ60287	Infringement of '311 and '983 patents	Froehling	Admitted (03/21/2006)
CX-563C	AMSS6500 Software Agreement; Dated 7/3/2003; MOT/BQ60288- MOT/BQ60297	Infringement of '311 and '983 patents	Froehling	Admitted (03/21/2006)
CX-571C	WITHDRAWN			
CX-577C	WITHDRAWN			
CX-591C	WITHDRAWN			

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-598C	WITHDRAWN			
CX-611C	Spreadsheet; MOT/BQ60420-MOT/BQ60430	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-615C	Components Supply Contract; Dated 1/1/2004; MOT/BQ60242-MOT/BQ60261	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-616C	First Amendment To The Components Supply Contract; Dated 7/12/2004; MOT/BQ60262-MOT/BQ60264	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-618C	DMSS6300 Software Agreement Dated 5/20/2003; MOT/BQ60276-MOT/BQ60287	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-619C	AMSS6500 Software Agreement; Dated 7/3/2003; MOT/BQ60288-MOT/BQ60297	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-622C	Qualcomm Inc. Supply Agreement For Test And Deployment Products; Dated 6/6/2003; MOT/BQ60304-MOT/BQ60310	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-623C	Chromatix Software Tools Limited Use Agreement; Dated 9/9/2004; MOT/BQ60321-60324	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-624C	Letter To Andy Black From Bob Cash; Dated 1/7/2005; MOT/BQ60329-MOT/BQ60330	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-625C	Letter To Bob Cash From Carol Floyd; Dated 2/1/2005; MOT/BQ60331	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-626C	Patent License Agreement; Dated 9/26/1990; MOT/BQ60332-MOT/BQ60345	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-627C	DS-CDMA Technology Agreement; Dated 9/26/1990; MOT/BQ60346-MOT/BQ60381	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-628C	DS-CDMA Technology Agreement Option Exercise; Dated 2/12/1991; MOT/BQ60382	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-629C	Agreement To Amend The Patent License Agreement And Technology License Agreement And Software License Agreement; Dated 3/23/2000; MOT/BQ60395-MOT/BQ60412	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-630C	WITHDRAWN			
CX-631C	2005 CDMA Product Summary; Dated 3/2005; MOT/BQ59513-MOT/BQ59537	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-634C	Email From Andre Cardoso; Dated 4/30/2005; MOT/BQ57149; MOT/BQ57151; MOT/BQ56848	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-635C	Email From Rosanne De Lellis; Dated 7/15/2005; MOT/BQ56846-MOT/BQ56847	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-636C	Email From Rosanne De Lellis; Dated 10/17/2005; MOT/BQ56435-MOT/BQ56436	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-637C	Spreadsheet; MOT/BQ56676	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-638C	WITHDRAWN			
CX-642	Motorola Wireless Cell Phones Webpage	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-643C	Qualcomm Letter To MSM7500 Chipset Customer; Dated 6/23/2005; MOT/BQ56882-MOT/BQ56884	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-644C	Quotation To Motorola For CDMA ASIC Devices; Dated 8/16/2005; MOT/BQ56392-MOT/BQ56394	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-645C	Quotation To Motorola For CDMA ASIC Devices; Dated 6/27/2005; MOT/BQ56718-MOT/BQ56720	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-646C	Quotation To Motorola For CDMA ASIC Devices; Dated 2/11/2005; MOT/BQ57342-MOT/BQ57346	Infringement of '311 and '983 patents	Johnson	Admitted (03/21/2006)
CX-647C	Motorola Korea - Sales Order Confirmation; Dated 9/1/2005; MOT/BQ56561-MOT/BQ56568	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)

COMPLAINAN EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-648C	Spreadsheet; MOT/BQ56569-MOT/BQ56586	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-649C	Spreadsheet; MOT/BQ56587-MOT/BQ56629	Infringement of '675, '311, and '983 patents	Johnson	Admitted (03/21/2006)
CX-657	TIA-95-B- Mobile Station-Base Station Compatibility Standard For Wideband Spread Spectrum Cellular Systems; Dated 9/9/2004; BCMITC0000848116-BCMITC0000848117	Background	Gibson	Admitted (02/15/2006)
CX-658	TIA-2000.2-D-Physical Layer For cdma 2000 Spread Spectrum Systems; Dated 3/2004; BCMITC0000849354-BCMITC0000849883	Infringement of '311 and '983 patents	Nettleton	Admitted (02/16/2006)
CX-671	WITHDRAWN			
CX-683C	WITHDRAWN			
CX-744C	WITHDRAWN			
CX-780C	WITHDRAWN			
CX-874C	WITHDRAWN			
CX-875C	WITHDRAWN			
CX-877C	WITHDRAWN			
CX-883C	WITHDRAWN			
CX-901C	WITHDRAWN			
CX-918	WITHDRAWN			
CX-925C	Korea/Taiwan Monthly Marketing Report; Dated 8/2004; QBB112115-QBB112134	Infringement of '311 and '983 patents	Pineda	Admitted (03/21/2006)
CX-961	Qualcomm Press Release – “Qualcomm Announces Strong Customer Acceptance for its CDMA 1xEV-DO MSM6500 and MSM6550 Chipset Solutions”; dated 3/14/2005; Robinson ITC Ex # 13	Infringement of '311 and '983 patents	Robinson	Admitted (03/21/2006)
CX-962	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-964C	Qualcomm Sales Order Confirmation; dated 12/28/2004; QBB047755-QBB047761	Infringement of '675 patent	Robinson	Admitted (03/21/2006)
CX-965C	Chart: QGT Finished Goods on Hand in the United States, with handwritten notes; Dated 7/25/2005; QBB026545-QBB026546	Infringement of '675, '311, and '983 patents	Robinson	Admitted (03/21/2006)
CX-968C	MSM6100 & MSM6500; Dated 5/14/2004; QBB229711-QBB229719	Infringement of '311 and '983 patents	Robinson	Admitted (03/21/2006)
CX-971C	March 2004 Monthly Report - North America; Dated 3/2004; QBC100179-QBC100184	Infringement of '379 & '872 patents	Robinson	Admitted (03/21/2006)
CX-972C	June 2004 Monthly Report - North America; Dated 6/2004; QBC108764-QBC108770	Infringement of '311 and '983 patents	Robinson	Admitted (03/21/2006)
CX-977	WITHDRAWN AS DUPLICATIVE OF CX-970			
CX-979C	WITHDRAWN AS DUPLICATIVE OF CX-967C			
CX-993C	QCT Taxonomy; Dated 2/5/2004; QBB302488-QBB302623	Infringement of '311 and '983 patents	Tran	Admitted (03/21/2006)
CX-1036	WITHDRAWN			
CX-1075C	MSM6500 Chipset Solution; QBB27928-QBB027931	Infringement of '311 and '983 patents	Wilding	Admitted (03/21/2006)
CX-1076C	MSM6500 Chipset Solution; QBB027920-QBB027927	Infringement of '311 and '983 patents	Wilding	Admitted (03/21/2006)
CX-1077C	MSM6500 Chipset Solution; QBB027840-QBB027847	Infringement of '311 and '983 patents	Wilding	Admitted (03/21/2006)
CX-1081C	Customer Spreadsheet; QBB11217-QBB11222	Infringement of '311 and '983 patents	Wilding	Admitted (03/21/2006)
CX-1082C	Korea/Taiwan Monthly Marketing Report; Dated 8/2004; QBB112115-QBB112134	Infringement of '311 and '983 patents	Wilding	Admitted (03/21/2006)
CX-1083C	QCT Chipsets Taxonomy; QBB302488-QBB302623	Infringement of '311 and '983 patents	Wilding	Admitted (03/21/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1085	WITHDRAWN			
CX-1089C	MSM6100 Chipset Solution; QBB026944-QBB026951	Background	Gibson	Admitted (02/15/2006)
CX-1100C	Kyocera Wireless Corp.'s Response to Complainant Broadcom Corporation's Subpoena Duces Tecum and Ad Testificandum; Dated 12/9/2005; Zeran ITC Ex# 1	Witness Identification	Zeran	Admitted (03/21/2006)
CX-1108C	Kyocera Xcursion Phone profile from Kyocera website; Dated 12/21/2005; BCMITC0000313007-BCMITC0000313008	Infringement of '379 & '872 patents	Zeran	Admitted (03/21/2006)
CX-1109C	Kyocera KX160 Xcursion Mobile Phone from Mobile Whack website; Dated 12/21/2005; BCMITC0000313010-BCMITC0000313013	Infringement of '379 & '872 patents	Zeran	Admitted (03/21/2006)
CX-1110C	Article: Kyocera Unveils 3 Multimedia Feature-Rich Phones from website Mobilemedia; Dated 9/27/2005; BCMITC0000313015-BCMITC0000313017	Infringement of '379 & '872 patents	Zeran	Admitted (03/21/2006)
CX-1111C	Quotation to Kyocera Wireless Corporation for CDMA ASIC Devices; Dated 11/17/2005; KWC00815-KWC00818	Infringement of '379 & '872 patents	Zeran	Admitted (03/21/2006)
CX-1112C	Kyocera Website List of Current Phones; Dated 1/12/2006; (no bates range); Zeran ITC Ex# 26	Infringement of '379 & '872 patents	Zeran	Admitted (03/21/2006)
CX-1113C	Subpoena of Kyocera; Dated 10/6/2005; Zeran ITC Ex# 27	Witness Qualification	Zeran	Admitted (03/21/2006)
CX-1161C	WITHDRAWN			
CX-1162C	WITHDRAWN			
CX-1163C	WITHDRAWN			
CX-1164C	WITHDRAWN			
CX-1165C	WITHDRAWN			
CX-1177C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1180	Curriculum Vitae of Dr. Jerry Gibson; Exhibit 1 to Expert Report of Dr. Jerry Gibson	Witness Identification	Gibson	Admitted (02/15/2006)
CX-1185	WITHDRAWN			
CX-1186C	WITHDRAWN			
CX-1188	WITHDRAWN			
CX-1191	WITHDRAWN			
CX-1192	WITHDRAWN			
CX-1193	WITHDRAWN			
CX-1194	WITHDRAWN			
CX-1195	WITHDRAWN			
CX-1215	TIA Document - Physical Layer for Cdma2000 Spread Spectrum Systems; dated 3/2004; BCMITC0000849354-BCMITC0000849883	Background	Gibson	Admitted (02/15/2006)
CX-1218C	Product Brief BCM2121	Domestic Industry	Sollenberger	Admitted (02/16/2006)
CX-1219C	Product Brief BCM2132	Domestic Industry	Sollenberger	Admitted (02/16/2006)
CX-1225	Certified Copies of the assignment documents for the '311 patent	Infringement of '311	Admitted by Motion	Admitted (02/15/2006)
CX-1226	List Of Foreign Counterpart Patents And Applications That Correspond To The '311 Patent	Infringement of '311	Admitted by Motion	Admitted (02/15/2006)
CX-1227	Certified Copies Of The Assignment Documents For The '983 Patent	Infringement of '983	Admitted by Motion	Admitted (02/15/2006)
CX-1228	List Of Foreign Counterpart Patents And Applications That Correspond To The '983 Patent	Infringement of '983	Admitted by Motion	Admitted (02/15/2006)
CX-1233	Certified Copies Of The Assignment Documents For The '675 Patent	Infringement of '675	Admitted by Motion	Admitted (02/15/2006)

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1234	List Of Foreign Counterpart Patents And Applications That Correspond To The '675 Patent	Infringement of '675	Admitted by Motion	Admitted (02/15/2006)
CX-1235C	WITHDRAWN			
CX-1236C	WITHDRAWN			
CX-1237C	WITHDRAWN			
CX-1238C	WITHDRAWN			
CX-1239	WITHDRAWN			
CX-1240	WITHDRAWN			
CX-1241	WITHDRAWN			
CX-1242	WITHDRAWN			
CX-1243C	WITHDRAWN			
CX-1244C	WITHDRAWN			
CX-1245C	WITHDRAWN			
CX-1246C	WITHDRAWN			
CX-1247C	WITHDRAWN			
CX-1248C	WITHDRAWN			
CX-1249C	WITHDRAWN			
CX-1250C	WITHDRAWN			
CX-1251C	WITHDRAWN			
CX-1252C	WITHDRAWN			
CX-1253C	WITHDRAWN			
CX-1254	WITHDRAWN			
CX-1266C	WITHDRAWN			
CX-1267C	WITHDRAWN			
CX-1268C	Product Briefs for BCM94317	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1269C	WITHDRAWN			
CX-1270C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1271C	WITHDRAWN			
CX-1272C	WITHDRAWN			
CX-1273C	WITHDRAWN			
CX-1274C	WITHDRAWN			
CX-1275C	WITHDRAWN			
CX-1276C	WITHDRAWN			
CX-1290C	WITHDRAWN			
CX-1291 (Confidential Designation Dropped)+B1 329	Resume of Ray Gomez	Witness Identification	Milor	Admitted (02/17/2006)
CX-1292C	WITHDRAWN			
CX-1293C	WITHDRAWN			
CX-1294C	WITHDRAWN			
CX-1295C	WITHDRAWN			
CX-1296C	WITHDRAWN			
CX-1297C	WITHDRAWN			
CX-1298C	WITHDRAWN			
CX-1299C	WITHDRAWN			
CX-1300C	WITHDRAWN			
CX-1301C	WITHDRAWN			
CX-1302C	WITHDRAWN			
CX-1303C	WITHDRAWN			
CX-1304C	WITHDRAWN			
CX-1305C	WITHDRAWN			
CX-1306C	WITHDRAWN			
CX-1307C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1308C	WITHDRAWN			
CX-1309C	WITHDRAWN AS DUPLICATIVE OF CX-435C			
CX-1310C	WITHDRAWN AS DUPLICATIVE OF CX-436C			
CX-1311C	WITHDRAWN			
CX-1312C	WITHDRAWN			
CX-1313C	WITHDRAWN			
CX-1314C	WITHDRAWN			
CX-1315C	WITHDRAWN			
CX-1316C	WITHDRAWN			
CX-1317C	WITHDRAWN			
CX-1319C	WITHDRAWN			
CX-1320C	WITHDRAWN			
CX-1321C	WITHDRAWN			
CX-1322C	WITHDRAWN			
CX-1323C	WITHDRAWN			
CX-1324C	WITHDRAWN			
CX-1325C	WITHDRAWN			
CX-1326C	WITHDRAWN			
CX-1327C	WITHDRAWN			
CX-1328C	WITHDRAWN			
CX-1329C	Broadcom's Third Notice of Deposition of Qualcomm; Dated 9/28/2005	Witness Identification	Wilding	Admitted (03/21/2006)
CX-1330C	WITHDRAWN			
CX-1331C	WITHDRAWN			
CX-1332 (Confidential Designation Dropped)	Witness Statement of Scott Bibaud	Direct Testimony	Bibaud	Admitted (03/17/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1335C	WITHDRAWN			
CX-1336C	Witness Statement of Jerry D. Gibson	Direct Testimony	Gibson	Admitted (02/15/2006)
CX-1337C	Witness Statement of Ramon Gomez	Direct Testimony	Gomez	Admitted (02/17/2006)
CX-1338C	Witness Statement of Raymond Hayes	Direct Testimony	Hayes	Admitted (02/16/2006)
CX-1339 (Confidential Designation Dropped)	Witness Statement of Steven Koenck	Direct Testimony	Koenck	Admitted (02/16/2006)
CX-1340C	WITHDRAWN			
CX-1341C	WITHDRAWN			
CX-1343C	WITHDRAWN			
CX-1344C	WITHDRAWN			
CX-1345C	WITHDRAWN			
CX-1346C	WITHDRAWN			
CX-1347C	WITHDRAWN			
CX-1348C	WITHDRAWN			
CX-1349C	WITHDRAWN			
CX-1350C	WITHDRAWN			
CX-1351C	WITHDRAWN			
CX-1352C	WITHDRAWN			
CX-1353C	WITHDRAWN			
CX-1354C	WITHDRAWN			
CX-1355	CV of Linda Milor, Exhibit One to the Expert report of Linda Milor	Witness Identification	Milor	Admitted (02/21/2006)
CX-1356	WITHDRAWN			

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1357C	WITHDRAWN			
CX-1358	WITHDRAWN			
CX-1359	WITHDRAWN			
CX-1360	WITHDRAWN			
CX-1361	WITHDRAWN			
CX-1362	Webster's Dictionary of the English Language (1988 ed. 1997)	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1363	IEEE Standard Dictionary of Electrical and Electronics Terms (4th ed. 1988)	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1364C	WITHDRAWN			
CX-1365C	WITHDRAWN			
CX-1366	WITHDRAWN			
CX-1367	WITHDRAWN			
CX-1368C	WITHDRAWN			
CX-1369C	WITHDRAWN			
CX-1370C	WITHDRAWN			
CX-1371C	WITHDRAWN			
CX-1372C	WITHDRAWN			
CX-1373C	WITHDRAWN			
CX-1374C	WITHDRAWN			
CX-1375 (Confidential Designation Dropped)	U.S. Patent No. 3,680,633; BCMITC0000077659- BCMITC0000077902	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1376	File History for U.S. Patent No. 5,680,633; BCMITC0000237749- BCMITC0000238374	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1377C	WITHDRAWN			
CX-1378C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1379C	WITHDRAWN			
CX-1380C	WITHDRAWN			
CX-1381C	WITHDRAWN			
CX-1382C	WITHDRAWN			
CX-1383 (Confidential Designation Dropped)	U.S. Patent No. 6,006,100, BCMITC0000078531- BCMITC0000078556	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1384C	WITHDRAWN			
CX-1385C	WITHDRAWN			
CX-1386C	WITHDRAWN			
CX-1387C	WITHDRAWN			
CX-1388C	Engineering Log Sheet; Dated 10/02/1989; BCMITC0000068168- BCMITC0000068183	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1389C	WITHDRAWN			
CX-1390C	WITHDRAWN			
CX-1391C	WITHDRAWN			
CX-1392C	WITHDRAWN			
CX-1393C	WITHDRAWN			
CX-1394C	WITHDRAWN			
CX-1395C	WITHDRAWN			
CX-1396C	WITHDRAWN			
CX-1397C	WITHDRAWN			
CX-1398C	WITHDRAWN			
CX-1399C	WITHDRAWN			
CX-1400C	WITHDRAWN			
CX-1401C	WITHDRAWN			
CX-1402C	WITHDRAWN			

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1405C	WITHDRAWN			
CX-1406C	WITHDRAWN			
CX-1407C	WITHDRAWN			
CX-1408C	WITHDRAWN			
CX-1409	WITHDRAWN			
(Confidential Designation Dropped)				
CX-1410C	WITHDRAWN			
CX-1411C	WITHDRAWN			
CX-1412C	WITHDRAWN			
CX-1413C	WITHDRAWN			
CX-1414C	WITHDRAWN			
CX-1415C	WITHDRAWN			
CX-1416	WITHDRAWN			
(Confidential Designation Dropped)				
CX-1417C	WITHDRAWN			
CX-1418C	WITHDRAWN			
CX-1419C	WITHDRAWN			
CX-1420C	WITHDRAWN			
CX-1421C	WITHDRAWN			
CX-1422C	WITHDRAWN			
CX-1423C	WITHDRAWN			
CX-1424C	WITHDRAWN			
CX-1425C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1426C	WITHDRAWN			
CX-1427C	WITHDRAWN			
CX-1428C	WITHDRAWN			
CX-1429C	WITHDRAWN			
CX-1430C	WITHDRAWN			
CX-1431C	WITHDRAWN			
CX-1432C	WITHDRAWN			
CX-1433C	WITHDRAWN			
CX-1434C	WITHDRAWN			
CX-1435C	WITHDRAWN			
CX-1436C	WITHDRAWN			
CX-1437C	WITHDRAWN			
CX-1438C	WITHDRAWN			
CX-1439C	WITHDRAWN			
CX-1440C	WITHDRAWN			
CX-1441C	WITHDRAWN			
CX-1442C	WITHDRAWN			
CX-1443C	WITHDRAWN			
CX-1444C	WITHDRAWN			
CX-1445C	WITHDRAWN			
CX-1446C	WITHDRAWN			
CX-1447C	WITHDRAWN			
CX-1448C	WITHDRAWN			
CX-1449C	WITHDRAWN			
CX-1450C	WITHDRAWN			
CX-1451C	WITHDRAWN			
CX-1452C	WITHDRAWN			
CX-1453C	WITHDRAWN			

COMPLAINAN EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1454C	WITHDRAWN			
CX-1455C	WITHDRAWN			
CX-1456C	WITHDRAWN			
CX-1457C	WITHDRAWN			
CX-1458C	WITHDRAWN			
CX-1459C	WITHDRAWN			
CX-1460C	WITHDRAWN			
CX-1461C	WITHDRAWN			
CX-1462C	WITHDRAWN			
CX-1463C	WITHDRAWN			
CX-1464C	WITHDRAWN			
CX-1465C	WITHDRAWN			
CX-1466C	WITHDRAWN			
CX-1467	WITHDRAWN			
(Confidential Designation Dropped)				
CX-1468C	WITHDRAWN			
CX-1469C	WITHDRAWN			
CX-1470C	WITHDRAWN			
CX-1471C	WITHDRAWN			
CX-1472C	WITHDRAWN			
CX-1473C	WITHDRAWN			
CX-1474C	WITHDRAWN			
CX-1475C	WITHDRAWN			
CX-1476C	WITHDRAWN			
CX-1477C	WITHDRAWN			
CX-1478C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1479C	WITHDRAWN			
CX-1480C	WITHDRAWN			
CX-1481C	Product Brief: BCM2132; BCMITC0000087209 - BCMITC0000087210	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1482C	WITHDRAWN			
CX-1483C	Release Note: BCM2132; BCMITC0000087213 - BCMITC0000087218	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1484C	Release Note: BCM2132; BCMITC0000087219 - BCMITC0000087224	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1485C	Release Note: BCM2132; BCMITC0000087225 - BCMITC0000087228	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1486C	Application Note: BCM2132/BCM2140; BCMITC0000087229 - BCMITC0000087260	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1487C	Application Note: BCM2132; BCMITC0000092667 - BCMITC0000092710	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1488C	Application Note: BCM2132; BCMITC0000092711 - BCMITC0000092728	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1489C	WITHDRAWN			
CX-1490	WITHDRAWN			
CX-1491C	WITHDRAWN			
CX-1492C	WITHDRAWN			
CX-1493C	WITHDRAWN			
CX-1494C	WITHDRAWN			
CX-1495C	Preliminary Data Sheet: BCM4712; BCMITC0000091116 - 91181	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1496C	Data Sheet: BCM4712; BCMITC 0000091182 - 91249	Domestic Industry	Nettleton	Admitted (02/16/2006)

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1497C	Programmer's Guide: BCM4712; BCMITC 0000091250 - 91427	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1498C	Product Brief: BCM94712; BCMITC 0000091494 - 91495	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1499C	WITHDRAWN			
CX-1500C	WITHDRAWN			
CX-1501	Broadcom Webpage: BCM4712; BCMITC 0000099712	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1502	WITHDRAWN			
CX-1503C	Product Brief; BCM94317; BCMITC 0000091428 - 91429	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1504C	Advanced Data Sheet: BCM94317SD; BCMITC 0000091430 - 91451	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1505C	Advanced Data Sheet: BCM94317SD; BCMITC 0000091452 - 91473	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1506	Broadcom Webpage: BCM4317; BCMITC 0000099707	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1507	WITHDRAWN			
CX-1508C	Preliminary Data Sheet: BCM4318/BCM4318E; BCMITC 0000090658 - 90711	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1509C	Preliminary Data Sheet: BCM4318/BCM4318E; BCMITC 0000090712 - 90765	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1510C	Advanced Data Sheet: BCM4318; BCMITC 0000090766 - 90817	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1511C	Advanced Data Sheet: BCM4318; BCMITC 0000090818 - 90867	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1512C	Product Brief: BCM94318; BCMITC 0000091474 - 91475	Domestic Industry	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1513C	Product Brief: BCM94318E; BCMITC 0000091476 - 91477	Domestic Industry	Hayes	Admitted (02/16/2006)
CX-1514C	Product Brief: BCM94318E; BCMITC 0000091478 - 91479	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1515	Broadcom Webpage: BCM94138; BCMITC 0000099709	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1516	Broadcom Webpage: BCM4318E; BCMITC 0000099710	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1517C	WITHDRAWN			
CX-1518C	WITHDRAWN			
CX-1519C	WITHDRAWN			
CX-1520C	WITHDRAWN			
CX-1521C	Product Brief: BCM94320R; BCMITC 0000091492 - BCMITC 0000091493	Domestic Industry	Hayes	Admitted (02/16/2006)
CX-1522	WITHDRAWN			
CX-1523C	WITHDRAWN			
CX-1524C	Microcode for PSM in Broadcom: BCM47XX; BCMITC0001051831- BCMITC0001051840	Infringement of the '983 and '311 patents; Domestic Industry	Nettleton; Hayes	Admitted (02/16/2006)
CX-1525C	WITHDRAWN			
CX-1526C	WITHDRAWN			
CX-1527C	WITHDRAWN			
CX-1528C	WITHDRAWN			
CX-1529C	WITHDRAWN			
CX-1530C	WITHDRAWN			
CX-1531C	WITHDRAWN			
CX-1532C	WITHDRAWN			
CX-1533C	WITHDRAWN			

COMPLAINAN EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1534C	Brochure: Qualcomm MSM6250 Chipset Solution; QBB073238-QBB073245	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1535C	HDD: Saber (MSM6250) ASIC; QBB068178-QBB069089	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1536C	WITHDRAWN			
CX-1537C	WITHDRAWN			
CX-1538C	WITHDRAWN			
CX-1539C	Product Overview: Qualcomm cdma Technologies; QBB012782-QBB012801	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1540C	HDD: MSM7500 (Phoenix); QBB069090-QBB070417	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1541C	WITHDRAWN			
CX-1542C	WITHDRAWN			
CX-1543C	WITHDRAWN			
CX-1544C	WITHDRAWN			
CX-1545C	WITHDRAWN			
CX-1546C	WITHDRAWN			
CX-1547C	WITHDRAWN			
CX-1548C	WITHDRAWN			
CX-1549C	WITHDRAWN			
CX-1550C	WITHDRAWN			
CX-1551C	WITHDRAWN			
CX-1552C	HLD: Phoenix (MSM7500); QBB090571-QBB091818	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1553C	WITHDRAWN			
CX-1554C	WITHDRAWN			
CX-1555C	WITHDRAWN			
CX-1556C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1557C	WITHDRAWN			
CX-1558C	WITHDRAWN			
CX-1559C	WITHDRAWN			
CX-1560C	WITHDRAWN			
CX-1561C	WITHDRAWN			
CX-1562C	WITHDRAWN			
CX-1563C	WITHDRAWN			
CX-1564C	WITHDRAWN			
CX-1565C	WITHDRAWN			
CX-1566C	WITHDRAWN			
CX-1567C	WITHDRAWN			
CX-1568C	ANSI/IEEE Std. 802.11 (1999) Part 11; QBB132325-QBB132960	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1569C	WITHDRAWN			
CX-1570C	WITHDRAWN			
CX-1571C	WITHDRAWN			
CX-1572C	WITHDRAWN			
CX-1573C	WITHDRAWN			
CX-1574C	WITHDRAWN			
CX-1575C	WITHDRAWN			
CX-1576C	WITHDRAWN			
CX-1577C	WITHDRAWN			
CX-1578C	WITHDRAWN			
CX-1579C	WITHDRAWN			
CX-1580C	WITHDRAWN			
CX-1581C	WITHDRAWN			
CX-1582C	WITHDRAWN			
CX-1583C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1584C	WITHDRAWN			
CX-1585C	WITHDRAWN			
CX-1586C	WITHDRAWN			
CX-1587C	WITHDRAWN			
CX-1588C	WITHDRAWN			
CX-1589C	WITHDRAWN			
CX-1590C	WITHDRAWN			
CX-1591C	WITHDRAWN			
CX-1592C	WITHDRAWN			
CX-1593C	WITHDRAWN			
CX-1594C	WITHDRAWN			
CX-1595C	WITHDRAWN			
CX-1596C	WITHDRAWN			
CX-1597C	WITHDRAWN			
CX-1598C	WITHDRAWN			
CX-1599C	WITHDRAWN			
CX-1600C	WITHDRAWN			
CX-1601C	WITHDRAWN			
CX-1602C	WITHDRAWN			
CX-1603C	WITHDRAWN			
CX-1604C	WITHDRAWN			
CX-1605C	WITHDRAWN			
CX-1606C	WITHDRAWN			
CX-1607C	WITHDRAWN			
CX-1608C	WITHDRAWN			
CX-1609C	WITHDRAWN			
CX-1610C	WITHDRAWN			
CX-1611C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1612C	WITHDRAWN			
CX-1613C	Product Brief - BCM2133	Infringement of the '983 and '311 patents	Sollenberger	Admitted (02/16/2006)
CX-1614C	WITHDRAWN			
CX-1615C	WITHDRAWN			
CX-1616C	WITHDRAWN			
CX-1617C	WITHDRAWN			
CX-1618C	WITHDRAWN			
CX-1619C	WITHDRAWN			
CX-1620C	WITHDRAWN			
CX-1621C	Product Brief - BCM94318E;	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1622C	WITHDRAWN			
CX-1623C	Product Brief - BCM94712; BCMITC0000091494- BCMITC0000091495	Infringement of the '983 and '311 patents	Hayes	Admitted (02/16/2006)
CX-1626C	WITHDRAWN			
CX-1627C	WITHDRAWN			
CX-1628C	WITHDRAWN			
CX-1629C	WITHDRAWN			
CX-1630C	WITHDRAWN			
CX-1631C	WITHDRAWN			
CX-1634C	WITHDRAWN			
CX-1635C	WITHDRAWN			
CX-1636C	WITHDRAWN			
CX-1637C	WITHDRAWN			
CX-1638C	WITHDRAWN			
CX-1639C	WITHDRAWN			
CX-1640C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1641C	WITHDRAWN			
CX-1642C	WITHDRAWN			
CX-1643C	WITHDRAWN			
CX-1644C	WITHDRAWN			
CX-1645C	WITHDRAWN			
CX-1646C	WITHDRAWN			
CX-1647C	WITHDRAWN			
CX-1648C	WITHDRAWN			
CX-1649C	WITHDRAWN			
CX-1650C	WITHDRAWN			
CX-1651C	WITHDRAWN			
CX-1652C	WITHDRAWN			
CX-1653C	WITHDRAWN			
CX-1654	Press release -- "Qualcomm Achieves Major CDMA2000 1xEV-DO Revision A Technology Milestone"; BCMITC000314221-BCMITC000314222	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1655	Press release -- "Qualcomm Congratulates Verizon Wireless on Expanded Deployment of CDMA2000 1xEV-DO Services in the United States"; BCMITC000314204-BCMITC000314206	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1656	Press release -- "Qualcomm Announces CSM6800 and MSM6800 End-to-End Solution for CDMA2000 1xEV-DO Revision A"; BCMITC000314207-BCMITC000314209	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1657	Press release -- "Qualcomm Announces Strong Customer Appreciation for its CDMA2000 1xEV-DO MSM6500 and MSM6550 Chipset Solutions"; BCMITC000314212-BCMITC000314214	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1658	Press release - "Qualcomm and Verizon Wireless Announce Plans for Nationwide Commercial Launch of MediaFLO's Mobile Real-time TV Services"; BCMITC000314215-BCMITC000314217	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1659C	WITHDRAWN			
CX-1660C	Qualcomm MSM6500 Rel 4.0 1xEV-DO Field Test, Verizon Network 1x-384 cellular EV-DO 750 PCS; QBB651334-QBB651385	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1661C	Qualcomm Presentation: 1xEV-DO Roadmap & Devices; QBC056424-QBC056435	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1662C	Witness Statement of Linda Milor	Direct Testimony	Milor	Admitted (02/16/2006)
CX-1663C	WITHDRAWN			
CX-1664C	Witness Statement of Ray W. Nettleton	Direct Testimony	Nettleton	Admitted (02/15/2006)
CX-1665C	WITHDRAWN			
CX-1666C	WITHDRAWN			
CX-1667C	Witness Statement of Nelson Sollenberger	Direct Testimony	Sollenberger	Admitted (02/16/2006)
CX-1668C	WITHDRAWN			
CX-1669C	WITHDRAWN			
CX-1671	CDMA2000 High Rate Packet Data Air Interface Specification, TIA-856-A; BCMITC000300000-BCMITC000301087	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1672	CDMA2000 1xEV-DO Release O, Student Guide, Book 1, 80-31391-1 Rev C; BCMITC000301088-BCMITC000301566	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1673	WITHDRAWN			

COMPLAINAN. EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1674	WITHDRAWN			
CX-1675	WITHDRAWN			
CX-1676	WITHDRAWN			
CX-1677	WITHDRAWN			
CX-1678	WITHDRAWN			
CX-1679	WITHDRAWN			
CX-1680	WITHDRAWN			
CX-1681	WITHDRAWN			
CX-1682	WITHDRAWN			
CX-1683	WITHDRAWN			
CX-1684	WITHDRAWN			
CX-1685	WITHDRAWN			
CX-1686	WITHDRAWN			
CX-1687	WITHDRAWN			
CX-1688	WITHDRAWN			
CX-1689	WITHDRAWN			
CX-1690	WITHDRAWN			
CX-1691	WITHDRAWN			
CX-1692	WITHDRAWN			
CX-1693	WITHDRAWN			
CX-1694	WITHDRAWN			
CX-1695	WITHDRAWN			
CX-1696	WITHDRAWN			
CX-1697	WITHDRAWN			
CX-1698	WITHDRAWN			
CX-1699	WITHDRAWN			
CX-1700	WITHDRAWN			
CX-1701	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1702	WITHDRAWN			
CX-1703	WITHDRAWN			
CX-1704	WITHDRAWN			
CX-1705	TIA/EIA Interim Standard CDMA2000 High Rate Packet Data A. V. Interface Specification, TIA/EIA/IS-856; Dated November 2000; BCMITC000308221-BCMITC000308661	Infringement of the '983 and '311 patents	Nettleton	Admitted (02/16/2006)
CX-1706	WITHDRAWN			
CX-1707	WITHDRAWN			
CX-1708	WITHDRAWN			
CX-1709	WITHDRAWN			
CX-1710	WITHDRAWN			
CX-1711	WITHDRAWN			
CX-1712C	Product Brief - BCM2140; BCMITC000317320-BCMITC000317321	Domestic Industry; Technical Prong	Sollenberger	Admitted (02/16/2006)
CX-1713	WITHDRAWN			
CX-1714	U.S. application Serial No. 08/114,872, by Koenck et al., filed Aug. 31, 1993; QBB220620-221242	Claim construction, infringement, domestic industry and validity of the '983 patent	Nettleton	Admitted (02/16/2006)
CX-1715	U.S. application Serial No. 08/431,077, by Kinney et al., filed Apr. 27, 1995; BCMITC0000795734-795862	Claim construction, infringement domestic industry and validity of the '983 patent	Nettleton	Admitted (02/16/2006)
CX-1716	U.S. application Serial No. 08/487,609, by Mahany et al., filed Jun. 7, 1995; BCMITC0000792166-792658	Claim construction, infringement domestic industry and validity of the '983 patent	Nettleton	Admitted (02/16/2006)

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1717	PCT application Serial No. PCT/US94/04977, by Kinney et al., filed Apr. 28, 1994;	Claim construction, infringement domestic industry and validity of the '983 patent	Nettleton	Admitted (02/16/2006)
CX-1718	U.S. application Ser. No. 08/457,697, by Kinney et al., filed Jun. 1, 1995	Claim construction, infringement domestic industry and validity of the '983 patent	Nettleton	Admitted (02/16/2006)
CX-1720C	WITHDRAWN			
CX-1721C	WITHDRAWN			
CX-1722	WITHDRAWN			
CX-1723	WITHDRAWN			
CX-1724	WITHDRAWN			
CX-1725	WITHDRAWN			
CX-1726	WITHDRAWN			
CX-1727	WITHDRAWN			
CX-1728	WITHDRAWN			
CX-1729	WITHDRAWN			
CX-1730	WITHDRAWN			
CX-1731	WITHDRAWN			
CX-1732	WITHDRAWN			
CX-1733C	Broadcom Source Code	Domestic Industry	Nettleton	Admitted (02/16/2006)
CX-1734C	WITHDRAWN			
CX-1735C	WITHDRAWN			
CX-1736C	WITHDRAWN			
CX-1737C	Broadcom Source Code; BCMITC0001051841- BCMITC0001051871	Infringement of '311, and '983	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1738	WITHDRAWN			
CX-1739	WITHDRAWN			
CX-1740	WITHDRAWN			
CX-1741	WITHDRAWN			
CX-1742	WITHDRAWN			
CX-1744C	WITHDRAWN			
CX-1745C	WITHDRAWN			
CX-1746C	WITHDRAWN			
CX-1747C	WITHDRAWN			
CX-1748C	WITHDRAWN			
CX-1749C	WITHDRAWN			
CX-1750C	WITHDRAWN			
CX-1751C	WITHDRAWN			
CX-1752C	WITHDRAWN			
CX-1753C	WITHDRAWN			
CX-1754C	WITHDRAWN			
CX-1755C	WITHDRAWN			
CX-1756C	WITHDRAWN			
CX-1757C	WITHDRAWN			
CX-1758C	WITHDRAWN			
CX-1759C	WITHDRAWN			
CX-1760C	WITHDRAWN			
CX-1761C	WITHDRAWN			
CX-1762C	WITHDRAWN			
CX-1763C	WITHDRAWN			
CX-1764C	WITHDRAWN			
CX-1765C	WITHDRAWN			
CX-1766C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1767C	WITHDRAWN			
CX-1768C	WITHDRAWN			
CX-1769C	WITHDRAWN			
CX-1770C	WITHDRAWN			
CX-1771C	WITHDRAWN			
CX-1772C	WITHDRAWN			
CX-1773C	WITHDRAWN			
CX-1774C	WITHDRAWN			
CX-1775C	WITHDRAWN			
CX-1776C	WITHDRAWN			
CX-1777C	WITHDRAWN			
CX-1778C	WITHDRAWN			
CX-1779C	WITHDRAWN			
CX-1780	WITHDRAWN			
CX-1781	Mobilebee Retail Website; BCMITC000317497- BCMITC000317499	Domestic Industry	Nettleton	Admitted (03/17/2006)
CX-1782	WITHDRAWN			
CX-1783	WITHDRAWN			
CX-1784	WITHDRAWN			
CX-1785	WITHDRAWN			
CX-1786	WITHDRAWN			
CX-1800C	WITHDRAWN			
CX-1801C	WITHDRAWN			
CX-1802C	WITHDRAWN			
CX-1804C	WITHDRAWN			
CX-1805C	WITHDRAWN			
CX-1806C	WITHDRAWN			
CX-1807C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1808C	WITHDRAWN			
CX-1809C	WITHDRAWN			
CX-1810C	WITHDRAWN			
CX-1811C	WITHDRAWN			
CX-1812C	WITHDRAWN			
CX-1813C	WITHDRAWN			
CX-1814C	WITHDRAWN			
CX-1815C	WITHDRAWN			
CX-1816C	WITHDRAWN			
CX-1817C	WITHDRAWN			
CX-1818C	WITHDRAWN			
CX-1819C	WITHDRAWN			
CX-1820C	WITHDRAWN			
CX-1821C	WITHDRAWN			
CX-1822C	WITHDRAWN			
CX-1823C	WITHDRAWN			
CX-1824C	WITHDRAWN			
CX-1825C	WITHDRAWN			
CX-1826C	WITHDRAWN			
CX-1827C	WITHDRAWN			
CX-1828C	WITHDRAWN			
CX-1829C	WITHDRAWN			
CX-1830C	WITHDRAWN			
CX-1831C	WITHDRAWN			
CX-1832C	WITHDRAWN			
CX-1833C	WITHDRAWN			
CX-1834C	WITHDRAWN			
CX-1835C	WITHDRAWN			

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1836C	WITHDRAWN			
CX-1837C	WITHDRAWN			
CX-1838C	WITHDRAWN			
CX-1839C	WITHDRAWN			
CX-1840C	WITHDRAWN			
CX-1841	WITHDRAWN			
CX-1842	WITHDRAWN			
CX-1843	WITHDRAWN			
CX-1844	WITHDRAWN			
CX-1845	WITHDRAWN			
CX-1846	WITHDRAWN			
CX-1847	WITHDRAWN			
CX-1848C	WITHDRAWN			
CX-1849C	WITHDRAWN			
CX-1850C	WITHDRAWN			
CX-1851C	Lab Notebook #3, dated 2/7/1995; QBB231058-QBB231097	Validity of '311 and '983;; Rebuttal of RX-828C, RX-829C, RX-830C, RX-831C, RX-832C, RX-838C, and RX-846C	Hutchison	Admitted (03/21/2006)
CX-1852C	WITHDRAWN			
CX-1853C	WITHDRAWN			
CX-1854C	WITHDRAWN			
CX-1855C	WITHDRAWN			
CX-1856C	WITHDRAWN			
CX-1857C	WITHDRAWN			
CX-1858C	WITHDRAWN			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1859	WITHDRAWN			
CX-1860C	WITHDRAWN AS DUPLICATE OF CX-1806C			
CX-1861C	WITHDRAWN			
CX-1862C	WITHDRAWN AS DUPLICATE OF 1835C			
CX-1863C	WITHDRAWN			
CX-1864C	WITHDRAWN			
CX-1865C	WITHDRAWN			
CX-1866C	WITHDRAWN			
CX-1867C	WITHDRAWN			
CX-1868C	WITHDRAWN			
CX-1869C	WITHDRAWN			
CX-1870C	WITHDRAWN			
CX-1871C	WITHDRAWN			
CX-1872C	WITHDRAWN			
CX-1873C	WITHDRAWN			
CX-1878C	WITHDRAWN			
CX-1879	WITHDRAWN			
CX-1880C	WITHDRAWN			
CX-1881	WITHDRAWN			
CX-1882	WITHDRAWN			
CX-1883	WITHDRAWN			
CX-1884	WITHDRAWN			
CX-1885	WITHDRAWN			
CX-1886	WITHDRAWN			
CX-1887	WITHDRAWN			
CX-1888	WITHDRAWN			
CX-1889	WITHDRAWN			
CX-1890	WITHDRAWN			

COMPLAINA EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1891	WITHDRAWN			
CX-1892	WITHDRAWN			
CX-1893	WITHDRAWN			
CX-1894	WITHDRAWN			
CX-1895	WITHDRAWN			
CX-1896	WITHDRAWN			
CX-1897C	WITHDRAWN			
CX-1898C	WITHDRAWN			
CX-1899C	WITHDRAWN AS DUPLICATIVE OF CX-1839C			
CX-1900C	WITHDRAWN AS DUPLICATIVE OF CX-1837C			
CX-1907C	WITHDRAWN			
CX-1908C	WITHDRAWN			
CX-1912C	WITHDRAWN			
CX-1913C	WITHDRAWN			
CX-1914C	WITHDRAWN			
CX-1915	WITHDRAWN			
CX-1916	WITHDRAWN			
CX-1917	WITHDRAWN AS DUPLICATIVE OF RX-383C			
CX-1918	WITHDRAWN AS DUPLICATIVE OF RX-384C			
CX-1919	WITHDRAWN AS DUPLICATIVE OF RX-382C			
CX-1920C	WITHDRAWN			
CX-1921	WITHDRAWN			
CX-1922	WITHDRAWN			
CX-1923	WITHDRAWN			
CX-1924	WITHDRAWN			
CX-1925C	WITHDRAWN			
CX-1926	WITHDRAWN AS DUPLICATIVE OF RX-389			
CX-1927C	WITHDRAWN AS DUPLICATIVE OF CX-412C			

COMPLAINANT'S EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1928	WITHDRAWN			
CX-1929	WITHDRAWN AS DUPLICATIVE OF CX-1710			
CX-1930C	WITHDRAWN AS DUPLICATIVE OF CX-1670C			
CX-1931	WITHDRAWN AS DUPLICATIVE OF CX-1367			
CX-1932C	WITHDRAWN			
CX-1933	WITHDRAWN			
CX-1934	WITHDRAWN			
CX-1935	WITHDRAWN AS DUPLICATIVE OF RX-28			
CX-1936	Qualcomm website, "Enabling Manufacturers"	Infringement and Validity of '983;; Rebuttal of RX-828C, RX-829C, RX-830C, RX-831C, RX-832C, RX-838C, and RX-846C	Nettleton	Admitted (03/17/2006)
CX-1943C	WITHDRAWN			
CX-1949C	WITHDRAWN			
CX-1960C	WITHDRAWN			
CX-1962C	WITHDRAWN			
CX-1972	WITHDRAWN			
CX-1973	WITHDRAWN			
CX-1974	WITHDRAWN			
CX-1978C	Rebuttal Witness Statement of Dr. Linda Milor	Rebuttal Testimony; Rebuttal to RX-839C	Milor	Admitted (03/21/2006)
CX-1979C	Rebuttal Witness Statement of Raymond W. Nettleton, Ph.D.	Rebuttal Testimony; Rebuttal to RX-838C	Nettleton	Admitted (03/21/2006)
CX-1982C	WITHDRAWN			
CX-1983C	WITHDRAWN			

COMPLAINANT EXHIBITS

Ex. No.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CX-1984C	Email Chain to Jim Hutchison from Robin Hughes RE: Deep Sleep integration, dated 3/6/1995, QBD031621-QBC-31622	Validity of the '311 and '983 patents	Hutchison	Admitted (03/13/2006)
CX-1985	IEEE Dictionary, definition of "data communications (data transmission)"	Claim Construction	Nettleton	Admitted (03/21/2006)
CX-1986A	Letter from James Dowd	Validity of the '311 patent		Rejected (03/21/2006)
CX-1986B	Letter from Louis Campbell	Validity of the '311 patent		Rejected (03/21/2006)

COMPLAINANT'S PHYSICAL EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CPX-1	WITHDRAWN			
CPX-2	WITHDRAWN			
CPX-3	WITHDRAWN			
CPX-4	WITHDRAWN			
CPX-5	WITHDRAWN			
CPX-6	WITHDRAWN			
CPX-7	WITHDRAWN			
CPX-8	WITHDRAWN			
CPX-9	WITHDRAWN			
CPX-10	WITHDRAWN			
CPX-11	WITHDRAWN			
CPX-12	WITHDRAWN			
CPX-13	WITHDRAWN			
CPX-14	WITHDRAWN			
CPX-15	WITHDRAWN			
CPX-16	WITHDRAWN			
CPX-17	Samsung SGH-Z500 Phone	Infringement of the '983 Patent	Nettleton	Admitted (02/16/2006)
CPX-18	WITHDRAWN			
CPX-19	WITHDRAWN			
CPX-20	WITHDRAWN			

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-1	WITHDRAWN			
CDX-2	WITHDRAWN			
CDX-3	Mixer Diagram showing Input and Oscillating Signals	Technical Background	Milor	Admitted (02/21/2006)
CDX-4	Out-of-phase Signals Diagram	Technical Background	Milor	Admitted (02/21/2006)
CDX-5	Phase Lock Loop Block Diagram	Technical Background	Milor	Admitted (02/21/2006)
CDX-6	Current Mirror Diagram	Technical Background	Milor	Admitted (02/21/2006)
CDX-7	Claim Chart- 1st element of Claim # 33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-8	Claim Chart- 2nd element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-9	Claim Chart- 3rd element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-10	Claim Chart- 4th element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-11	Claim Chart- 5th element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-12	Claim Chart- 6th element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-13	Claim Chart- 7th element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-14	Claim Chart- 8th element of #33	Infringement of the '675 patent	Milor	Admitted (02/21/2006)
CDX-15	Claim Chart- Claim #35	Infringement of the '675 patent	Milor	Admitted (02/21/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-16	Claim Chart- BCM3440 Comparison	Technical Prong of Domestic Industry	Milor	Admitted (02/21/2006)
CDX-17	WITHDRAWN			
CDX-18	WITHDRAWN			
CDX-19	WITHDRAWN			
CDX-20	WITHDRAWN			
CDX-66	Claim Chart - Infringement of '983 claim 1	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-67	Claim Chart - Infringement of '983 claim 4	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-68	Claim Chart - Infringement of '983 claim 8	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-69	Claim Chart - Infringement of '983 claim 9	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-70	Claim Chart - Infringement of '983 claim 11	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-71	Claim Chart - Infringement of '983 claim 14	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-72	Claim Chart - Infringement of '983 claim 17	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-73	Claim Chart - Infringement of '983 claim 18	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-74	Claim Chart - Infringement of '983 claim 19	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-75	Claim Chart - Infringement of '983 claim 20	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-76	Claim Chart - Infringement of '983 claim 21	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-77	Claim Chart - Infringement of '983 claim 22	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-78	Claim Chart - Infringement of '983 claim 23	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-79	Claim Chart - Infringement of '983 claim 24	Infringement of the '983 patent	Nettleton	Admitted (02/16/2006)
CDX-80	Claim Chart - Domestic Industry for '983 claim 1	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-81	Claim Chart - Domestic Industry for '983 claim 4	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-82	Claim Chart - Domestic Industry for '983 claim 8	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-83	Claim Chart - Domestic Industry for '983 claim 9	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-84	Claim Chart - Domestic Industry for '983 claim 11	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-85	Claim Chart - Domestic Industry for '983 claim 14	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-86	Claim Chart - Domestic Industry for '983 claim 17	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-87	Claim Chart - Domestic Industry for '983 claim 18	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-88	Claim Chart - Domestic Industry for '983 claim 19	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-89	Claim Chart - Domestic Industry for '983 claim 20	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-90	Claim Chart - Domestic Industry for '983 claim 21	Domestic Industry	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-91	Claim Chart – Domestic Industry for '983 claim 22	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-92	Claim Chart – Domestic Industry for '983 claim 23	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-93	Claim Chart – Domestic Industry for '983 claim 24	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-94	Claim Chart – Infringement of '311 claim 1	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-95	Claim Chart – Infringement of '311 claim 2	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-96	Claim Chart – Infringement of '311 claim 3	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-97	Claim Chart – Infringement of '311 claim 4	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-98	Claim Chart – Infringement of '311 claim 5	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-99	Claim Chart – Infringement of '311 claim 7	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-100	Claim Chart – Infringement of '311 claim 8	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-101	Claim Chart – Infringement of '311 claim 13	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-102	Claim Chart – Infringement of '311 claim 14	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-103	Claim Chart – Infringement of '311 claim 16	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-104	Claim Chart – Infringement of '311 claim 17	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-105	Claim Chart - Infringement of '311 claim 18	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-106	Claim Chart - Infringement of '311 claim 19	Infringement of the '311 patent	Nettleton	Admitted (02/16/2006)
CDX-107	Claim Chart Domestic Industry for '311 claim 1	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-108	Claim Chart - Domestic Industry for '311 claim 2	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-109	Claim Chart - Domestic Industry for '311 claim 3	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-110	Claim Chart - Domestic Industry for '311 claim 4	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-111	Claim Chart - Domestic Industry for '311 claim 5	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-112	Claim Chart - Domestic Industry for '311 claim 7	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-113	Claim Chart - Domestic Industry for '311 claim 8	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-114	Claim Chart - Domestic Industry for '311 claim 13	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-115	Claim Chart - Domestic Industry for '311 claim 14	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-116	Claim Chart - Domestic Industry for '311 claim 16	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-117	Claim Chart - Domestic Industry for '311 claim 17	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-118	Claim Chart - Domestic Industry for '311 claim 18	Domestic Industry	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-119	Claim Chart – Domestic Industry for '311 claim 19	Domestic Industry	Nettleton	Admitted (02/16/2006)
CDX-120	OSI Layers	Technical background	Nettleton	Admitted (02/16/2006)
CDX-121	WITHDRAWN			
CDX-122	WITHDRAWN			
CDX-123	WITHDRAWN			
CDX-124	WITHDRAWN			
CDX-125	WITHDRAWN			
CDX-126	WITHDRAWN			
CDX-127	"Frequency"			
CDX-128	"Capacitors and Inductors"	Technology background	Milor	Admitted (02/21/2006)
CDX-129	"Transistors"	Technology background	Milor	Admitted (02/21/2006)
CDX-130	WITHDRAWN	Technology background	Milor	Admitted (02/21/2006)
CDX-131	WITHDRAWN			
CDX-132	WITHDRAWN			
CDX-133	WITHDRAWN			
CDX-134	WITHDRAWN			
CDX-135	WITHDRAWN			
CDX-136	WITHDRAWN			
CDX-137	WITHDRAWN			
CDX-138	WITHDRAWN			
CDX-139	WITHDRAWN			
CDX-140	WITHDRAWN			
CDX-141	WITHDRAWN			

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

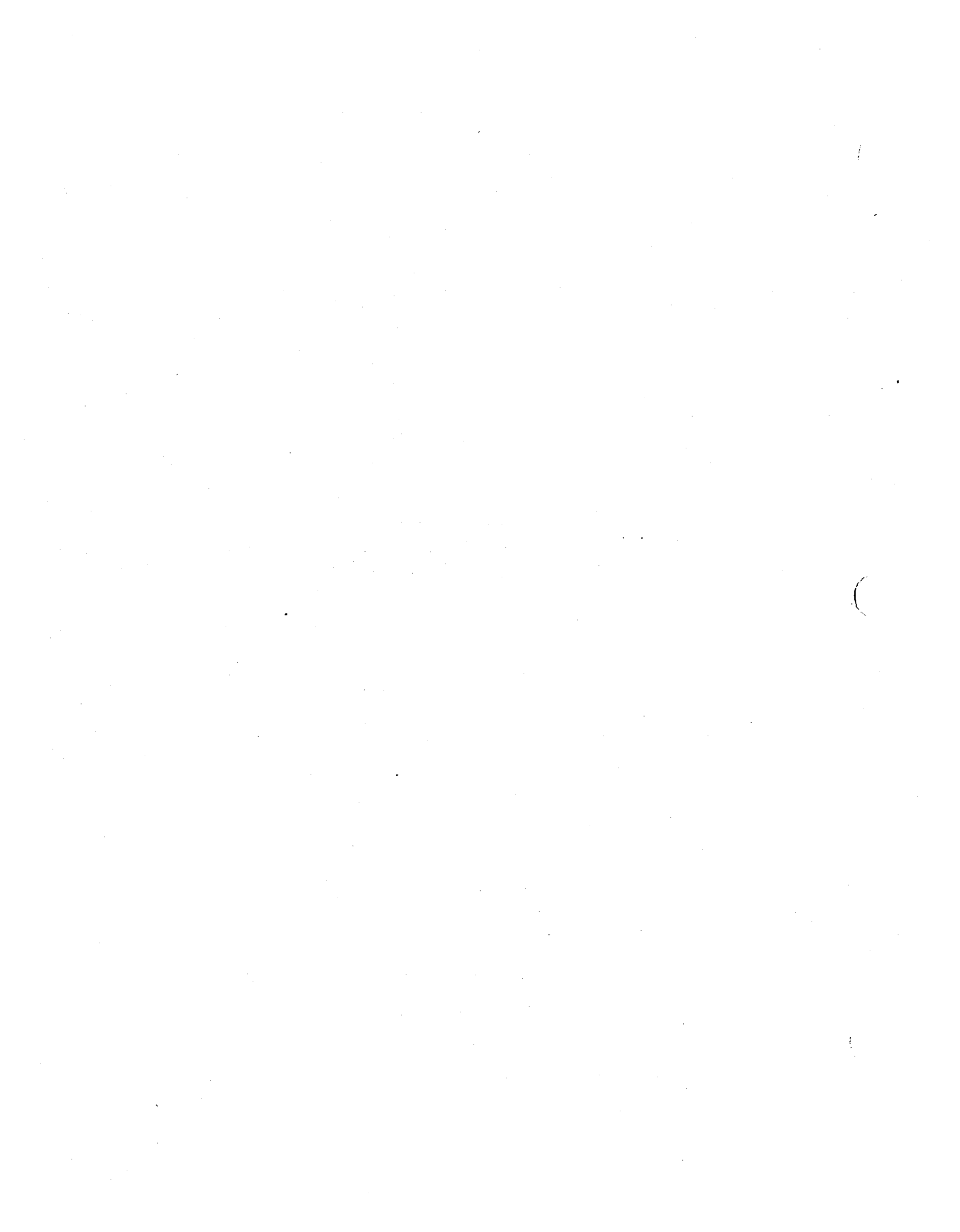
EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-142	Qualcomm MSM Chipsets that Infringe the '983 Patent	Infringement of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-143	Qualcomm MSM Chipsets that Infringe the '311 Patent	Infringement of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-144	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-145	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-146	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-147	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-148	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-149	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-150	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-151	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-152	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-153	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-154	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-155	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-156	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-157	Claim Construction -- '983 claim	Infringement and Validity of the '983 Patent	Nettleton	Admitted (02/16/2006)
CDX-158	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-159	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-160	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-161	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-162	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-163	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-164	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-165	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-166	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-167	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-168	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-169	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)

COMPLAINANT'S DEMONSTRATIVE EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
CDX-170	Claim Construction -- '311 claim	Infringement and Validity of the '311 Patent	Nettleton	Admitted (02/16/2006)
CDX-171	'675 Patent, Claims 33 and 35	Claim Construction of the '675 Patent	Milor	Admitted (02/21/2006)
CDX-172C	Qualcomm's Accused Products	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CDX-173	Comparison of Claims 33 and 35 with Qualcomm's Accused Products	Infringement of '675 patent	Milor	Admitted (02/21/2006)
CDX-174	Results of Testing	Infringement of '983	Nettleton	Admitted (02/16/2006)
CDX-175C	Validity of the '983 Patent	Validity of the '983 patent	Nettleton	Admitted (03/21/2006)
CDX-176C	Validity of the '311 patent	Validity of the '311 patent	Nettleton	Admitted (03/21/2006)



**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Charles E. Bullock
Administrative Law Judge**

In the Matter of)

CERTAIN BASEBAND PROCESSOR)
CHIPS AND CHIPSETS, TRANSMITTER)
AND RECEIVER (RADIO) CHIPS, POWER)
CONTROL CHIPS, AND PRODUCTS)
CONTAINING SAME, INCLUDING)
CELLULAR TELEPHONE HANDSETS)
_____)

) Investigation
) No. 337-TA-543

RESPONDENT QUALCOMM INCORPORATED'S FINAL EXHIBIT LIST

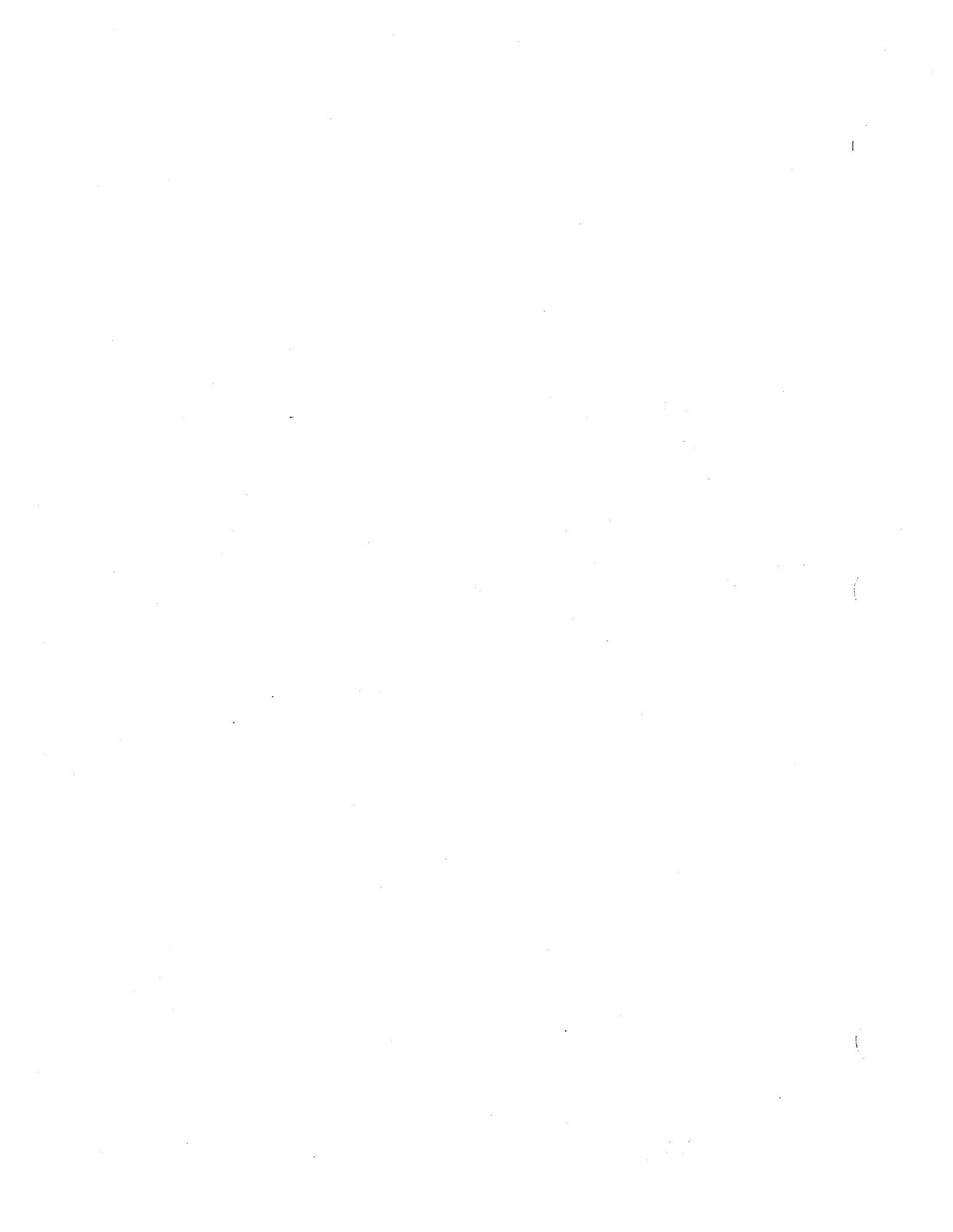
William K. West, Jr.
Cecilia H. Gonzalez
Bert C. Reiser
HOWREY LLP
1299 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 783-0800

Peter J. Chassman
HOWREY LLP
1111 Louisiana, 25th Floor
Houston, TX 77002-5242
(713) 787-1400

Christopher L. Kelley
HOWREY LLP
1950 University Avenue, 4th Floor
East Palo Alto, CA 94303
(650) 798-3500

Dated: April 3, 2006

Counsel for Respondent
Qualcomm Incorporated



DOCUMENTARY EXHIBITS

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-15	U.S. Patent No. 5,128,938 QBB148620 – 148631	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-17	U.S. Patent No. 5,625,325 QBB233093 – 233100	Invalidity, '675 patent	Gutierrez	Admitted (02/17/2006)
RX-18	U.S. Patent No. 5,680,633 BCMITC0000077659 – 0000077902	Priority, '983 patent	Self-authenticating	Admitted (03/21/2006)
RX-21	File History of U.S. Patent Application Serial No. 08/431,077 BCMITC0000795734 – 0000795862	Priority, '983 patent	Self-authenticating	Admitted (03/21/2006)
RX-23				Withdrawn
RX-43	Broadcom ITC Complaint, In the Matter of Certain Baseband Processor Chips and Chipsets, Transmitter and Receiver (Radio) Chips, Power Control Chips, and Products Containing Same, Including Cellular Telephone Handsets, ITC Inv. No. 337-TA-543, dated 05/19/2005	Pre-Trial Inquiry Litigation Background Claim Construction Evidence of Notice	Jha	Admitted (03/21/2006)
RX-44				Withdrawn
RX-45				Withdrawn
RX-46				Withdrawn
RX-47	Second Declaration of Nelson R. Sollenberger in Support of Complainant	Pre-Trial Inquiry Litigation Background Claim Construction Evidence of Notice	Jha	Admitted (03/21/2006)
RX-48 C				Withdrawn
RX-49				Withdrawn
RX-50				Withdrawn
RX-51 C	Table of telephone units exported to U.S.	Non-infringement, '983 patent	Ahn	Admitted (03/21/2006)
RX-54	Web pages from Samsung website re: wireless phones http://www.samsungtelecom.com/recommend/view_all.asp?sort=f5	Non-infringement, '983 patent	By motion	Admitted (03/21/2006)
RX-80 C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-83C	List of Licensees Under the Asserted Patents Exhibit 26 to the Complaint in the ITC investigation	Background	DelGiorno Brazeal	Admitted (03/21/2006)
RX-105				Withdrawn
RX-106C	Katie Gate Array Specification. E001498C - 001620C	Invalidity, '983 patent	Dent	Admitted (03/21/2006)
RX-107C				Withdrawn
RX-108C				Withdrawn
RX-109				Withdrawn
RX-110				Withdrawn
RX-111				Withdrawn
RX-112				Withdrawn
RX-113				Withdrawn
RX-114C	ZIFTIC Zero IF Transmit Integrated Circuit Objective Specification, 80-V322-1, Rev. A [RFT6100 / RFT6102] QBB088621 - 088667	Non-infringement, '675 patent	Dunworth Reeves	Admitted (03/15/2006)
RX-115C				Withdrawn
RX-116C				Withdrawn
RX-117C				Withdrawn
RX-118C				Withdrawn
RX-119C				Withdrawn
RX-120C				Withdrawn
RX-121C				Withdrawn
RX-122C				Withdrawn
RX-123C				Withdrawn
RX-124C	Schematic Pioneer VCO QBB096108	Non-infringement, '675 patent	Dunworth	Admitted (03/15/2006)
RX-125C	CZIFTIC Cellular Band Zero IF Transmit Integrated Circuit Objective Specification, dated 06/09/2003 QBB089045 - 089081	Non-infringement, '675 patent	Dunworth Reeves	Admitted (03/15/2006)
RX-126C	RFT6170 Zero-IF Transmit IC Objective Specification, dated 10/14/2004 QBB090283 - 090331	Non-infringement, '675 patent	Dunworth Reeves	Admitted (03/15/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-127C	GZIFTRIC GSM Zero IF Transceiver Integrated Circuit with CDMA Zero IF Transmit Integrated Circuit Objective Specification, dated 04/08/2004 QBB088916 – 089044	Non-infringement, '675 patent	Dunworth	Admitted (03/15/2006)
RX-128C	ZIFTIC Notebook QBB077457 – 077659	Non-infringement, '675 patent	Dunworth	Admitted (03/15/2006)
RX-129C				Withdrawn
RX-130C				Withdrawn
RX-131				Withdrawn
RX-154				Withdrawn
RX-155				Withdrawn
RX-156				Withdrawn
RX-157	Minutes of the Special MOA Technical Guidance Council Meeting QBB565516 – 565598	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-190				Withdrawn
RX-191C				Withdrawn
RX-192C				Withdrawn
RX-193C				Withdrawn
RX-194C				Withdrawn
RX-195C				Withdrawn
RX-196C				Withdrawn
RX-198C				Withdrawn
RX-199C	Broadcom Corporation schematics for 3415-A1 BCMITC0000847320 – 0000847437	Claim Construction, '675 patent	Gomez	Admitted (03/21/2006)
RX-200C	Broadcom Corporation schematics for 3415-B0 BCMITC0000847438 – 0000847567	Claim Construction, '675 patent	Gomez	Admitted (02/17/2006)
RX-201C				Withdrawn
RX-202C				Withdrawn
RX-203C				Withdrawn
RX-204C				Withdrawn
RX-244				Withdrawn
RX-253C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-254	Declaration of Ramon A. Gomez from U.S. patent no. 6,583,675, dated 03/20/2001	Invalidity, '675 patent	Kirchoff	Admitted (03/21/2006)
RX-255C				Withdrawn
RX-256C				Withdrawn
RX-257C	Broadcom Spreadsheet re: BCM3415 BCMITC0000779663 - 0000779682	Invalidity, '675 patent	Kirchoff	Admitted (03/21/2006)
RX-258C				Withdrawn
RX-259C				Withdrawn
RX-260C				Withdrawn
RX-261C				Withdrawn
RX-262C				Withdrawn
RX-278C				Withdrawn
RX-279C				Withdrawn
RX-280C				Withdrawn
RX-281C				Withdrawn
RX-282C				Withdrawn
RX-283C				Withdrawn
RX-284C				Withdrawn
RX-285C				Withdrawn
RX-286C				Withdrawn
RX-287C				Withdrawn
RX-288C				Withdrawn
RX-289C				Withdrawn
RX-298	PC Mag webpage re Beaconing	Claim Construction, '311 patent	By motion	Admitted (03/21/2006)
RX-301C				Withdrawn
RX-304C	Introduction Manual of TR5E800-9C Hand-Held Portable Cellular Telephone NECAM001122 - 001496	Prior art, '983 patent	Mengistu	Admitted (03/21/2006)
RX-305C	Instruction Manual of TRE800-21A NEC Portable Cellular Telephone (US) NECAM001497 - 001937	Secondary evidence of prior art, '983 patent	Mengistu	Admitted (03/21/2006)
RX-306				Withdrawn
RX-317C	Chart of Velocita Total of Operating Sites Per Market Velocita Wireless, LP 0001 - 0036	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-319C				Withdrawn
RX-320C	Letter from J. Troe (RAM Mobile Data), dated 01/25/1991 Velocita Wireless, LP 001872 – 001882	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)
RX-321C	Memorandum from F. Masciandaro (RAM Mobile Data) to J. Troe re: Radio-Terminal Solicitation Status Update, dated 03/08/1991 Velocita Wireless, LP 001908 – 001942	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)
RX-322C	"Radio/Terminal Meeting at Stockholm" Minutes dated 5/16 Velocita Wireless, LP 002467 – 002474	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)
RX-323C				Withdrawn
RX-324C	Letter from Roger Shultz (RAM Mobile Data) to Bengt Didner re: R12 release plan, dated 02/06/1991 Velocita Wireless, LP 0152 – 0153	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)
RX-325C	Letter from G. Umetsu (RAM Mobile Data) to A. Torstenenson (Ericsson) re: release of R13, dated 10/23/1991 Velocita Wireless, LP 0187 – 0191	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)
RX-326C				Withdrawn
RX-327C	Memorandum from T. Morner (RAM Mobile Data) to G. Norlin re: Compliance Waivers to RMD MIS for Ericsson Mobidem M1090, dated 04/29/1992 Velocita Wireless, LP 001054 – 001055	Invalidity, '311 patent	Schultz	Admitted (03/21/2006)
RX-328C				Withdrawn
RX-330C	Mobitex Terminal Specifications	Prior art, '983 and '311 patents	Proakis	Admitted (03/21/2006)
RX-331				Withdrawn
RX-332C				Withdrawn
RX-333				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-334	GSM 02.11 Service Accessibility, dated April 1993 QBB153507 – 153515	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-335	A Pilot Based Dynamic Channel Assignment Scheme for Wireless Access TDMA/FDMA Systems QBB733855 – 733861	Invalidity, '311 patent	Proakis	Admitted (02/16/2006)
RX-336	Mobitex Terminal Specification 900, 8000 bps Rogers Cantel Mobile Inc. terminal type 3 LZBA 703 1001/05 QBB567795 – 568639	Invalidity, '311 patent	Fraser Proakis	Admitted (03/16/2006)
RX-337	Eritel AB - issue of the battery-saving protocol for portable terminals (Addendum to the MOA Technical Guidance Council), 08/17/1990 QBB568756 – 568798	Invalidity, '311 patent	Fraser Proakis	Admitted (03/16/2006)
RX-338	Overview of the RAM Mobile Data Inc. Mobitex Packet Radio Networks QBB568667 – 568733	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-341C				Withdrawn
RX-342C				Withdrawn
RX-343C				Withdrawn
RX-344C				Withdrawn
RX-345C				Withdrawn
RX-346C				Withdrawn
RX-347C				Withdrawn
RX-348C				Withdrawn
RX-349C				Withdrawn
RX-350C				Withdrawn
RX-351C				Withdrawn
RX-352C				Withdrawn
RX-372				Withdrawn
RX-373C				Withdrawn
RX-374C				Withdrawn
RX-375C				Withdrawn
RX-376C				Withdrawn
RX-377C				Withdrawn
RX-378				Withdrawn
RX-379C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-380C				Withdrawn
RX-381C				Withdrawn
RX-382C				Withdrawn
RX-383C				Withdrawn
RX-384C				Withdrawn
RX-385C				Withdrawn
RX-386				Withdrawn
RX-387				Withdrawn
RX-388				Withdrawn
RX-389				Withdrawn
RX-390				Withdrawn
RX-391				Withdrawn
RX-392				Withdrawn
RX-393C				Withdrawn
RX-394C				Withdrawn
RX-395C				Withdrawn
RX-396C				Withdrawn
RX-397C				Withdrawn
RX-398C				Withdrawn
RX-399	CV of German Gutierrez Gutierrez Deposition Exhibit 1	Expert qualification	Gutierrez	Admitted (03/21/2006)
RX-400C	RFT 6100 Schematic for Kv Compensation Circuit QBB096799	Invalidity, '675 patent	Gutierrez	Admitted (03/21/2006)
RX-401	Excerpts from J. Craninckx and M. Steyaert book, <u>Wireless CMOS Frequency Synthesizer Design</u> QBB144631 - 144897	Non-infringement, '675 patent	Gutierrez	Admitted (03/17/2006)
RX-402				Withdrawn
RX-403				Withdrawn
RX-404				Withdrawn
RX-405				Withdrawn
RX-406				Withdrawn
RX-412C	Complainant Broadcom Corporation's Objections and Responses to Respondent Qualcomm Incorporated's First Set of Interrogatories (Nos. 1-53)	Admissions re: Non-infringement, Invalidity, domestic industry and remedy	DelGiorno	Admitted (03/21/2006)
RX-413C				Withdrawn
RX-414C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-415C				Withdrawn
RX-416C	Complainant Broadcom Corporation's Fourth Supplemental Objections and Responses to Respondent Qualcomm Incorporated's First Set of Interrogatories (Nos. 1-53)	Admissions re: Non-infringement, Invalidity, domestic industry and remedy	DelGiorno	Admitted (03/21/2006)
RX-417C	Complainant Broadcom Corporation's Fifth Supplemental Objections and Responses to Respondent Qualcomm Incorporated's First Set of Interrogatories (Nos. 1-53)	Admissions re: Non-infringement, Invalidity, domestic industry and remedy	DelGiorno	Admitted (03/21/2006)
RX-418C				Withdrawn
RX-419C				Withdrawn
RX-420C				Withdrawn
RX-421C				Withdrawn
RX-422C				Withdrawn
RX-423C				Withdrawn
RX-424C				Withdrawn
RX-425C				Withdrawn
RX-426				Withdrawn
RX-427				Withdrawn
RX-428C				Withdrawn
RX-429C				Withdrawn
RX-430C				Withdrawn
RX-431				Withdrawn
RX-432				Withdrawn
RX-433C				Withdrawn
RX-434C				Withdrawn
RX-435C				Withdrawn
RX-436C	Third Supplemental Responses and Objections to the Staff's First Set of Interrogatories to Complainant Broadcom Corporation	Admissions re: Non-infringement, Invalidity, domestic industry and remedy	DelGiorno	Admitted (03/21/2006)
RX-437				Withdrawn
RX-438				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-439	The GSM System for Mobile Communications, Mouly and Pautet QBB147866 – 148554	Prior art, '983 and '311 patents Invalidity, '311 patent	Pautet	Admitted (03/21/2006)
RX-440				Withdrawn
RX-441	U.S. Patent No. 4,964,121, Moore, Battery Saving for a TDM System QBB148579 – 148591	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-442				Withdrawn
RX-443	U.S. Patent No. 5,203,020, Sato et al, Method and Apparatus for Reducing Power Consumption in a Radio Telecommunication Apparatus QBB148663 – 148677	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-444				Withdrawn
RX-445				Withdrawn
RX-446				Withdrawn
RX-447	File history of U.S. Patent No. 4,964,121, Moore, Battery Saving for a TDM System QBB741876 – 741957	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-448	File history of U.S. Patent No. 5,128,938, Borrás, Energy Saving Protocol for a Communication System QBB741958 – 742109	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-449				Withdrawn
RX-450				Withdrawn
RX-451				Withdrawn
RX-452				Withdrawn
RX-453				Withdrawn
RX-454				Withdrawn
RX-455				Withdrawn
RX-456				Withdrawn
RX-457				Withdrawn
RX-458				Withdrawn
RX-459				Withdrawn
RX-460				Withdrawn
RX-461				Withdrawn
RX-462C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-463				Withdrawn
RX-464				Withdrawn
RX-465	Multiplexing and Multiple Access on the Radio Path, GSM 05.02 v 3.4.1 QBB233741 – 233848	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-466				Withdrawn
RX-467				Withdrawn
RX-468	Mobile Radio Interface Layer 3 Specification, GSM 04.08 v 4.2.0 QBB479485 – 479977	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-469	Types of Mobile Stations, GSM 02.06 v 3.2.0 QBB155090 – 155095	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-470	GSM PLMN Connection Types, GSM 03.10 v 3.3.0 QBB155153 – 155195	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-471	MS-BSS Interface - General Aspects and Principles, GSM 04.01 v 3.0.1 QBB155196 – 155206	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-472	General on Terminal Adaptation Functions for the MSs, GSM 07.01 v 3.14.0 QBB155219 – 155297	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-473	Service Accessibility, ETSI TS 22.011 v 6.4.0 QBB155298 – 155315	Invalidity, '311 patent Prior art, '983 patent	Pautet	Admitted (03/21/2006)
RX-474	Mobile Radio Interface Layer 3 Specification; Core Network Protocols; Stage 3, ETSI TS 24.008 v 5.3.0 QBB155316 – 155787	Invalidity, '311 patent Prior art, '983 patent	Pautet	Admitted (03/21/2006)
RX-475	Mobile Station Features - change request, GSM 02.07 v 3.3.0 QBB221624 – 221639	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-476	Discontinuous Reception (DRX) in the GSM System, GSM 03.13 v 3.0.2 QBB221724 – 221728	Invalidity, '311 patent Prior art, '311 patent	Pautet Proakis	Admitted (03/21/2006)
RX-477	Recommendation GSM 04.08 - Mobile Radio Interface Layer 3 Specification, GSM 04.08 v 3.3.1 QBB221819 – 222314	Invalidity, '311 patent Prior art, '311 patent	Pautet Proakis	Admitted (03/21/2006)
RX-478	Service Accessibility - Change Request, GSM 02.11 v 4.4.0, Tdoc 195/93 QBB222315 – 222319	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-479	List of Change Requests presented to SMG plenary no 6, rev 1, Tdoc 305/93 QBB222333 – 222346	Prior art, '983 patent	Proakis	Admitted (03/21/2006)
RX-480				Withdrawn
RX-481				Withdrawn
RX-482				Withdrawn
RX-483	Service Accessibility, GSM 02.11 v 4.3.0 QBB733353 – 733383	Invalidity, '311 patent Prior art, '983 patent	Pautet Proakis	Admitted (03/21/2006)
RX-484	Man-machine Interface of the Mobile Station, GSM 02.30 v 3.5.0 QBB738644 – 738665	Invalidity, '311 patent Prior art, '983 patent	Pautet	Admitted (03/21/2006)
RX-485	Samsung Electronics SGH-Z500 manual QBD038363 – 038452	Non-infringement, '983 patent	By motion	Admitted (03/21/2006)
RX-486	Samsung website printout QBD042269 – 042296	Non-infringement, '983 patent	By motion	Admitted (03/21/2006)
RX-487	U.S. Patent No. 4,189,677, Cooper et al, "Demodulator Unit for Spread Spectrum Apparatus Utilized in a Cellular Mobile Communication System" QBD038346 – 038362	Claim Construction, '983 patent	Self-authenticating	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-488	U.S. Patent No. 4,222,115, Cooper et al, "Spread Spectrum Apparatus for Cellular Mobile Communication Systems" QBD038453 – 038471	Claim Construction, '983 patent	Self-authenticating	Admitted (03/21/2006)
RX-489				Withdrawn
RX-490				Withdrawn
RX-491C	CDMA Digital CAI Standard, Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Draft Rev. 0, dated 7/31/1990 QBB138614 – 138832	Prior art, '983 and '311 patents Invalidity; '311 patent	Tiedemann Proakis Hutchison	Admitted (03/13/2006)
RX-492C	CDMA Digital CAI Standard, Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Draft Rev. 1 QBB138833 – 139249	Prior art, '983 and '311 patents	Tiedemann	Admitted (03/13/2006)
RX-493C	CDMA Digital CAI Standard, Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Draft Rev. 1.1 QBB139250 – 139858	Prior art, '983 and '311 patents	Tiedemann	Admitted (03/13/2006)
RX-494C	CDMA Digital CAI Standard, Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Rev. 1.11 QBB139859 – 140456	Prior art, '983 patent	Tiedemann	Admitted (03/13/2006)
RX-495C	Proposed EAI/TIA Standard, Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Rev. 1.12 QBB140457 – 141242	Prior art, '983 patent	Tiedemann	Admitted (03/13/2006)
RX-496C	Proposed EAI/TIA Standard, Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Rev. 1.13 QBB141243 – 141938	Prior art, '983 patent	Tiedemann	Admitted (03/13/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-497C	Proposed EAI/TIA Interim Standard, Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station-Base Station Compatibility Standard, Rev. 1.14 QBB141939 – 142697	Prior art, '983 patent	Tiedemann Proakis	Admitted (03/13/2006)
RX-498C	Collection of 2/7/91 letters from Ed Tiedemann QBB230238 – 230247	Prior art, '983 and '311 patents	Tiedemann	Admitted (03/13/2006)
RX-499C	Collection of 12/20/90 letters from Ed Tiedemann QBB230249 – 230258	Prior art, '983 and '311 patents	Tiedemann	Admitted (03/13/2006)
RX-500C	Spreadsheet entitled "CAI Review Responses" QBB229955 – 229959	Prior art, '983 and '311 patents	Tiedemann	Admitted (03/13/2006)
RX-501C	12/26/91 email from Qualcomm employee Nathan Wilson to Qualcomm employee Franklin Antonio QBB231147	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-502C	2/13/92 draft email from Qualcomm employee Paul Williamson to Qualcomm employee Ken Easton QBB231149 – 231151	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-503C	2/13/92 email from Qualcomm employee Paul Williamson to Qualcomm mailing list "cdma.portable" QBB231152 – 231154	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-504C	2/13/92 email from Qualcomm employee Ken Easton to multiple Qualcomm employees QBB231148	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-505C	2/14/92 series of emails among Qualcomm employees Franklin Antonio, Paul Williamson, Nathan Wilson, Paul Jacobs, Sherman Gregory, A. Ross, and Jim Hutchison QBB231155 – 231176	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-506C	2/18/92 email from Qualcomm employee Nathan Wilson to Qualcomm employee Jim Hutchison and cc'ing other Qualcomm employees QBB231177	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-507C	2/19/92 email from Qualcomm employee Nathan Wilson to Qualcomm employee Paul Williamson QBB231179	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-508C	3/3/92 series of emails among Qualcomm employees Paul Williamson, Ilan Peer, and Jeff Levin QBB231180 - 231185	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-509C	3/4/92 email from Qualcomm employee Jim Hutchison to Qualcomm employee Nathan Wilson and Qualcomm mailing list "cdma.portable" QBB231187	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-510C	3/9/92 email from Qualcomm employee Nathan Wilson to Qualcomm employee Jim Hutchison QBB231186	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-511C	4/8/92 series of emails among Qualcomm employees Ken Easton, Paul Williamson, and Jim Hutchison QBB231188 - 231190	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-512C	5/20/92-5/21/92 series of emails among Qualcomm employees Ken Easton, Paul Williamson, Nathan Wilson, and East Hackney and cc'ing other Qualcomm employees QBB231191 - 231195	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-513C	6/1/92 email from Qualcomm employee Jeff Levin to a group of Qualcomm employees QBB231196 - 231197	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-514C	6/12/92 email authored by Qualcomm employee Paul Williamson QBB133225	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-515C	7/31/92 email from Qualcomm employee Paul Williamson QBB133226	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-516C	8/17/92 email from Qualcomm employee Roberto Padovani to Qualcomm employee Paul Williamson QBB231198 – 231199	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-517C	8/18/92 email from Qualcomm employee Roberto Padovani to Qualcomm employee Paul Williamson QBB231200	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-518C	9/1/92 email from Qualcomm employee Ken Easton to a group of Qualcomm employees QBB231201	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-519C	9/29/92 email from Qualcomm employee Dan Kindred to Qualcomm employee Dave Collins QBB231202	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-520C	10/3/92 email from Qualcomm employee Paul Williamson QBB237637	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-521C	10/19/92 email from Qualcomm employee Nathan Wilson to a group of Qualcomm employees QBB231203	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-522C	3/31/93 email from Qualcomm employee Jan Ault to a group of other Qualcomm employees QBB133228 – 133229	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/13/2006)
RX-523C	5/18/93 email from Qualcomm employee Tim Rueth to a group of Qualcomm employees QBB231204 – 231205	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-524C	8/22/93 series of emails between Qualcomm employees Paul Williamson and Jim Hutchison QBB231206 – 231208	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-525C	8/23/93 email from Qualcomm employee Jim Hutchison to Qualcomm employee Paul Williamson QBB133233	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-526C	9/16/93 email from Qualcomm employee Rick Kornfeld to a group of Qualcomm employees QBB133234	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-527C	10/2/93 email from Qualcomm employee Gwain Bayley to Qualcomm employees Jim Hutchison and Paul Williamson QBB133235	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-528C	11/16/93 email from Qualcomm employee Jim Hutchison to Qualcomm employee Paul Williamson QBB133236	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-529C	11/30/93 email from Qualcomm employee Albert Ludwin to Qualcomm employees, as pasted in a notebook kept by Jan Ault QBB158986 – 158987	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-530C	12/13/93 email from Qualcomm employee Jim Hutchison to Qualcomm employees QBB133239	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-531C	1/10/94 email from Qualcomm employee Tim Rueth to another Qualcomm employee QBB133240	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-532C	1/17/94 email from Qualcomm employee Jim Hutchison to a group of Qualcomm employees QBB133241	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-533C	2/2/94 email from Qualcomm employee Jim Hutchison to a group of Qualcomm employees QBB133242	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-534C	2/2/94 email from Qualcomm employee Michael Coad to a group of Qualcomm employees QBB133243	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-535C	2/22/94 email from Qualcomm employee Jim Willkie to Phil Karn QBB231209	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-536C	2/24/94 email from Qualcomm employee Tim Rueth to a group of Qualcomm employees QBB231210 - 231211	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-537C	4/21/94 email from Robbin Hughes to Gwain Bayler QBB133245 - 133246	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-538C	7/15/94 email to multiple Qualcomm employees QBB231212 - 231215	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-539C	7/25/94 email from Qualcomm employee Dave Werner to a group of other Qualcomm employees QBB231216 - 231217	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-540C	8/4/94 email from Qualcomm employee Dennis Velte to Qualcomm employee Mike Coad QBB231218	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-541C	8/6/94 email from Qualcomm engineer Paul Williamson to Robin Hughes QBB231219	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-542C	10/11/94, chart and drawings recorded in Jan Ault's notebook QBB158997	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-543C	12/15/94 email from Qualcomm employee Jim Hutchison to Qualcomm employees Robbin Hughes and George Dao QBB511862	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-544C	2/14/95 email from Qualcomm employee Jim Hutchison to Qualcomm employee Rich Stewart QBB231220 – 231221	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-545C	3/2/95 email from Qualcomm employee Robbin Hughes to Qualcomm employee George Dao QBB528699	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-546C	Integration test plan QBB511857 – 511858	Invalidity, '983 patent	Hutchison Hughes	Admitted (03/13/2006)
RX-547C	3/2/95 to 3/3/95 series of emails between Qualcomm employees Robbin Hughes, Paul Williamson, and Jim Hutchison with Qualcomm employees Jan Ault and George Dao cc'ed QBB528700 – 528704	Invalidity, '983 patent	Hutchison Hughes	Admitted (03/13/2006)
RX-548C	3/3/95 email from Qualcomm employee Robbin Hughes QBB528705	Invalidity, '983 patent	Hutchison Hughes	Admitted (03/13/2006)
RX-549C				Withdrawn
RX-550C				Withdrawn
RX-551C	7/26/93 Engineering Weekly Report QBD000001 – 000033	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-552C	8/2/93 Engineering Weekly Report QBD000034 – 000076	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-553C	8/9/93 Engineering Weekly Report QBD000077 – 000120	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-554C	8/16/93 Engineering Weekly Report QBD000121 – 000164	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-555C	8/30/93 Engineering Weekly Report QBD000165 – 000215	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-556C	9/6/93 Engineering Weekly Report QBD000216 – 000263	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-557C	9/20/93 Engineering Weekly Report QBD000264 – 000302	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-558C	9/27/93 Engineering Weekly Report QBD000303 – 000339	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-559C	10/4/93 Engineering Weekly Report QBD000340 – 000377	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-560C	10/11/93 Engineering Weekly Report QBD000378 – 000424	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-561C	10/25/93 Engineering Weekly Report QBD000425 – 000464	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-562C	11/1/93 Engineering Weekly Report QBD000501 – 000546	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-563C	11/8/93 Engineering Weekly Report QBD000547 – 000592	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-564C	11/15/93 Engineering Weekly Report QBD000593 – 000612	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-565C	11/22/93 Engineering Weekly Report QBD000613 – 000648	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-566C	12/6/93 Engineering Weekly Report QBD000650 – 000695	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-567C	12/13/93 Engineering Weekly Report QBD000696 – 000734	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-568C	12/20/93 Engineering Weekly Report QBD000735 – 000775	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-569C	1/10/94 Engineering Weekly Report QBD000776 – 000824	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-570C	1/17/94 Engineering Weekly Report QBD000825 – 000857	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-571C	1/24/94 Engineering Weekly Report QBD000869 – 000904	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-572C	1/31/94 Engineering Weekly Report QBD000905 – 000943	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-573C	2/7/94 Engineering Weekly Report QBD000944 – 000983	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)
RX-574C	2/14/94 Engineering Weekly Report QBD000984 – 001026	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-575C	2/28/94 Engineering Weekly Report QBD001027 – 001062	Invalidity, '983 patent	Hutchison Hughes Proakis	Admitted (03/13/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-576C	4/4/94 Engineering Weekly Report QBD001063 – 001111	Invalidity, '983 patent	Hutchison Proakis	Admitted (03/21/2006)
RX-577C	4/11/94 Engineering Weekly Report QBD001114 – 001160	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-578C				Withdrawn
RX-579C	7/11/94 Engineering Weekly Report QBD001202 – 001244	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RX-580C	7/18/94 Engineering Weekly Report QBD001245 – 001285	Invalidity, '983 patent	Hughes Proakis	Admitted (03/13/2006)
RX-581C	7/6/95 CDMA Idle State source code QBB234833 – 234890	Invalidity, '983 patent	Hughes	Admitted (03/13/2006)
RX-582C	7/6/95 System Determination source code QBB234891 – 235010	Invalidity, '983 patent	Hughes	Admitted (03/13/2006)
RX-583C	7/6/95 Searcher Task -- Deep Sleep State source code QBB 235011 – 235025	Invalidity, '983 patent	Hughes	Admitted (03/13/2006)
RX-584C	7/6/95 Searcher Task -- Sleep State source code QBB 235026 – 235068	Invalidity, '983 patent	Hughes	Admitted (03/13/2006)
RX-585	File History of U.S. Patent Application Serial No. 08/114,872 QBB220620 – 221242	Priority date, '983 patent	Self- authenticating	Admitted (03/21/2006)
RX-586	File History of U.S. Patent Application Serial No. 08/487,609 BCMITC0000792166 – 0000792658	Priority date, '983 patent	Self- authenticating	Admitted (03/21/2006)
RX-587	File History of U.S. Patent Application Serial No. 07/898,908 BCMITC0000793254 – 0000793367	Priority date, '983 patent	Self- authenticating	Admitted (03/21/2006)
RX-588	File History of U.S. Patent Application Serial No. 08/071,555 QBE001202 – 001329	Priority date, '983 patent	Self- authenticating	Admitted (03/21/2006)
RX-589	File History of U.S. Patent Application Serial No. 08/107,470 QBE001377 – 001427	Priority date, '983 patent	Self- authenticating	Admitted (03/21/2006)
RX-590	File History of U.S. Patent Application Serial No. 08/097,462 (U.S. Patent No. 5,590,346) BCMITC0000789405 – 0000789530	Priority date, '983 patent	Self- authenticating	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-592	<u>Agere v. Broadcom</u> July 20, 2004, Memorandum & Order BCMITC00000256573 – 00000256667	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-593	IEEE Strd 802.11, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications (June 26, 1997) QBB733389 – 733854	Invalidity, '311 patent	Proakis	Admitted (02/16/2006)
RX-594				Withdrawn
RX-595				Withdrawn
RX-596				Withdrawn
RX-597				Withdrawn
RX-598	John Haine, "A New Radio Access Protocol and Network Architecture for Mobile Packet Data," 1991 IEEE Vehicular Technology Conference, (May 19 -21, 1991) QBB234770 – 234778	Prior art, '311 patent Invalidity, '311 patent	Proakis Carter	Admitted (03/21/2006)
RX-599C				Withdrawn
RX-600C	CDMA 2000 High Rate Packet Data Air Interface Specification, TIA-856-A QBB002381 – 003379	Non-Infringement, '311 patent Invalidity, '311 patent	Grog Andrus Proakis	Admitted (02/21/2006)
RX-601C				Withdrawn
RX-602C				Withdrawn
RX-603	"To Send or not to Send: Implementing Deferred Transmissions in a Mobile Host," Badrinath et al QBB217879 – 217885	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-604	"Improving reliable transport and handoff performance in cellular wireless networks," Balakrishnan QBB217886 – 217898	Invalidity, '311 patent	Proakis	Admitted (02/16/2006)
RX-605	"Group-based multicast and dynamic membership in wireless networks with incomplete spatial coverage," Bartoli QBB217899 – 217912	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-606	"Fast and scalable wireless handoffs in support of mobile Internet audio," Caceras et al QBB217927 – 217939	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-607	"Fast and Scalable Handoffs for Wireless Internetworks," Caceras et al QBB217940 – 217950	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-608	"The Effects of Mobility on Reliable Transport Protocols," Caceras et al QBB615807 – 615815	Invalidity, '311 patent	Proakis	Admitted (02/16/2006)
RX-609	"A Cellular IP Testbed Demonstrator," Campbell et al QBB217962 – 217965	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-611	"Evaluation of Different Handoff Schemes for Cellular IP," Ghassemian et al QBB218032 – 218079	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-612	"Composable ad hoc location-based services for heterogeneous mobile clients," Hodes et al QBB218098 – 218114	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-613				Withdrawn
RX-613A	"IP-based Protocols for Mobile Internetworking," Ioannidis et al as published in the September 1991 Proceedings of ACM SIGCOMM QBB218962 - 218972	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-614	"The Design and Implementation of a Mobile Internetworking Architecture," Ioannidis et al QBB218126 – 218137	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-615	"A Fast Handoff Scheme for Wireless Networks," Tan et al QBB218286 – 218293	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RX-616	"DDR-Distributed Dynamic Routing Algorithm for Mobile Ad hoc Networks," Nikaiein et al QBB218305 – 218313	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-617	"Low-Latency Handoff for Cellular Data Networks," Seshan QBB218369 – 218552	Invalidity, '311 patent Claim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RX-618	"Architecture and Performance of an Indoor Wireless Access Communications System Using Balanced-DCA," Sollenberger QBB733384 – 733388	Invalidity, '311 patent Claim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RX-619	"Vertical Handoffs in Wireless Overlay Networks," Stemm QBB218553 – 218581	Invalidity, '311 patent Claim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RX-620	"On Providing Support for Protocol Adaptation in Mobile Wireless Networks," Sudame et al QBB218582 – 218594	Invalidity, '311 patent Claim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RX-621	"MobiCast: A multicast scheme for wireless networks," Tan et al QBB218595 - 218607	Invalidity, '311 patent Claim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RX-622	"A hybrid handover protocol for local area wireless ATM network," Toh QBB218628 – 218649	Invalidity, '311 patent Claim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RX-623	U.S. Patent No. 5,329,531 QBB152042 – 152061	Invalidity, '311 patent Claim Construction, '983 patent	Proakis	Admitted (03/21/2006)
RX-624	"On the Analysis of Cellular IP Access Networks," Valko et al. QBB218655 – 218672	Invalidity, '311 patent Claim Construction, '983 patent	Proakis	Admitted (03/21/2006)
RX-625	PLL Driver Source Code QBB457937 – 459352	Non-infringement, '675 patent	Reeves	Admitted (03/15/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-626C				Withdrawn
RX-627C	ZIFTIC Zero IF Transmit Integrated Circuitry Objective Specification, 80-V322-1, Rev. X7 [RFT6100 / RFT6102] QBB346208 – 346274	Non-infringement, '675 patent	Dunworth	Admitted (03/15/2006)
RX-628C	RFT6150 Objective Specification 80-V78310-19 Rev. A [RFT6150] QBB092640 – 092688	Non-infringement, '675 patent	Dunworth Reeves	Admitted (03/15/2006)
RX-629C	GZIFTRIC GSM Zero IF Transceiver Integrated Circuit with CDMA Zero-IF Transmit Integrated Circuit Objective Specification, 80-V2905-1 X12 [RTR6200 / RTR6300] QBD039544 – 039668	Non-infringement, '675 patent	Reeves	Admitted (03/15/2006)
RX-630C	GZIFTRIC2: Quad-band GSM ZIF Tx/Rx IC with UMTS ZIF Tx IC Objective Specification, 80-V4412-10 QBB732820 – 732890	Non-infringement, '675 patent	Dunworth	Admitted (03/15/2006)
RX-631C	GZIFTRIC Schematics [RTR6200 / RTR6300] QBB076782 – 077232	Non-infringement, '675 patent	Dunworth Gutierrez	Admitted (03/21/2006)
RX-632C	CZIFTIC Schematics [RFT6120] QBB095524 – 095714	Non-infringement, '675 patent	Dunworth Gutierrez	Admitted (03/21/2006)
RX-633C	Maserati Schematics [RFT6150] QBB095715 – 095911	Non-infringement, '675 patent	Dunworth Gutierrez	Admitted (03/21/2006)
RX-634C	Pioneer Schematics [RFT6170] QBB095912 – 096113	Non-infringement, '675 patent	Dunworth Gutierrez	Admitted (03/21/2006)
RX-635C	GZIFTRIC2 Schematics [RTR6250] QBB096114 – 096639	Non-infringement, '675 patent	Dunworth Gutierrez	Admitted (03/21/2006)
RX-636C				Withdrawn
RX-637	File history of USSN 08/545,108 QBE000541 – 000924	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-638	File history of USSN 08/395,555 QBE001568 – 001740	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-639	File history of USSN 08/410,592 QBE002189 – 002369	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-640	File history of USSN 08/255,848 QBE001428 – 001567	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-641	File history of USSN 07/802,348 QBE000288 – 000540	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-642	File history of USSN 07/907,927 QBE002370 – 003310	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-643	File history of USSN 07/857,603 QBE000925 – 001151	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-644	PCT-US92-08610 WO9307691 QBE001330 – 001376	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-645	File history of USSN 07/769,425 QBE001741 – 002139	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-646	File history of USSN 07/790,946 QBE002140 – 002188	Priority, '311 patent	Self-authenticating	Admitted (03/21/2006)
RX-647	Proposed EIA/TIA Interim Standard Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station – Base Station Compatibility Standard QBB001600 – 002380	Prior art, '311 and '983 patents	Tiedemann	Admitted (03/13/2006)
RX-648				Withdrawn
RX-649				Withdrawn
RX-650				Withdrawn
RX-651				Withdrawn
RX-652	Third Annual International Mobile Data Conference QBB568750 – 568755	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-653				Withdrawn
RX-654	Physical Layer on the Radio Path: General Description, GSM 05.01 v 3.2.0, dated 5/1/1988 QBB233726 – 233740	Invalidity, '311 patent	Pautet Proakis	Admitted (03/21/2006)
RX-655				Withdrawn
RX-656				Withdrawn
RX-657				Withdrawn
RX-658				Withdrawn
RX-659				Withdrawn
RX-660	1991 Mobile Data World, Washington, DC QBB563841 – 564130	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-661	RAM Mobile Data launch conference pamphlet QBB567165 – 567166	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-662	RAM Mobile Data launch conference pamphlet QBB568820 – 568821	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-663	RAM Mobile Data launch conference pamphlet QBB564200 – 564201	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-664				Withdrawn
RX-665				Withdrawn
RX-666				Withdrawn
RX-667				Withdrawn
RX-668				Withdrawn
RX-669				Withdrawn
RX-670	The Mobitex Terminal Specification, Robert Fraser (Reprinted from Communications, July 1991 and August 1991) QBB568661 – 568666	Invalidity, '311 patent	Fraser	Admitted (03/16/2006)
RX-671				Withdrawn
RX-672				Withdrawn
RX-673				Withdrawn
RX-674				Withdrawn
RX-675				Withdrawn
RX-676				Withdrawn
RX-677				Withdrawn
RX-678				Withdrawn
RX-680				Withdrawn
RX-681				Withdrawn
RX-682				Withdrawn
RX-683				Withdrawn
RX-685				Withdrawn
RX-686				Withdrawn
RX-687				Withdrawn
RX-688				Withdrawn
RX-689				Withdrawn
RX-690	Craninckx et al., "A Fully Integrated CMOS DCS-1800 Frequency Synthesizer," <u>Proceedings of 1998 IEEE Int'l Solid State Circuits Conference</u> QBB233399 – 233410	Non-infringement, '675 patent	Gutierrez	Admitted (03/21/2006)
RX-691				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-692				Withdrawn
RX-693				Withdrawn
RX-694	Kral et al., "RF-CMOS Oscillators with Switched Tuning," <u>Proc. of Custom IC Conf.</u> QBB233479 – 233482	Invalidity, '675 patent	Gutierrez	Admitted (03/21/2006)
RX-695				Withdrawn
RX-696				Withdrawn
RX-697				Withdrawn
RX-698				Withdrawn
RX-699				Withdrawn
RX-700				Withdrawn
RX-701				Withdrawn
RX-702				Withdrawn
RX-703				Withdrawn
RX-704				Withdrawn
RX-705				Withdrawn
RX-706				Withdrawn
RX-707				Withdrawn
RX-708				Withdrawn
RX-709	Yang et al., "A Low Jitter 0.3-165 MHz CMOS PLL Frequency Synthesizer for 3 V/5 V Operation," <u>IEEE J. of Solid-State Circuits</u> , vol.32 no.4 QBB732922 – 732926	Invalidity, '675 patent	Gutierrez	Admitted (03/21/2006)
RX-710C				Withdrawn
RX-711C				Withdrawn
RX-712C				Withdrawn
RX-713C				Withdrawn
RX-714C				Withdrawn
RX-715C				Withdrawn
RX-716C				Withdrawn
RX-717C				Withdrawn
RX-718C				Withdrawn
RX-719				Withdrawn
RX-720				Withdrawn
RX-721				Withdrawn
RX-722				Withdrawn
RX-723				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-724				Withdrawn
RX-725				Withdrawn
RX-726C				Withdrawn
RX-764				Withdrawn
RX-765				Withdrawn
RX-766				Withdrawn
RX-767				Withdrawn
RX-768				Withdrawn
RX-769				Withdrawn
RX-827C	Witness Statement of Sanjay Jha	Pre-Trial Inquiry Litigation Background Claim Construction Evidence of Notice	Jha	Admitted (03/21/2006)
RX-828	Witness Statement of Marie-Bernadette Pautet	Invalidity, '311 patent Prior art, '983 and '311 patents Non-infringement, '983 patent	Pautet	Admitted (03/15/2006)
RX-829				Withdrawn
RX-830	Witness Statement of Ed Tiedemann	Prior art, '983 and '311 patents Invalidity, '311 patent	Tiedemann	Admitted (02/21/2006)
RX-831C	Witness Statement of James Hutchison	Invalidity, '983 patent	Hutchison	Admitted (03/13/2006)
RX-832C	Witness Statement of Robbin Hughes	Invalidity, '983 patent	Hughes	Admitted (02/21/2006)
RX-833C	Witness Statement of Robert Reeves	Non-infringement, '675 patent	Reeves	Admitted (03/13/2006)
RX-838C	Witness Statement of John Proakis	Prior art, '311 and '983 patents Invalidity, '311 and '983 patents Expert qualification Priority, '311 and '983 patents Claim Construction, '311 and '983 patents	Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-839C	Witness Statement of German Gutierrez	Invalidity, '675 patent Expert qualification Non-infringement, '675 patent	Gutierrez	Admitted (03/14/2006)
RX-841C	Witness Statement of Stephen Kunin	Priority, '983 patent Expert qualification	Kunin	Rejected (2/15/2006)
RX-842C				Withdrawn
RX-843C	Witness Statement of Matthew Grob	Non-infringement, '311 patent	Grob	Admitted (02/21/2006)
RX-844C	Witness Statement of Jeremy Dunworth	Non-infringement, '675 patent	Dunworth	Admitted (03/13/2006)
RX-846	Witness Statement of Robert Fraser	Prior Art, '311 patent Invalidity, '311 patent	Fraser	Admitted (03/13/2006)
RX-849C	CDMA Dual-Mode Cellular Telephone Service Programming Manual, for CD-3000, CD-7000 and PCS Cellular Telephones, Document # 80-10041, Rev x2 QBD059386 – 059425	Invalidity, '983 patent	Hughes	Rejected (02/14/2006)
RX-850C	CDMA Dual-Mode Cellular Telephone Service Programming Manual, for CD-3000, CD-7000 and PCS Cellular Telephones, Document # 80-10041, Rev x3 QBD059426 – 059466	Invalidity, '983 patent	Hughes	Rejected (02/14/2006)
RX-851C	CDMA Dual-Mode Cellular Telephone Service Programming Manual, for CD-3000, CD-7000 and PCS Cellular Telephones, Document # 80-10041, Rev x4 QBD059326 – 059380	Invalidity, '983 patent	Hughes	Rejected (02/14/2006)
RX-859C	Email from J. Dunworth to bcwalker re: Kv trimming with charge pump current with attachment, dated 12/05/2000 QBB077254 – 077256	Non-infringement, '675 patent	Dunworth	Admitted (03/15/2006)
RX-861C				Withdrawn
RX-862				Withdrawn
RX-863				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-864				Withdrawn
RX-865				Withdrawn
RX-866				Withdrawn
RX-867				Withdrawn
RX-868				Withdrawn
RX-869				Withdrawn
RX-870				Withdrawn
RX-871				Withdrawn
RX-874				Withdrawn
RX-875				Withdrawn
RX-876				Withdrawn
RX-877				Withdrawn
RX-878				Withdrawn
RX-879				Withdrawn
RX-880C				Withdrawn
RX-881C				Withdrawn
RX-886				Withdrawn
RX-890	Technical Realization of the Short Message Service - Point-to-Point, GSM 03.40 v 3.5.0 QBB154984 - 155089	Invalidity, '311 patent	Pautet Proakis	Admitted (03/21/2006)
RX-891C	GZIFTRIC: SBI, Control and Test Definition Document, 80-V4412-11 Rev. C, 11/09/2004 QBB090084 - 090150	Non-infringement, '675 patent	Reeves Dunworth	Admitted (03/15/2006)
RX-894C				Withdrawn
RX-895	CV of John Proakis	Expert qualification	Proakis	Admitted (03/21/2006)
RX-904C				Withdrawn
RX-905C				Withdrawn
RX-906C				Withdrawn
RX-907C				Withdrawn
RX-908C				Withdrawn
RX-909C				Withdrawn
RX-910				Withdrawn
RX-911				Withdrawn
RX-912C				Withdrawn
RX-913C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-914	Merriam-Webster's Collegiate Dictionary: Definition of Enable QBE003356 – 003358	Claim construction, '983 patent	By motion	Admitted (03/21/2006)
RX-915	IEEE Standard Dictionary of Electrical and Electronics Terms: Definition of Data QBE003359 – 003361	Claim construction, '983 patent	By motion	Admitted (03/21/2006)
RX-916	IEEE Standard Dictionary of Electrical and Electronics Terms: Definition of Analog Data QBE003362 – 003364	Claim construction, '983 patent	By motion	Admitted (03/21/2006)
RX-917	Wireless Dictionary: Definition of Data Transmission QBE003365 – 003367	Claim construction, '983 patent	By motion	Admitted (03/21/2006)
RX-918				Withdrawn
RX-919				Withdrawn
RX-920				Withdrawn
RX-921C				Withdrawn
RX-922C	Rebuttal Witness Statement of John Proakis	Rebuttal to Ray Nettleton	Proakis	Admitted (03/21/2006)
RX-923C	Rebuttal Witness Statement of German Gutierrez	Rebuttal to Linda Milor	Gutierrez	Admitted (03/15/2006)
RX-925C				Withdrawn
RX-926				Withdrawn
RX-927C				Withdrawn
RX-928				Withdrawn
RX-929				Withdrawn
RX-930				Withdrawn
RX-931	Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station - Base Station Compatibility Standard, EIA/TIA/IS-95 QBD062286 – 062954	Prior art, '983 patents	Tiedemann	Rejected (02/15/2006)
RX-932	Stan Gibilisco's The Illustrated Dictionary of Electronics, Eight Edition, pages 27 and 164	Claim construction, '983 patent	Nettleton Proakis	Admitted (02/16/2006)
RX-933	IEEE Standard Dictionary of Electrical and Electronics Terms, Third Edition, page 225	Claim construction, '983 patent	Nettleton Proakis	Admitted (02/16/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-934C	Deposition of Linda Milor, pages 153-155 and errata sheets	Non-infringement and impeachment of Dr. Milor	Milor	Admitted (02/17/2006)
RX-935	Library of Congress copy of Proposed EIA/TIA Interim Standard Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station – Base Station Compatibility Standard, stamped 05/07/1992	Invalidity, '983 and '311 patents	Tiedemann Proakis	Admitted (03/13/2006)
RX-936	Copy of Receipt Stamp from Library of Congress copy of Proposed EIA/TIA Interim Standard Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station – Base Station Compatibility Standard	Invalidity, '983 and '311 patents	Tiedemann	Admitted (03/13/2006)
RX-937	Library of Congress, Copyright Office of the United States, additional certificate of registration of a claim to copyright for the Proposed EIA-TIA Interim Standard, copyright registered under number TX 3 317 581	Invalidity, '983 and '311 patents	Self-authenticating	Rejected (03/14/2006)
RX-938	University of California-San Diego copy of Proposed EIA/TIA Interim Standard Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station – Base Station Compatibility Standard	Invalidity, '983 and '311 patents	Proakis	Rejected (03/14/2006)
RX-939C	DMSS6050 Software Agreement between Qualcomm Incorporated and Samsung Electronics Co. Including the MSM6100 Amendment	Non-infringement, '983 patent	Ahn	Admitted (03/21/2006)
RX-940C	AMSS6500 Software Agreement between Qualcomm Incorporated and Samsung Electronics Co.	Non-infringement, '983 patent	Ahn	Admitted (03/21/2006)
RX-941C				Withdrawn
RX-942C	DMSS6300 Software Agreement between Qualcomm Incorporated and Samsung Electronics Co.	Non-infringement, '983 patent	Ahn	Admitted (03/21/2006)
RX-943				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-944	UCSD Libraries catalog record for Proposed EIA/TIA interim standard: wideband spread spectrum digital cellular system dual-mode mobile station, base station compatibility standard	Invalidity, '983 and '311 patents	Proakis	Rejected (03/14/2006)
RX-945	Declaration of Tony A. Harvell in support of publication of April 21, 1992 Bluebook	Invalidity, '983 and '311 patents	By motion	Rejected (03/14/2006)
RX-946	Declaration of Walker Young in support of publication of April 21, 1992 Bluebook	Invalidity, '983 and '311 patents	By motion	Rejected (03/14/2006)
RX-947	Declaration of David Strain in support of publication of April 21, 1992 Bluebook	Invalidity, '983 and '311 patents	By motion	Rejected (03/14/2006)
RX-948	Hargrave's Communications Dictionary, pp. 135 and 497	Claim Construction, '983 and '311 patents	Nettleton	Admitted (03/21/2006)
RX-949C	Sprint Devices Launched From 1/1/03 Until Present, SN00019 – SN00020	Remedy Non-infringement, '311 patent	Finnerty	Admitted (03/21/2006)
RX-950	Letter from Peter Mcandrews to Brian Fagel re Sprint Nextel Subpoena, dated 12/07/2005	Remedy Non-infringement, '311 patent	Finnerty	Admitted (03/21/2006)
RX-951C	Vendor Unit and Dollar Summary SN0012519	Remedy Non-infringement, '311 patent	Finnerty	Admitted (03/21/2006)
RX-952	Sprint Document Entitled: Sprint Begins Launch Of Ev-Do Wireless High-Speed Data Service SN0012517 - SN0012518	Remedy	Finnerty	Admitted (03/21/2006)
RX-953C				Withdrawn
RX-954C	Proffer of Respondent Qualcomm, Inc. Concerning Evidence of "Single-Reference"-Type Obviousness of the Dependent Claims of U.S. Patent No. 6,714,983	Proffer		Proffer

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-955	Qualcomm's Bench Memorandum in Support of Its Request for Judicial Notice of Facts Involving the Publication of Trial Exhibit RX-647 and to Admit the Supporting Documents into Evidence	Proffer		Proffer
RX-956	Photographs of University of California-San Diego copy of Proposed EIA/TIA Interim Standard Wideband Spread Spectrum Digital Cellular System Dual-Mode Mobile Station - Base Station Compatibility Standard	Proffer		Proffer

PHYSICAL EXHIBITS

Exhibit No.	Title	Purpose	Sponsoring Witness	Status
RPX-1	CD-7000	'983 – invalidity	Hutchison	Admitted (03/21/2006)
RPX-2C				Withdrawn
RPX-3	QCP-800 mobile phone with wall power adapter	'983 – invalidity	Hutchison	Admitted (03/21/2006)
RPX-11C				Withdrawn
RPX-12C				Withdrawn
RPX-14C				Withdrawn
RPX-15C				Withdrawn
RPX-16C				Withdrawn
RPX-17C				Withdrawn
RPX-18C				Withdrawn
RPX-19C				Withdrawn
RPX-20C				Withdrawn
RPX-21C				Withdrawn
RPX-22C				Withdrawn
RPX-23C				Withdrawn
RPX-24C				Withdrawn
RPX-25C				Withdrawn
RPX-26C				Withdrawn
RPX-27C				Withdrawn
RPX-28C				Withdrawn
RPX-29C				Withdrawn
RPX-30C				Withdrawn
RPX-32C				Withdrawn
RPX-33C				Withdrawn
RPX-34C				Withdrawn
RPX-35C				Withdrawn
RPX-36C				Withdrawn
RPX-37C				Withdrawn
RPX-38C				Withdrawn
RPX-39C				Withdrawn
RPX-40C				Withdrawn
RPX-41C				Withdrawn
RPX-42				Withdrawn
RPX-43				Withdrawn
RPX-44				Withdrawn
RPX-45				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Status
RPX-46	Norand 1100 data terminal and radio modules	Background Claim construction	Proakis	Rejected (03/20/2006)

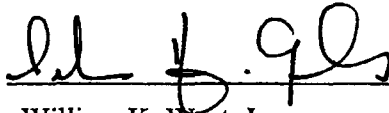
DEMONSTRATIVE EXHIBITS

Exhibit No.	Title	Purpose	Sponsoring Witness	Status
RDX-31C				Withdrawn
RDX-32C				Withdrawn
RDX-33C				Withdrawn
RDX-34C				Withdrawn
RDX-35C				Withdrawn
RDX-36C				Withdrawn
RDX-37C				Withdrawn
RDX-38C				Withdrawn
RDX-39C				Withdrawn
RDX-40C				Withdrawn
RDX-41C				Withdrawn
RDX-42C				Withdrawn
RDX-43C				Withdrawn
RDX-44C				Withdrawn
RDX-45C				Withdrawn
RDX-46C				Withdrawn
RDX-47C				Withdrawn
RDX-48C				Withdrawn
RDX-49C				Withdrawn
RDX-50C				Withdrawn
RDX-51C				Withdrawn
RDX-52C				Withdrawn
RDX-53C				Withdrawn
RDX-54C				Withdrawn
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RDX-56C				Withdrawn
RDX-57C				Withdrawn
RDX-58C				Withdrawn
RDX-59C				Withdrawn
RDX-60C				Withdrawn
RDX-61C				Withdrawn
RDX-62C				Withdrawn
RDX-63C				Withdrawn
RDX-64C				Withdrawn
RDX-65C				Withdrawn
RDX-66C				Withdrawn
RDX-67C				Withdrawn
RDX-68C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Status
RDX-69C				Withdrawn
RDX-74				Withdrawn
RDX-76	Background summary of the development of the art	Background	Proakis	Admitted (03/21/2006)
RDX-79	Background summary of the development of the art	Background	Proakis	Admitted (03/21/2006)
RDX-80	Summary of opinions re invalidity of '983 patent	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-81	Summary of states of operation of Qualcomm's prior art CDMA system as described in CDMA CAI Rev. 0	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-82	Animated demonstration of operation of Qualcomm's prior art CDMA system	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-83C	Comparison of asserted claims with Qualcomm's prior art CDMA system	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-85C	Summary of dependent claims	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-87	Summary of asserted claims	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-88	Animated demonstration of operation of prior art GSM system	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-89	Animated demonstration of operation of prior art Moore patent	Invalidity, '983 patent	Proakis	Admitted (03/21/2006)
RDX-91	Summary of opinions re non-infringement of '983 patent	Non-infringement, '983 patent	Proakis	Admitted (03/21/2006)
RDX-92	Animated demonstration of operation of system described in '311 patent specification	Background	Proakis	Admitted (03/21/2006)
RDX-93	Summary of asserted claims and selected claim construction positions	Calim Construction, '311 patent	Proakis	Admitted (03/21/2006)
RDX-94	Summary of opinions re invalidity of '311 patent	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-95	Animated demonstration of operation of Mobitex prior art reference	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-96	Comparison of asserted claims with Mobitex prior art reference	Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-97	Summary of products accused of infringing the '311 patent	Non-infringement, '311 patent	Proakis	Admitted (03/21/2006)

Exhibit No.	Title	Purpose	Sponsoring Witness	Status
RDX-98C	Summary of EV-DO protocol in context of CDMA 2000 system and demonstration re the operation of the EV-DO protocol	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-99C	Animated demonstration of operation of selected portions of EV-DO protocol	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-100C	Animated demonstration of operation of an exemplary EV-DO scheduler	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-101	Summary of opinions re non-infringement of '311 patent	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-102	Animated demonstration of operation of selected portions of Qualcomm's prior art CDMA system as described in CDMA CAI Rev. 0	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-103	Demonstration of operation of selected portions of prior art GSM system	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-104C	Comparison of disclosure of prior art GSM system and prior art CDMA system with accused EV-DO protocol	Non-infringement, '311 patent Invalidity, '311 patent	Proakis	Admitted (03/21/2006)
RDX-106	Demonstrative illustrating operation of gain compensation circuit disclosed in '675 patent	Claim construction Non-infringement	Gutierrez	Admitted (03/21/2006)
RDX-107C	Demonstrative illustrating operation of accused Qualcomm PLL Circuitry	Non-infringement	Gutierrez	Admitted (03/21/2006)
RDX-109C	Demonstrative illustrating operation of Broadcom BCM 3415 parts	Invalidity	Gutierrez	Admitted (03/21/2006)

Respectfully submitted,



William K. West, Jr.
Cecilia H. Gonzalez
Bert C. Reiser
HOWREY LLP
1299 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 783-0800

Peter J. Chassman
HOWREY LLP
1111 Louisiana, 25th Floor
Houston, TX 77002-5242
(713) 787-1400

Christopher L. Kelley
HOWREY LLP
1950 University Avenue, 4th Floor
East Palo Alto, CA 94303
(650) 798-3500

Dated: April 3, 2006

Counsel for Respondent
Qualcomm Incorporated

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

Before Charles E. Bullock
Administrative Law Judge

In the Matter of

CERTAIN BASEBAND PROCESSOR CHIPS AND
CHIPSETS, TRANSMITTER AND RECEIVER
(RADIO) CHIPS, POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS

Inv. No. 337-TA-543

COMMISSION INVESTIGATIVE STAFF'S
FINAL EXHIBIT LIST
(March 21, 2006)

Exh. No.	Exhibit Title	Exhibit Purpose	Sponsoring Witness	Exhibit Status
SX-1	Excerpts from Modern Dictionary of Electronics at 150, 165, 166, 314, 551, 552, 594, 819, 835, 846 (7th ed. 1999)	Background and claim construction for '675 patent	By motion; Proakis	Admitted 3/17
SX-2	Excerpts from Academic Press Dictionary of Science and Technology at 234, 477, 478, 512, 1322, 1457, 1472, 1743, 1825, 2006, 2187 (1992)	Background and claim construction for '311, and '983 patents	By motion; Nettleton	Admitted 3/20
SX-3C	Fourth Supplemental Responses and Objections to the Staff's First Set of Interrogatories to Complainant Broadcom (1/23/2006)	Background, claim construction, infringement/non-infringement, invalidity, domestic industry, and remedy	By agreement	Admitted 3/21
SX-4	MSM 6125 Chipset Solution from Qualcomm website (January 24, 2006)	Background, infringement/non-infringement, remedy	Schwartz	Withdrawn

SX-5	Robert Goldscheider, John Jarosz and Carla Mulhern, <i>Use of the 25 Per Cent Rule in Valuing IP</i> , 37 les Nouvelles 123-33 (December 2002)	Remedy	Mulhern	Withdrawn
SX-6C	Verification for Complainant Broadcom Corporation's Fourth Supplemental Objections and Responses to the Staff's First Set of Interrogatories (SX-3C) (January 25, 2006)	Background, claim construction, infringement/non-infringement, invalidity, domestic industry, and remedy	By agreement	Admitted 3/21
SDX-1	Drawing of typical clock signal	Claim construction for '983 patent	Proakis	Admitted 3/17

Respectfully submitted,

/s/ Karin J. Norton

Lynn I. Levine, Director

T. Spence Chubb, Supervisory Attorney

Karin J. Norton, Investigative Attorney

Office of Unfair Import Investigations

U.S. International Trade Commission

500 E Street, S.W., Suite 401

Washington, D.C. 20436

(202) 205-2606

(202) 205-2158 (Facsimile)

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Charles E. Bullock
Administrative Law Judge**

Inv. No. 337-TA-543

In the Matter of

CERTAIN BASEBAND PROCESSOR CHIPS AND
CHIPSETS, TRANSMITTER AND RECEIVER
(RADIO) CHIPS, POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS

JOINT EXHIBIT LIST

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-3	U.S. Patent No. 6,374,311 B1; BCMITC0000238378 - 0000238396	Background; Infringement/Non-Infringement and Validity/Invalidity of '311	Proakis; Nettleton	Admitted (02/15/2006)
JX-4	U.S. Patent No. 6,583,675; BCMITC0000238508 - 0000238532	Background; Infringement/Non-Infringement and Validity/Invalidity of '675	Gutierrez; Milor	Admitted (02/15/2006)
JX-5	United States Patent No. 6,714,983 B1; BCMITC0000072238 - 0000072303	Background; Infringement/Non-Infringement and Validity/Invalidity of '983	Proakis; Nettleton	Admitted (02/15/2006)
JX-8	File history for U.S. Patent No. 6,374,311 B1; BCMITC0000071327 - 0000071665	Background; Infringement/Non-Infringement and Validity/Invalidity of '311	Proakis; Nettleton	Admitted (02/15/2006)
JX-9	File history for U.S. Patent No. 6,583,675; BCMITC0000073465-0000073972	Background; Infringement/Non-Infringement and Validity/Invalidity of '675	Gutierrez; Milor	Admitted (02/15/2006)
JX-10	File history for U.S. Patent No. 6,714,983; BCMITC0000071666 - 0000072401	Background; Infringement/Non-Infringement and Validity/Invalidity of '983	Proakis; Nettleton	Admitted (02/15/2006)

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-11	Amendment C from file history to U.S. patent no. 6,714,983; BCMITC0000072171 - 0000072201	Background; Infringement/Non-Infringement and Validity/Invalidity of '983	Proakis; Nettleton	Admitted (02/15/2006)
JX-12C	Deposition transcript designations and counter-designations for Jaesung Ahn (Samsung), dated 12/21/2005	Direct testimony and cross examination	Ahn	Admitted (03/21/2006)
JX-13C	NOT USED			
JX-14C	Deposition transcript designations and counter-designations for Don Andrus, dated 12/20/2005	Direct testimony and cross examination	Andrus	Admitted (03/21/2006)
JX-15C	Deposition transcript designations and counter-designations for James Anetsberger, dated 12/16/2005	Direct testimony and cross examination	Anetsberger	Admitted (03/21/2006)
JX-17C	Deposition transcript designations and counter-designations for Gregory Bullard, dated 12/7/2005	Direct testimony and cross examination	Bullard	Admitted (03/21/2006)
JX-19C	Deposition transcript designations and counter-designations for David Bush, dated 11/10/2005	Direct testimony and cross examination	Bush	Admitted (03/21/2006)
JX-21C	Deposition transcript designations and counter-designations for Jeremy Dunworth, dated 10/31/2005	Direct testimony and cross examination	Dunworth	Admitted (03/21/2006)
JX-23C	Deposition transcript designations and counter-designations for Timothy Froehling (Motorola), dated 12/7/2005	Direct testimony and cross examination	Froehling	Admitted (03/21/2006)
JX-24C	Deposition transcript designations and counter-designations for Matthew Grob, dated 11/29/2005	Direct testimony and cross examination	Grob	Admitted (03/21/2006)
JX-25C	Deposition transcript designations and counter-designations for Sanjay Jha, dated 1/11/2006	Direct testimony and cross examination	Jha	Admitted (03/21/2006)
JX-26C	Deposition transcript designations and counter-designations for Tim Johnson (Motorola), dated 12/14/2005	Direct testimony and cross examination	Johnson	Admitted (03/21/2006)
JX-28C	Deposition transcript designations and counter-designations for Steven Kohn, dated 12/1/2005	Direct testimony and cross examination	Kohn	Admitted (03/21/2006)

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-29C	Deposition transcript designations and counter-designations for Ganapathy Garish Konganda, dated 12/20/2005	Direct testimony and cross examination	Konganda	Admitted (03/21/2006)
JX-32C	Deposition transcript designations and counter-designations for Wayshing Lee, dated 11/30/2005	Direct testimony and cross examination	Lee	Admitted (03/21/2006)
JX-33C	Deposition transcript designations and counter-designations for Neil Levine (UTStarcom), dated 12/15/2005	Direct testimony and cross examination	Levine	Admitted (03/21/2006)
JX-34C	Deposition transcript designations and counter-designations for Marc Lubelski, dated 1/13/2006;	Direct testimony and cross examination	Lubelski	Admitted (03/21/2006)
JX-35C	Deposition transcript designations and counter-designations for Louis Lupin, dated 12/16/2005	Direct testimony and cross examination	Lupin	Admitted (03/21/2006)
JX-37C	Deposition transcript designations and counter-designations for Vincent Maduakor, dated 1/13/2006	Direct testimony and cross examination	Maduakor	Admitted (03/21/2006)
JX-38C	Deposition transcript designations and counter-designations for Steven Mollenkopf, dated 12/9/2005	Direct testimony and cross examination	Mollenkopf	Admitted (03/21/2006)
JX-40C	Deposition transcript designations and counter-designations for Upendra Patel, dated 12/9/2005	Direct testimony and cross examination	Patel	Admitted (03/21/2006)
JX-41C	Deposition transcript designations and counter-designations for Louis Pineda, dated 12/7/2005 and 12/13/2005	Direct testimony and cross examination	Pineda	Admitted (03/21/2006)
JX-42C	NOT USED			
JX-43C	Deposition transcript designations and counter-designations for Brian Redding, dated 11/30/2005	Direct testimony and cross examination	Redding	Admitted (03/21/2006)
JX-44C	Deposition transcript designations and counter-designations for Jim Reilly, dated 12/14/2005	Direct testimony and cross examination	Reilly	Admitted (03/21/2006)
JX-45C	Deposition transcript designations and counter-designations for Ramin Rezaifar, dated 12/21/2005;	Direct testimony and cross examination	Rezaifar	Admitted (03/21/2006)
JX-46C	Deposition transcript designations and counter-designations for Hank Robinson, dated 12/22/2005	Direct testimony and cross examination	Robinson	Admitted (03/21/2006)

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-50C	Deposition transcript designations and counter-designations for Jim Tran, dated 12/1/2005 and 12/19/2005	Direct testimony and cross examination	Tran	Admitted (03/21/2006)
JX-51C	NOT USED			
JX-52C	Deposition transcript designations and counter-designations for Simon Turner, dated 12/22/2005	Direct testimony and cross examination	Turner	Admitted (03/21/2006)
JX-53C	Deposition transcript designations and counter-designations for Jonathan Weiser, dated 12/20/2005	Direct testimony and cross examination	Weiser	Admitted (03/21/2006)
JX-54C	Deposition transcript designations and counter-designations for David Wilding, dated 12/8/2005 and 12/9/2005	Direct testimony and cross examination	Wilding	Admitted (03/21/2006)
JX-55C	NOT USED			
JX-57C	NOT USED			
JX-58C	Deposition transcript designations and counter-designations for Tom Zeran (Kyocera), dated 1/13/2006	Direct testimony and cross examination	Zeran	Admitted (03/21/2006)
JX-60C	Deposition transcript designations and counter-designations for Brazeal, dated 12/20/2005	Direct testimony and cross examination	Brazeal	Admitted (03/21/2006)
JX-63C	Deposition transcript designations and counter-designations for Yossi Cohen, dated 11/29/2005	Direct testimony and cross examination	Cohen	Admitted (03/21/2006)
JX-64C	Deposition transcript designations and counter-designations for William Croghwell, dated 12/1/2005	Direct testimony and cross examination	Croghwell	Admitted (03/21/2006)
JX-65C	Deposition transcript designations and counter-designations for Matthew Delgorno, dated 10/18/2005	Direct testimony and cross examination	Delgorno	Admitted (03/21/2006)
JX-66C	Deposition transcript designations and counter-designations for Matthew Delgorno, dated 12/21/2005;	Direct testimony and cross examination	Delgorno	Admitted (03/21/2006)
JX-67C	Deposition transcript designations and counter-designations for Paul Dent, dated 11/28/2005;	Direct testimony and cross examination	Dent	Admitted (03/21/2006)
JX-69C	Deposition transcript designations and counter-designations for Patrick Kinney, dated 11/3/2005	Direct testimony and cross examination	Kinney	Admitted (03/21/2006)

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-70C	Deposition transcript designations and counter-designations for Jay Kirchoff, dated 12/8/05	Direct testimony and cross examination	Kirchoff	Admitted (03/21/2006)
JX-71C	Deposition transcript designations and counter-designations for Robert Meir, dated 11/18/2005	Direct testimony and cross examination	Meir	Admitted (03/21/2006)
JX-72C	Deposition transcript designations and counter-designations for Hailu Mengistu, dated 11/22/2005	Direct testimony and cross examination	Mengistu	Admitted (03/21/2006)
JX-73C	Deposition transcript designations and counter-designations for Robert Rango, dated 11/18/2005	Direct testimony and cross examination	Rango	Admitted (03/21/2006)
JX-74C	Deposition transcript designations and counter-designations for John H. Sherman, dated 10/28/2005	Direct testimony and cross examination	Sherman	Admitted (03/21/2006)
JX-75C	Deposition transcript designations and counter-designations for Roger Shultz, dated 1/9/2006	Direct testimony and cross examination	Shultz	Admitted (03/21/2006)
JX-76C	Deposition transcript designations and counter-designations for Sten Sjoberg, dated 11/30/2005	Direct testimony and cross examination	Sjoberg	Admitted (03/21/2006)
JX-77C	Deposition transcript designations and counter-designations for Erik Sundstrom, dated 12/7/2005	Direct testimony and cross examination	Sundstrom	Admitted (03/21/2006)
JX-79C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-611C			
JX-83C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-615C			
JX-84C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-616C			
JX-85C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-617C			
JX-86C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-618C			

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-87C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-619C			
JX-88C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-620C			
JX-89C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-621C			
JX-90C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-622C			
JX-91C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-623C			
JX-92C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-624C			
JX-93C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-625C			
JX-94C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-626C			
JX-95C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-627C			
JX-96C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-628C			
JX-97C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-629C			
JX-98C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-630C			
JX-99C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-631C			

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-102C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-634C			
JX-103C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-635C			
JX-104C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-636C			
JX-105C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-637C			
JX-110	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-642			
JX-111C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-643C			
JX-112C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-644C			
JX-113C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-645C			
JX-114C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-646C			
JX-115C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-647C			
JX-116C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-648C			
JX-117C	Withdrawn from Joint Exhibit List, and Listed at Complainant's Exhibit List as Exhibit No. CX-649C			
JX-118C	Deposition transcript designations and counter-designations for Ronald Luse, dated 11/17/2005	Direct testimony and cross examination	Luse	Admitted (03/21/2006)

JOINT EXHIBITS

EX. NO.	TITLE	PURPOSE	SPONSORING WITNESSES	RECEIVED
JX-119C	Deposition transcript designations and counter-designations for Selvaraj Jaikumar, dated 11/21/2002	Direct testimony and cross examination	Jaikumar	Admitted (03/21/2006)
JX-120C	Deposition transcript designations and counter-designations for Brett Walker, dated 11/22/2005	Direct testimony and cross examination	Walker	Admitted (03/21/2006)
JX-121C	Joint Stipulation Regarding Importation, dated January 27, 2006	Remedy	N/A	Admitted (02/17/2006)
JX-122C	Deposition transcript designations and counter-designations for Brian Finnerty	Direct testimony and cross examination	Finnerty	Admitted (03/21/2006)
JX-123C	Deposition transcript designations and counter-designations for Jaesung Ahn (Samsung), dated 02/24/2006	Direct testimony and cross examination	Ahn	Admitted (03/21/2006)
JX-124C	Deposition transcript designations and counter-designations for Wood (US Cellular)	Direct testimony and cross examination	Wood	Admitted (03/21/2006)

UNITED STATES INTERNATIONAL TRADE COMMISSION

Before the Honorable Charles E. Bullock
Administrative Law Judge

Washington, D.C.

Investigation No. 337-TA-543

In the Matter of:

CERTAIN BASEBAND PROCESSOR CHIPS
AND CHIPSETS, TRANSMITTER AND
RECEIVER (RADIO) CHIPS, POWER
CONTROL CHIPS, AND PRODUCTS
CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS

COMPLAINANT BROADCOM CORPORATION'S

REMEDY EXHIBIT LIST

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-349C	IDC Competitive Analysis, Worldwide Mobile Phone Semiconductor 2003 Vendor Shares, dated 09/2004 (BCM1TC000308703-BCM1TC000308735). Jussi Kinnunen, "Gabriel Tarde as a Founding Father of Innovation Diffusion Research," ACTA SOCIOLOGICA, Vol. 39, 1996 (BCM1TC000314043-BCM1TC000314054).	Remedy	Mulhern	Admitted 7/11/06
CX-396C	Qualcomm Sales Chart (QBB063619-QBB064113).	Remedy	Mulhern	Admitted 7/11/06
CX-517C	Qualcomm's Objections and Responses to Commission Investigative Staffs	Remedy	Mulhern	Admitted 7/11/06
CX-2126C	First Set of Interrogatories (Nos. 1-26), dated 9/19/2005. Import Records Per Handset (MOT/BQ62406-407).	Remedy	Mulhern	Admitted 7/11/06
CX-2133C	Motorola CDMA Portfolio (MOT/BQ 60420 - 60430).	Remedy	Froehling; Mulhern	Admitted 7/11/06
CX-2134C	2005 Motorola CDMA Product Summary, Rev. 1.4; dated March 2005 (MOT/BQ 59513 - 59536).	Remedy	Alberth; Johnson;	Admitted 7/11/06
CX-2145C	Chart of Comments on Motorola Razor, dated 4/15/2005 (MOT/BQ 50489-97).	Remedy	Mulhern	Admitted 7/11/06
CX-2147C	DMSS6300 Software Agreement between Qualcomm and Motorola Inc., dated 5/20/2003 (MOT/BQ 60276-87).	Remedy	Alberth; Froehling;	Admitted 7/11/06
CX-2148C	AMSS6500 Software Agreement between Qualcomm and Motorola Inc., dated 7/3/2003 (MOT/BQ 60288-97).	Remedy	Mulhern	Admitted 7/11/06
CX-2150C	Components Supply Contract between Motorola Inc. and Qualcomm, dated 1/1/2004 (MOT/BQ 60242-61).	Remedy	Alberth; Froehling;	Admitted 7/11/06
CX-2151C	First Amendment to the Components Supply Contract between Motorola Inc. and Qualcomm, dated 7/12/2004 (MOT/BQ 60262-64).	Remedy	Johnson	Admitted 7/11/06
CX-2158C	Patent License Agreement between Motorola Inc. and Qualcomm, dated 9/26/1990 (MOT/BQ 60332-45).	Remedy	Johnson	Admitted 7/11/06
CX-2165C	Handset Import Information (MOT/BQ 59677-59757).	Remedy	Johnson	Admitted 7/11/06
CX-2197C	Samsung Model List by Market (SAMSUNG032204-032230).	Remedy	Johnson	Admitted 7/11/06
CX-2199C	Samsung New Product Development Activity Rules, Revision No. 8, dated 10/2/1994 (SAMSUNG 068098-068111).	Remedy	Ahn	Admitted 7/11/06
CX-2204C	Samsung Handsets that contain Qualcomm Chips (Korean document) (SAMSUNG 008801-008804); Translation of Samsung Handsets that contain Qualcomm Chips (BCOM_RE 00017218-17221).	Remedy	Ahn	Admitted 7/11/06
		Remedy	Lee	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2206C	Samsung Handsets that contain Qualcomm Chips (Korean document) (SAMSUNG 008805-008806); Translation of Samsung Handsets that contain Qualcomm Chips (BCOM RE 00017222-23).	Remedy	Lee	Admitted 7/11/06
CX-2208C	Samsung Terminals for the United States (Korean document) (SAMSUNG 008783-008800); Translation of Samsung Terminals for the United States (BCOM RE 00017200-17217).	Remedy	Lee	Admitted 7/11/06
CX-2210C	List of Handsets Sold in the US by Samsung (Korean document) (SAMSUNG 008775-008782); Translation of List of Handsets Sold in the US by Samsung (BCOM RE 00017326-17333).	Remedy	Lee	Admitted 7/11/06
CX-2229C	Profit and Loss Statement for SGH-ZX10IBACIN, dated December 2005 (Korean Document) (SAMSUNG 024319); Translation of Profit and Loss Statement for SGH-ZX10IBACIN, dated December 2005 (BCOM_RE 17234).	Remedy	Mulhern	Admitted 7/11/06
CX-2237C	Profit and Loss Statement for SP4-A940LSSXAR, dated December 2005 (Korean Document) (SAMSUNG 024346); Translation of Profit and Loss Statement for SP4-A940LSSXAR, dated December 2005 (BCOM_RE 00017238).	Remedy	Mulhern	Admitted 7/11/06
CX-2266C	Chart of Sprint Devices Launched from 1/1/2003 to present (SN00019-20).	Remedy	Finnerty	Admitted 7/11/06
CX-2273C	2003-2004 CDMA Handset Purchases (SN14020-14026).	Remedy	Finnerty	Admitted 7/11/06
CX-2274C	Handset Chip Matrix (SN14037-14041).	Remedy	Finnerty	Admitted 7/11/06
CX-2288	2005 10-K of Celco Partnership (VZW BC-QC 008 000228-000349).	Remedy	Mulhern	Admitted 7/11/06
CX-2350	Qualcomm Inc., JEFFERIES & COMPANY EQUITY RESEARCH, August 19, 2005 (BCOM_RE 0002740-2763).	Remedy	Mulhern	Admitted 7/11/06
CX-2352C	Semiconductors: Technology and Market Primer 2.0, CIBC WORLD MARKETS, October 21, 2004. (BCOM_RE 00009523-9867).	Remedy	Mulhern	Admitted 7/11/06
CX-2353C	Sprint Nextel Phone Sales (SN 14007-18)	Remedy	Mulhern	Admitted 7/11/06
CX-2362	Wireless Semiconductors, 3GSM '05: UMTS stealing the show (for real this time), DEUTSCHE BANK, February 22, 2005. (BCOM_RE 00001976-2004).	Remedy	Mulhern	Admitted 7/11/06
CX-2378C	Qualcomm Incorporated's First Supplemental Objections and Responses to Commission Investigative Staff's First Set of Interrogatories (Nos. 1-26), November 7, 2005. (BCOM_RE 00006571-6579).	Remedy	Mulhern	Admitted 7/11/06

*In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List*

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2399	Worldwide Mobile Phone 2006-2010 Forecast Update: February 2006, IDC, March 2006. (BCOM_RE 00013104-13121).	Remedy	Mulhern	Admitted 7/11/06
CX-2401	www.phonescoop.com/phones/compare.php, accessed May 18, 2006. (BCOM_RE 00017240-17243).	Remedy	Mulhern	Admitted 7/11/06
CX-2402C	Samsung Mobile Phone List for US Market (by MSM Chipset, Under Development) (SAMSUNG 068185).	Remedy	Mulhern	Admitted 7/11/06
CX-2405	Brownwyn H. Hall and Beethika Khan, Adoption of New Technology, DEPARTMENT OF ECONOMICS, UCB, Paper E03'330, 2003. (BCOM_RE 00017244-17265).	Remedy	Mulhern	Admitted 7/11/06
CX-2408C	Witness Statement of William Lehr	Remedy	Mulhern	Admitted 7/7/06
CX-2409C	Witness Statement of Carla Mulhern	Remedy	Mulhern	Admitted 7/7/06
CX-2420	Qualcomm, Inc., MOORS & CABOT CAPITAL MARKETS, February 18, 2005 (BCOM_RE 00002764-2770). Broadcom HSDPA/WCDMA/EDGE/GPRS/GSM Baseband Processors, http://www.broadcom.com/products/Cellular/HSDPA-WCDMA-EDGE-GPRS-GSM-Baseband-Processors, accessed May 18, 2006 (BCOM_RE 000017283).	Remedy	Mulhern	Admitted 7/11/06
CX-2421	In-Stat Report: Multimedia Handsets: Exciting Capabilities Meet Dull Customer Demand, Bill Hughes, March 2006 (BCOM_RE 15156-15201).	Remedy	Mulhern	Admitted 7/11/06
CX-2422	In-Stat Report: The Next Generation Has Arrived--3G Cellular Deployment Report, Allen Noguee, March 2006 (BCOM_RE 00013189-13218).	Remedy	Mulhern	Admitted 7/11/06
CX-2423	Qualcomm 3G Overview, http://www.cdmatech.com/download_library/pdf/QCOM_3G_Overview.pdf, accessed May 17, 2006 (BCOM_RE 00015386-15388).	Remedy	Mulhern	Admitted 7/11/06
CX-2424	Qualcomm 1xEV-DO Overview, http://www.cdmatech.com/download_library/pdf/QCOM_1xEV-DO.pdf, accessed May 17, 2006 (BCOM_RE 00015260-15275).	Remedy	Lehr	Admitted 7/11/06
CX-2425	Morgan Stanley--Cross-Industry Insights; The North American 3G Wireless Report, February 28, 2006 (BCOM_RE 00015209-15255).	Remedy	Lehr	Admitted 7/11/06
CX-2426	"Municipal Wi-Fi Catches on in U.S. Cities," Eweek.com, 2/1/06 (BCOM_RE 00015202-15207).	Remedy	Lehr; Mulhern	Admitted 7/11/06
CX-2427	"Free Wi-Fi in S.F. More than Flipping Switch," Cnet News.com, 5/13/06 (BCOM_RE 00015118-15120).	Remedy	Lehr	Admitted 7/11/06
CX-2428	Wireless Cities, The Feature, 10/26/04. (BCOM_RE 00015391-15393).	Remedy	Lehr	Admitted 7/11/06
CX-2429		Remedy	Lehr	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2430	Samsung Electronics: 2Q06 trough could provide a good buy opportunity," Daewoo Securities, Korea - Equity research, Semiconductors; April 18, 2006.	Remedy	Lehr	Admitted 7/11/06
CX-2431	"Intel's High Hopes for WiMAX," Wi-Fi Net News, January 1, 2004 (BCOM_RE 00015276-15277).	Remedy	Lehr	Admitted 7/11/06
CX-2432	"LMDS in Europe," Broadband Wireless Online, July/August 2002 (BCOM_RE 00015146-15152).	Remedy	Lehr	Admitted 7/11/06
CX-2433	"Is there a future for WAP?," Pfeiffer Report, October 2, 2000 (BCOM_RE 00015256-15257).	Remedy	Lehr	Admitted 7/11/06
CX-2434	"Nextel Flashes with Flarion," Unstrung.com, 2/6/04 (BCOM_RE 00015208).	Remedy	Lehr	Admitted 7/11/06
CX-2435	"Broadband Satellites Fail to Materialize," Aerospace America, March 2002 (BCOM_RE 00015078-15082).	Remedy	Lehr	Admitted 7/11/06
CX-2437	"Global Mobile Handheld Device Market," Frost and Sullivan, April 30, 2006 (BCOM_RE 00015121-15143).	Remedy	Lehr	Admitted 7/11/06
CX-2439C	Verizon Wireless Phone Sell Thru and Margin Report (VZW BC-QC 008 003095-003099)	Remedy	Lehr	Admitted 7/11/06
CX-2440	Paul Sagawa & Regina Possavino, "Qualcomm: Launching Coverage With an Outperform Rating and \$52 Target," Sanford C. Bernstein & Co., Nov. 4, 2005 (BCOM_RE 00015083-15110).	Remedy	Lehr, Mulhern	Admitted 7/11/06
CX-2441C	http://www.broadcom.com/products/Cellular/HSPA-WCDMA-EDGE-GPRS-GSM-Baseband-Processors. (BCOM_RE 00011964).	Remedy	Lehr, Mulhern	Admitted 7/11/06
CX-2442	"Broadcom 2006 Product Brochure," from www.broadcom.com, accessed May 18, 2006 (BCOM_RE 00015111-15117).	Remedy	Lehr	Admitted 7/11/06
CX-2443	SmartTrust, "Mobile Trends Guide," as referenced on Physorg.com, United Press International, 2006 (BCOM_RE 00015258-15259).	Remedy	Lehr	Admitted 7/11/06
CX-2445	"World Mobile Handset Market," Frost & Sullivan, May 2005 (BCOM_RE 00015278-15376).	Remedy	Lehr	Admitted 7/11/06
CX-2446	"SLVR of Daylight at Motorola," TheStreet.com, April 18, 2006 (BCOM_RE 00015389-15390).	Remedy	Lehr	Admitted 7/11/06
CX-2447	"It's A RAZR World," PC Magazine, April 4, 2006 (BCOM_RE 00015144-15145)	Remedy	Lehr	Admitted 7/11/06
CX-2448	"Motorola net drops slightly despite records sales; 2,500 layoffs," San Jose Mercury News, April 19, 2006 (BCOM_RE 00015153-15155).	Remedy	Lehr	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2479C	Samsung Electronics Co., Ltd.'s Third Supplemental Responses And Objections To Broadcom's First Set of Interrogatories (Nos. 1-33).	Remedy	Mulhern	Admitted 7/11/06
CX-2480C	Letter from Don F. Livornese to Brook Dooley, dated May 17, 2006.	Remedy	Mulhern	Admitted 7/11/06
CX-2483C	Email from James Coughlan to Brook Dooley, dated May 17, 2006.	Remedy	Mulhern	Admitted 7/11/06
CX-2484C	Email from Evelyn Heilbrunn to Brook Dooley, dated May 2, 2006.	Remedy	Mulhern	Admitted 7/11/06
CX-2485C	Qualcomm Sales Chart; QBB013090-QBB013800	Remedy	Mulhern	Admitted 7/11/06
CX-2486C	Carla S. Mulhern's Curriculum Vitae; Tab 1 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2487C	Documents Reviewed and/or Relied Upon Prior to Supplemental Expert Report of Carla S. Mulhern, January 6, 2006; Tab 2A to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2488C	Documents Reviewed and/or Relied Upon Since Supplemental Expert Report of Carla S. Mulhern, January 6, 2006; Tab 2B to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2492C	Qualcomm Accused & Non-Accused Products Revenue & Units, U.S. & Worldwide, 2004; Tab 6 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2493C	Qualcomm Accused & Non-Accused Products Revenue & Units, U.S. & Worldwide, 2005; Tab 7 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2494C	Entered Value of Accused MSM Products Imported into the United States; Tab 8 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2495C	Estimated Units of Accused MSM Products Imported into the United States; Tab 9 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2496C	Kyocera Wireless U.S. Sales of Mobile Devices, FY 2006; Tab 10 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2497C	Kyocera Wireless U.S. Sales of Mobile Devices, FY 2007 - Projected; Tab 11 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2498C	Kyocera Wireless Revenue and Gross Profit from Handsets Affected by Exclusion Order as Percent of Total, FY 2006; Tab 12 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06

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Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2499C	Kyocera Wireless Revenue and Gross Profit from Handsets Affected by Exclusion Order as Percent of Total, FY 2007 - Projected; Tab 13 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2500C	LGEMU U.S. Sales of Mobile Devices, 2005; Tab 14 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2501C	LGEMU U.S. Sales of Mobile Devices, 2006 - Projected; Tab 15 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2502C	LGEMU Revenue and Gross Profit from Handsets Affected by Exclusion Order as Percent of Total, 2005; Tab 16 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2503C	Motorola U.S. Sales of Mobile Devices, 2005; Tab 17 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2504C	Motorola Worldwide Sales of Mobile Devices, 2006 - Projected; Tab 18 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2505C	Motorola Revenue and Gross Profit from Handsets Affected by Exclusion Order as Percent of Total, 2005; Tab 19 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2506C	Motorola Revenue and Gross Profit from Handsets Affected by Exclusion Order as Percent of Total, 2006 - Projected; Tab 20 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2507C	Samsung Electronics U.S. Sales of Mobile Devices, 2005; Tab 21 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2508C	Samsung Electronics U.S. Sales of Mobile Devices, 2006 - Projected; Tab 22 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2509C	Samsung Electronics Revenue and Gross Profit for Handsets Affected by Exclusion Order As Percent of Total, 2005; Tab 23 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2512C	Sprint Mobile Device Unit Sales, 2005; Tab 26 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2513C	Sprint Mobile Device Unit Sales, 2006 Plan; Tab 27 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2514C	Sprint Wireless Revenue, Q1 2006; Tab 28 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06

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Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2515C	Sprint Service Revenue 2005-2010 Projections; Tab 29 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2518C	Verizon Wireless Mobile Device Sales, 2005; Tab 32 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2519C	Verizon Wireless Mobile Device Sales, January - April 2006; Tab 33 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2521C	Verizon Wireless Revenue, 2005 - March 2006; Tab 35 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2522C	Verizon Wireless Service Revenue, 2005 - March 2006; Tab 36 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2523C	Verizon Wireless Service Revenue, April 2006 (Year to Date); Tab 37 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2524C	Verizon Wireless Revenue from EVDO Plans, 2005-2006; Tab 38 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2525C	2003 Integrated Circuit Market Share, GPRS/EDGE Handsets; Tab 39 to the Second Supplemental Expert Report of Carla S. Mulhern, May 19, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2530C	William Herndon Lehr Curriculum Vitae; Exhibit 1 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2531C	Document Considered; Exhibit 2 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2532C	MSM Chipset Comparisons; Exhibit 3 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2533C	CDMA Handsets Sold in U.S. Containing Infringing and Alternative Chipsets by Manufacturer, (Kyocera Wireless, LG, Motorola, Samsung); Exhibit 4 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2534C	Wireless Communication Standard Evolution; Exhibit 5 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2535C	Verizon EVDO Subscribers, April 2006; Exhibit 6 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2536C	Verizon Actual Service Revenue, 2006 until April; Exhibit 7 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06

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Complainant Broadcom Corporation's Final Remedy Exhibit List

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2537C	Sprint Projected Data Service Revenue, 2006; Exhibit 8 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2538C	Handset Comparisons by Manufacturer; Exhibit 9 to the Expert Report of William Herndon Lehr, Ph.D., May 19, 2006	Remedy	Lehr	Admitted 7/11/06
CX-2544C	Revised Tab 2C to Second Supplemental Expert Report of Carla S. Mulhern List of Documents Reviewed or Relied On by Carla S. Mulhern Since May 19, 2006 to June 5, 2006 (BCOM_RE00017334-BCOM_RE00017335)	Remedy	Mulhern	Admitted 7/11/06
CX-2545C	Revised Tab 3 to Second Supplemental Expert Report of Carla S. Mulhern, Handsets Incorporating Accused Qualcomm Baseband Chips as a Percent of Total Costs (BCOM_RE00017336-BCOM_RE00017337)	Remedy	Mulhern	Admitted 7/11/06
CX-2546C	Revised Tab 4 to Second Supplemental Expert Report of Carla S. Mulhern, Handsets Incorporating Accused Qualcomm Baseband Chips, Baseband Chip as Percent of BOM, 2005 (BCOM_RE00017338-BCOM_RE00017339)	Remedy	Mulhern	Admitted 7/11/06
CX-2547C	Revised Tab 5 to the Second Supplemental Expert Report of Carla S. Mulhern, Handsets Incorporating Accused Qualcomm Baseband and Radio Chips, Total Chipset Price as Percent of Total Costs, 2005 (BCOM_RE00017340)	Remedy	Mulhern	Admitted 7/11/06
CX-2548C	Revised Tab 30 to the Second Supplemental Expert Report of Carla S. Mulhern, Sprint PCS Vision Summary, 2006 Plan (BCOM_RE00017341-BCOM_RE00017343)	Remedy	Mulhern	Admitted 7/11/06
CX-2549C	Revised Tab 31 to the Second Supplemental Expert Report of Carla S. Mulhern, Sprint PCS Vision EVDO Related Service Plans, 2006 (BCOM_RE00017344)	Remedy	Mulhern	Admitted 7/11/06
CX-2550C	Revised Tab 34 to the Second Supplemental Expert Report of Carla S. Mulhern, Verizon Wireless Approved Device List, April 20, 2006 (BCOM_RE00017345-BCOM_RE00017349)	Remedy	Mulhern	Admitted 7/11/06
CX-2551C	CDMA2000 1xEV-DO Delivers on the Promise of Wireless Broadband, Enabling New Services for Users and Higher for Operators, PrimeZone, May 8, 2006 (BCOM_RE00017350-BCOM_RE00017352)	Remedy	Mulhern	Admitted 7/11/06
CX-2552	Sprint Phones by Technology, http://www.phonescoop.com/carriers/carrier.php?c= &s=t , accessed May 19, 2006 (BCOM_RE00017353-BCOM_RE00017355)	Remedy	Mulhern	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List

Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2553	Research In Motion Blackberry 7750 Specs & Features, http://www.phonescoop.com/phones/phone.php?p=521&printable=, accessed May 19, 2006 (BCOM_RE00017356-BCOM_RE00017358)	Remedy	Mulhern	Admitted 7/11/06
CX-2554	Nokia 3205 Specs & Features, http://www.phonescoop.com/phones/phone.php?p=494&printable=, accessed May 17, 2006 (BCOM_RE00017359-BCOM_RE00017362)	Remedy	Mulhern	Admitted 7/11/06
CX-2555	LG LX-350 Specs & Features, http://www.phonescoop.com/phones/phone.php?p=818&printable=, accessed May 19, 2006 (BCOM_RE00017363-BCOM_RE00017365)	Remedy	Mulhern	Admitted 7/11/06
CX-2556C	Jaguar EVDO R&D Budget (KWC0039809-KWC0039811)	Remedy	Zeran	Admitted 7/11/06
CX-2557C	Revised Exhibit 8 to the Expert Report of William Herndon Lehr, Ph.D., Sprint Projected Data Service Revenue, 2006 (BCOM_RE00017366)	Remedy	Lehr	Admitted 7/11/06
CX-2558C	Sensitivities on Dr. Carlton's VZW Lost Profits Model (BCOM_RE00017367- BCOM_RE00017374)	Remedy	Lehr	Admitted 7/11/06
CX-2559	"T-Mobile and Verizon Wireless Once Again Dominate Regional Customer Satisfaction Rankings," J.D. Power and Associates Report, 4-19-2006 (BCOM_RE00017375-BCOM_RE00017378)	Remedy	Lehr	Admitted 7/11/06
CX-2560	"SANYO Ranks Highest in Wireless Mobile Phone Customer Satisfaction for Third Consecutive Time," J.D. Power and Associates Report, 5-25-2006 (BCOM_RE00017379-BCOM_RE00017381)	Remedy	Lehr	Admitted 7/11/06
CX-2561	Summary of PDA/Smartphones by Manufacturer (BCOM_RE00017382- BCOM_RE00017385)	Remedy	Lehr	Admitted 7/11/06
CX-2562	"Verizon Wireless Classification of Devices" - Website Screenshot (BCOM_RE00017397)	Remedy	Lehr	Admitted 7/11/06
CX-2563	"CTIA Announcement of 2006 Winners of the Emerging Technology and Technology Marketing Awards" - Website Screenshot (BCOM_RE00017387)	Remedy	Lehr	Admitted 7/11/06
CX-2564C	Qualcomm Multimedia Platform Baseband Chips Used in Handsets by Manufacturer (BCOM_RE00017388)	Remedy	Lehr	Admitted 7/11/06
CX-2565	Qualcomm Chipset Solutions: Multimedia Platform (BCOM_RE00017389- BCOM_RE00017396)	Remedy	Lehr	Admitted 7/11/06
CX-2566C	Verizon - Actual Service Revenue (Revised) (BCOM_RE00017386)	Remedy	Lehr	Admitted 7/11/06
CX-2567	"The Mossberg Solution: Smartphones Get Smarter," The Wall Street Journal, 6-7-2006 (BCOM_RE00017398-BCOM_RE00017400)	Remedy	Lehr	Admitted 7/11/06

**In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Complainant Broadcom Corporation's Final Remedy Exhibit List**

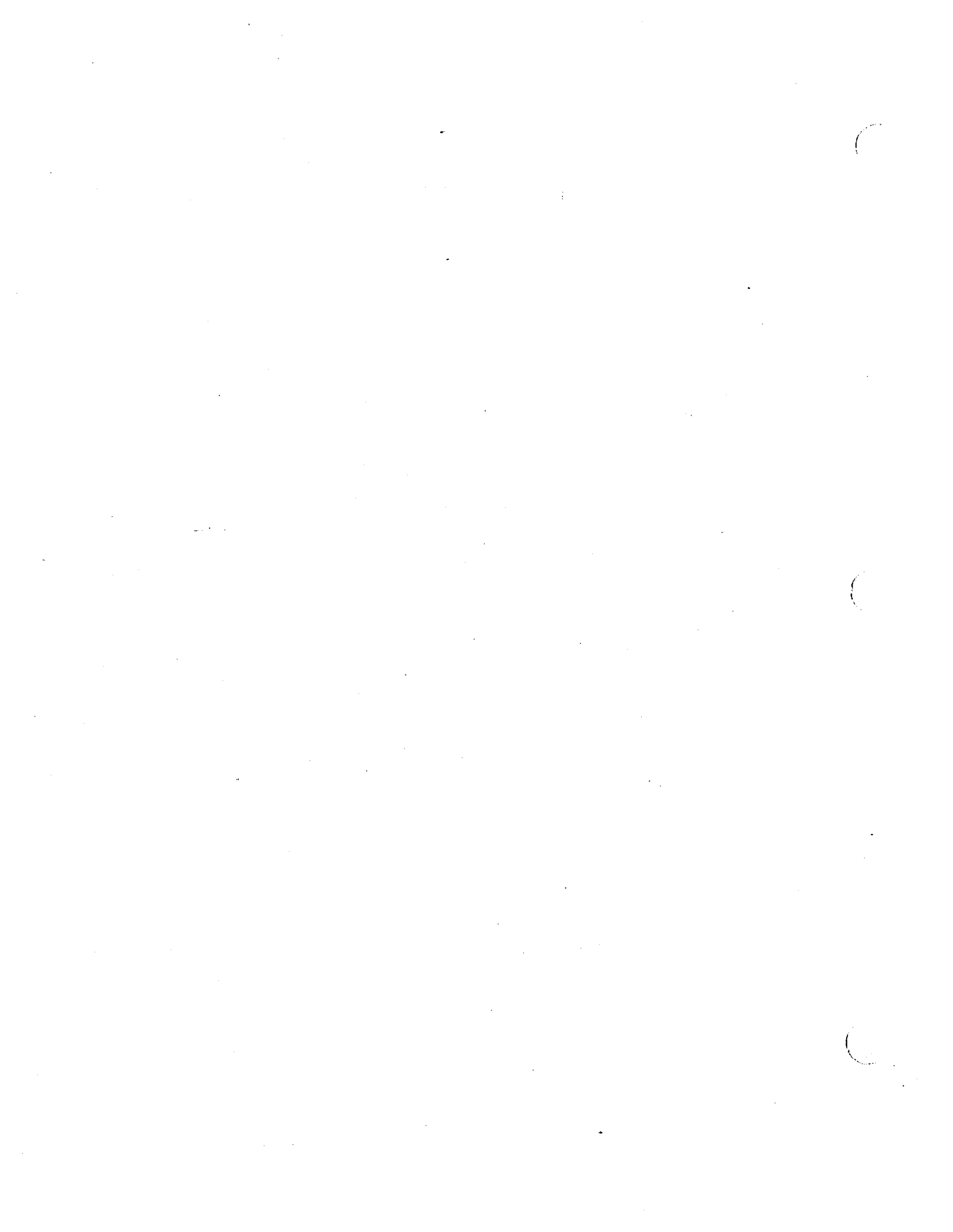
Exh. No.	Title	Purpose	Sponsoring Witness	Received
CX-2568C	Relative Value Calculation, Using Manning and Meyer Baseband Chip Price Data and Mulhern Methodology; Tab 1 to Supplemental Rebuttal Testimony of Carla S. Mulhern on Behalf of Complainant Broadcom Corporation (BCOM RE00017401)	Remedy	Mulhern	Admitted 7/11/06
CX-2569C	Supplemental Rebuttal Testimony of Carla S. Mulhern on Behalf of Complainant Broadcom Corporation	Remedy	Mulhern	Admitted 7/6/06
CX-2570C	Supplemental Rebuttal Testimony of William H. Lehr on Behalf of Complainant Broadcom Corporation	Remedy	Lehr	Admitted 7/6/06
CX-2572C	Second Supplemental Response of Complainant Broadcom Corporation to Intervenor Samsung Electronic Co., Ltd.'s First Set of Requests for Admission, dated May 15, 2006	Remedy	Mulhern	Admitted 7/11/06
CX-2573	"Cellphone Start-Ups Struggle as Media Services Fail to Catch On." <u>The Wall Street Journal</u> , June 20, 2006 (BCOM REM00017466-68).	Remedy	Lehr	Admitted 7/11/06
CDX-216C	EPROMS Analysis	Remedy	Lehr/Mulhern	Admitted 7/11/06
CPX-21	Verizon Wireless Motorola Q Broadband Smartphone with Camera	Remedy	Lehr	Admitted 7/11/06

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Charles E. Bullock
Administrative Law Judge**

_____)	
In the Matter of)	Investigation
)	No. 337-TA-543
CERTAIN BASEBAND PROCESSOR)	
CHIPS AND CHIPSETS, TRANSMITTER)	
AND RECEIVER (RADIO) CHIPS, POWER)	
CONTROL CHIPS, AND PRODUCTS)	
CONTAINING SAME, INCLUDING)	
CELLULAR TELEPHONE HANDSETS)	
_____)	

**RESPONDENT QUALCOMM INCORPORATED'S
FINAL REMEDY EXHIBIT LIST**



DOCUMENTARY EXHIBITS

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-50				Withdrawn
RX-105				Withdrawn
RX-372				Withdrawn
RX-376C				Withdrawn
RX-377C				Withdrawn
RX-378				Withdrawn
RX-379C				Withdrawn
RX-380C				Withdrawn
RX-381C				Withdrawn
RX-382C				Withdrawn
RX-383C				Withdrawn
RX-384C				Withdrawn
RX-385C				Withdrawn
RX-386				Withdrawn
RX-387				Withdrawn
RX-389				Withdrawn
RX-390				Withdrawn
RX-391				Withdrawn
RX-392				Withdrawn
RX-393C				Withdrawn
RX-403				Withdrawn
RX-404				Withdrawn
RX-406				Withdrawn
RX-413C				Withdrawn
RX-414C				Withdrawn
RX-415C				Withdrawn
RX-418C				Withdrawn
RX-419C				Withdrawn
RX-420C				Withdrawn
RX-421C				Withdrawn
RX-422C				Withdrawn
RX-423C				Withdrawn
RX-424C				Withdrawn
RX-425C				Withdrawn
RX-426				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-427				Withdrawn
RX-428C				Withdrawn
RX-429C	Complainant Broadcom Corporation's Supplemental Responses to Respondent Qualcomm Incorporated's First Requests for Admissions	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-430C	Complainant Broadcom Corporation's Second Supplemental Responses to (Nos. 227-332) of Qualcomm Incorporated's First Requests for Admissions	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-431	Complainant Broadcom Corporation's Responses to Respondent Qualcomm Incorporated's Second Requests for Admissions (323-518)	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-432	Broadcom's First Supplemental Responses and Objections to Respondent Qualcomm Incorporated's Second Requests for Admissions (323-518)	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-433C	Responses and Objections to the Staff's First Set of Interrogatories to Complainant Broadcom Corporation	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-434C	First Supplemental Responses and Objections to the Staff's First Set of Interrogatories to Complainant Broadcom Corporation	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-435C	Second Supplemental Responses and Objections to the Staff's First Set of Interrogatories to Complainant Broadcom Corporation	Admissions re: remedy	DelGiorno	Rejected 6/23/06
RX-842C				Withdrawn
RX-861C				Withdrawn
RX-862				Withdrawn
RX-863				Withdrawn
RX-864				Withdrawn
RX-865				Withdrawn
RX-866				Withdrawn
RX-867				Withdrawn
RX-868				Withdrawn
RX-869				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-870				Withdrawn
RX-871				Withdrawn
RX-874				Withdrawn
RX-875				Withdrawn
RX-876				Withdrawn
RX-877				Withdrawn
RX-878				Withdrawn
RX-879				Withdrawn
RX-880C				Withdrawn
RX-881C				Withdrawn
RX-904C				Withdrawn
RX-905C				Withdrawn
RX-908C				Withdrawn
RX-909C				Withdrawn
RX-925 C				Withdrawn
RX-926				Withdrawn
RX-927C				Withdrawn
RX-968C	E-mail chain from N. Sollenberger to M. Lotter, et al., re: Meeting on Corona Status, dated 8/17/2005 BCMITC0000966321-0000966322	Remedy	Sollenberger	Admitted 7/11/06
RX-969C	E-mail chain from N. Sollenberger to T. Sippel, et al., re: Cellular Competition: Freescale Power consumption numbers, dated 4/19/2005 BCMITC0000979504-0000979505	Remedy	Sollenberger	Admitted 7/11/06
RX-971C				Withdrawn
RX-973C				Withdrawn
RX-974C				Withdrawn
RX-975C				Withdrawn
RX-976				Withdrawn
RX-977				Withdrawn
RX-980C	Summary of 2140 and 2141 Chips BCOM RE00012043 - 00012045	Remedy	Chase	Admitted 7/11/06
RX-981				Withdrawn
RX-985C				Withdrawn
RX-1006C				Withdrawn
RX-1007C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-1008C				Withdrawn
RX-1009C				Withdrawn
RX-1010C				Withdrawn
RX-1011C				Withdrawn
RX-1012C				Withdrawn
RX-1013C				Withdrawn
RX-1014C				Withdrawn
RX-1015C				Withdrawn
RX-1016C				Withdrawn
RX-1017C				Withdrawn
RX-1018C				Withdrawn
RX-1019C				Withdrawn
RX-1020C				Withdrawn
RX-1021C				Withdrawn
RX-1027				Withdrawn
RX-1028				Withdrawn
RX-1029				Withdrawn
RX-1030C				Withdrawn
RX-1033C	Witness Statement of Geoff Shippee	Remedy	Shippee	Rejected 7/6/06
RX-1034C	Witness Statement of Michael Campbell	Remedy	Campbell	Rejected 7/6/06
RX-1041C	Supplemental Witness Statement of Susan Manning	Remedy Expert Qualification	Manning	Rejected 7/11/06
RX-1042C				Withdrawn
RX-1043C				Withdrawn
RX-1044C	Email from V. Lee to C. Sunny et al. re "Please clear the shipment from ASE under QCT, " Dated: 05/26/05 QBB036360	Remedy	Lee	Admitted 7/11/06
RX-1045C	UPS Supply Chain Solutions Authority to Make Entry form. Dated: 02/19/05 Including: Email Chain, Email from V. Lee to C. Sunny and M. Ana et al. re "please clear shipment from ASE under QCT," Dated: 04/22/05 QBB030150 - 030154	Remedy	Lee	Admitted 7/11/06
RX-1046C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-1047C	QCT Test Engineering Training, 80-V7375-1 Rev C QBD069102 – 069297	Remedy	Campbell	Rejected 7/6/06
RX-1048C	Photographs of SURF testing QBD069298, 069301 and 069303	Remedy	Campbell	Rejected 7/6/06
RX-1049C				Withdrawn
RX-1050C	RMA Test Instructions, QCT Digital Team QBD069316 – 069344	Remedy	Campbell	Rejected 7/6/06
RX-1051C	Qualcomm Tst Technologies Team Handbook, 80-V7797 Rev. F, dated January 2006 QBD069345 - 069414	Remedy	Campbell	Rejected 7/6/06
RX-1052C	Qualcomm SURF6200 User Manual, 80-V2170 Rev. B, dated 09/20/2002 QBD069415 – 069451	Remedy	Campbell	Rejected 7/6/06
RX-1053C	Qualcomm SURF6800 Platform User Guide, 80-V8891-31 Rev. C, dated 04/01/2006 QBD069452 – 069561	Remedy	Campbell	Rejected 7/6/06
RX-1054C	Qualcomm SURF7500 Platform User Guide, 80-V9038-31 Rev. C 03/02/2006 QBD069562 – 069676	Remedy	Campbell	Rejected 7/6/06
RX-1055C	Qualcomm SURF6050 User Manual, 80-V2551-40 Rev. A, dated 03/29/2002 QBD069677 – 069741	Remedy	Campbell	Rejected 7/6/06
RX-1056C	Qualcomm SURF6000 User Guide, 80-V3148-1 Rev. B, dated 05/26/2004 QBD069742 – 069811	Remedy	Campbell	Rejected 7/6/06
RX-1057C	Qualcomm SURF6100 User Manual, 80-V5729-3 Rev. C, dated 01/14/2003 QBD069812 – 069879	Remedy	Campbell	Rejected 7/6/06
RX-1058C	Qualcomm SURF6250 User Guide, 80-V6233-1 Rev. E, dated 06/02/2005 QBD069880 – 069972	Remedy	Campbell	Rejected 7/6/06
RX-1059C	Qualcomm SURF6280 Platform User Guide, 80-V6968-32 Rev. B, date 02/02/2006 QBD069973 – 070075	Remedy	Campbell	Rejected 7/6/06

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-1060C	Qualcomm SURF6025 User Guide, 80-V7440-1 Rev. B, dated 05/25/2004 QBD070076 - 070138	Remedy	Campbell	Rejected 7/6/06
RX-1061C	Qualcomm CDMA Technologies (QCT) Process Document, QCT Failure Analysis, Failure Analysis RMA Logistics Process, 32-32503-6 Revision A QBD070139 - 070166	Remedy	Campbell	Rejected 7/6/06
RX-1062C	Photograph of Agilent 93K load board / test head QBD070168 - 070169	Remedy	Campbell	Rejected 7/6/06
RX-1063C	Photograph of Agilent test equipment QBD070170	Remedy	Campbell	Rejected 7/6/06
RX-1064C	Photograph of MSM6550 load board close-up with socket disassembled QBD070171 - 070172	Remedy	Campbell	Rejected 7/6/06
RX-1065C	Photograph of MSM6550 load board close-up with socket assembled QBD070173	Remedy	Campbell	Rejected 7/6/06
RX-1066C	Photograph of Teradyne IFlex Tester QBD070174	Remedy	Campbell	Rejected 7/6/06
RX-1067C	Photograph of SURF automated tester QBD070175	Remedy	Campbell	Rejected 7/6/06
RX-1068C	Photograph of Hypervision Infrared Microscope QBD070176	Remedy	Campbell	Rejected 7/6/06
RX-1069C	Close-up photograph of Hypervision Infrared Microscope QBD070177	Remedy	Campbell	Rejected 7/6/06
RX-1070C	Close-up photograph of Hypervision Infrared Microscope QBD070178	Remedy	Campbell	Rejected 7/6/06
RX-1071C	Photograph of Vectorvision IRAM II QBD070167	Remedy	Campbell	Rejected 7/6/06
RX-1072C				Withdrawn
RX-1073C				Withdrawn
RX-1074C				Withdrawn
RX-1075C				Withdrawn
RX-1076C				Withdrawn
RX-1077C				Withdrawn

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-1078C				Withdrawn
RX-1079C				Withdrawn
RX-1080C				Withdrawn
RX-1081C				Withdrawn
RX-1082C				Withdrawn
RX-1083C				Withdrawn
RX-1084C				Withdrawn
RX-1085C				Withdrawn
RX-1086C				Withdrawn
RX-1087C				Withdrawn
RX-1088C				Withdrawn
RX-1089				Withdrawn
RX-1090				Withdrawn
RX-1091C				Withdrawn
RX-1092C				Withdrawn
RX-1093C				Withdrawn
RX-1094C				Withdrawn
RX-1095C	Rebuttal Witness Statement of Joseph Hanna	Remedy	Hanna	Rejected 6/20/06
RX-1096C				Withdrawn
RX-1097C				Withdrawn
RX-1098	Comments of the Spectrum Coalition for Public Safety, The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, Federal Communication Commission, WT Docket 96-86 QBE003671 - 003678	Remedy	Hanna	Rejected 7/6/06
RX-1099	Comments of Lucent Technologies, Inc., The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, Federal Communication Commission, WT Docket 96-86 QBE003679 - 003758	Remedy	Hanna	Rejected 7/6/06

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RX-1100	Eighth Notice of Proposed Rulemaking, The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, Federal Communication Commission, WT Docket 96-86 QBE003759 - 003789	Remedy	Hanna	Rejected 7/6/06
RX-1101				Withdrawn
RX-1102				Withdrawn
RX-1103	The President's National Security Telecommunications Advisory Committee, Legislative and Regulatory Task Force, Federal Support to Telecommunications Infrastructure Providers in National Emergencies Designation as "Emergency Responders (Private Sector)", dated 01/31/2006 QBE003983 - 004001	Remedy	Manning	Rejected 7/6/06
RX-1104	The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets, dated February 2003 QBE004002 - 004097	Remedy	Manning	Rejected 7/6/06
RX-1105	The 9/11 Commission Report QBE004098 - 004681	Remedy	Manning	Rejected 7/6/06
RX-1106				Withdrawn
RX-1107C	Supplemental Witness Statement of Joseph Hanna	Remedy	Hanna	Rejected 7/6/06

DEMONSTRATIVE EXHIBITS

Exhibit No.	Title	Purpose	Sponsoring Witness	Received into Evidence
RDX-110C	Demonstrative exhibit showing the floor plan of the MSM6250 chip	Remedy	Shippee	Rejected 7/6/06
RDX-111C	Demonstrative exhibit showing the floor plan of the MSM7500 chip	Remedy	Shippee	Rejected 7/6/06
RDX-112C	Demonstrative exhibit showing the floor plan of the MSM6500 chip	Remedy	Shippee	Rejected 7/6/06
RDX-113C	Demonstrative exhibit showing the floor plan of the MSM6300 chip	Remedy	Shippee	Rejected 7/6/06
RDX-114C	Demonstrative exhibit showing chart of MSM chip feature comparisons	Remedy	Shippee	Rejected 7/6/06
RDX-115C				Withdrawn
RDX-116C				Withdrawn

Respectfully submitted,



William K. West, Jr.
Cecilia H. Gonzalez
Bert C. Reiser
HOWREY LLP
1299 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 783-0800

Henry C. Bunsow, Esq.
HOWREY LLP
525 Market Street, Suite 3600
San Francisco, California 94105
(415) 848-4900

Peter J. Chassman
Sashe Dimitroff
HOWREY LLP
1111 Louisiana, 25th Floor
Houston, TX 77002-5242
(713) 787-1400

Robert Taylor
Christopher L. Kelley
HOWREY LLP
1950 University Avenue, 4th Floor
East Palo Alto, CA 94303
(650) 798-3500

Dated: July 21, 2006

Counsel for Respondent Qualcomm Incorporated

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

Before Charles E. Bullock
Administrative Law Judge

In the Matter of

CERTAIN BASEBAND PROCESSOR CHIPS AND
CHIPSETS, TRANSMITTER AND RECEIVER
(RADIO) CHIPS, POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS

Inv. No. 337-TA-543

COMMISSION INVESTIGATIVE STAFF'S FINAL LIST OF
EXHIBITS FOR THE REMEDY HEARING
(July 12, 2006)

Exhibit No.	Exhibit Title	Exhibit Purpose	Sponsoring Witness	Exhibit Status
SX-5	Robert Goldscheider, John Jarosz and Carla Mulhern, <i>Use of the 25 Per Cent Rule in Valuing IP</i> , 37 les Nouvelles 123-33 (December 2002)	Remedy	Mulhern	Admitted 7/11
SX-7	U.S. Imports for consumption of HTS Item 8525.20.9070 by country 1996-2005 and 2006 YTD from ITC dataweb.	Rebuttal to Mulhern testimony regarding the burden on U.S. Customs	By Agreement	Admitted 7/11
SX-8C	WITHDRAWN			
SX-9C	WITHDRAWN			
SX-10C	WITHDRAWN			
SX-11C	WITHDRAWN			
SX-12C	WITHDRAWN			

SX-13C	WITHDRAWN			
SX-14C	WITHDRAWN			
SX-15C	WITHDRAWN			
SX-16C	Joint Stipulation	Remedy	By Agreement	Admitted 7/11

Respectfully submitted,

/s/ Karin J. Norton

Lynn I. Levine, Director

T. Spence Chubb, Supervisory Attorney

Karin J. Norton, Investigative Attorney

Office of Unfair Import Investigations

U.S. International Trade Commission

500 E Street, S.W., Suite 401

Washington, D.C. 20436

(202) 205-2606

(202) 205-2158 (Facsimile)

UNITED STATES INTERNATIONAL TRADE COMMISSION

**Before the Honorable Charles E. Bullock
Administrative Law Judge**

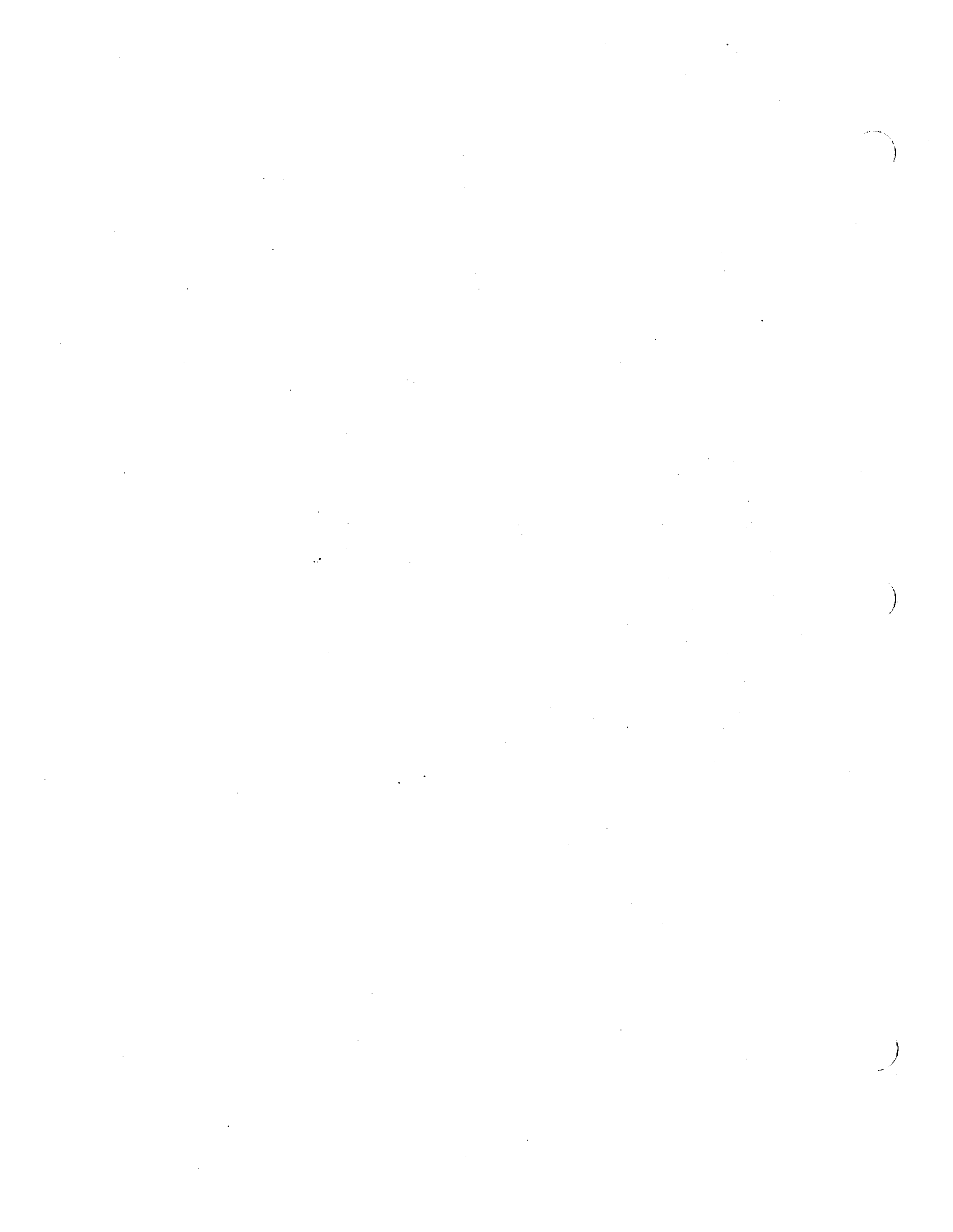
Washington, D.C.

Investigation No. 337-TA-543

In the Matter of:

**CERTAIN BASEBAND PROCESSOR CHIPS
AND CHIPSETS, TRANSMITTER AND
RECEIVER (RADIO) CHIPS, POWER
CONTROL CHIPS, AND PRODUCTS
CONTAINING SAME, INCLUDING
CELLULAR TELEPHONE HANDSETS**

JOINT REMEDY EXHIBIT LIST



In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Final Joint Remedy Exhibit List

Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-203C	Deposition designations for Brian Chase, dated 5/12/2006.		Remedy	Chase	Admitted 7/11/06
JX-204C	Broadcom Cellular Baseband Roadmap	BCOM RE00012040	Remedy	Mulhern;	Admitted 7/11/06
JX-205C	Broadcom GSM/GPRS/EGPRS Handset Programs Status Overview, dated 1/3/2006.	BCOM RE 00012041- 00012042	Remedy	Chase	Admitted 7/11/06
JX-207C	Humming Along: 2005 Mobile Phone Market Forecast, dated June 2005.			Chase;	
JX-208C	Deposition designations of Yossi Cohen, dated 5/5/2006.	BCMITC000308662 - 000308702	Remedy	Mulhern;	Admitted 7/11/06
JX-210C	Qualcomm MSM6500 Chipset Solution.		Remedy	Lehr	Admitted 7/11/06
JX-219C	Deposition designations for Koroush Kohanteb, dated 5/17/2006.	QBB012872	Remedy	Cohen	Admitted 7/11/06
JX-220C	Broadcom Corp. Q1 '05 Financial Analysis & April '05 Outlook, dated 4/21/2005.	BCMITC0000089111-	Remedy	Cohen	Admitted 7/11/06
JX-221C	Deposition designations for Robert Rango, dated 5/15/2006.	BCMITC0000089202	Remedy	Kohanteb	Admitted 7/11/06
JX-230C	4/8/05 E-mail from Cohen to Frank		Remedy	Rango	Admitted 7/11/06
JX-232C	5/5/05 E-mail from Cohen to Seshadri, Rango, and Kamdar	BCMITC00000917271 - 276	Remedy	Rango	Admitted 7/11/06
JX-239C	10/14/05 E-mail from Cohen to Hyde; Subject: QCOM: Not good."	BCMITC00000917215 - 216	Remedy	Rango	Admitted 7/11/06
JX-241C	Broadcom Mobile and Wireless Group 9/12/2005 Presentation	BCMITC00000916761 - 762	Remedy	Rango	Admitted 7/11/06
JX-242C	Deposition designations for Nelson Sollenberger, dated 5/2/2006.	MOT/BQ047315 - 047415	Remedy	Rango;	Admitted 7/11/06
JX-245C	Deposition designations of Alan Sanders, 4/20/2006.		Remedy	Redding	Admitted 7/11/06
JX-247C	Earnings/projected earnings charts, 2004-2006.		Remedy	Sollenberger	Admitted 7/11/06
JX-248C	Kyocera Wireless Corp. P & L Performance Comparison, 2002-2006.	KWC 0002751 - 0002760	Remedy	Sanders	Admitted 7/11/06
JX-249C	Kyocera Wireless Corp. Project Financial Chart, 2002-2006.	KWC 0039711 - 0039712	Remedy	Sanders	Admitted 7/11/06
JX-250C	Kyocera Wireless Corp. Sum of Burden Cost Chart 2002-2006.	KWC 0039847	Remedy	Sanders;	Admitted 7/11/06
JX-251C	Kyocera Wireless Corp. FY04 Revised Master Plan.	KWC 0039848 - 0039849	Remedy	Mulhern	Admitted 7/11/06
JX-252C	Kyocera Wireless Corp. Direct Product Cost Chart, 2003-2007.	KWC 0039716 - 0039737	Remedy	Sanders	Admitted 7/11/06
JX-253C	Kyocera Wireless Corp. Angel & Jade Break Even Analysis.	KWC 0039752	Remedy	Sanders;	Admitted 7/11/06
JX-254C	Kyocera Wireless Corp. Angel Executive Summary.	KWC 0039754	Remedy	Mulhern	Admitted 7/11/06
		KWC 0039756 - 0039759	Remedy	Sanders	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Final Joint Remedy Exhibit List

Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-255C	Kyocera Wireless Corp. Black Canary DPC Buildup by Quarter.	KWC 0039785	Remedy	Sanders	Admitted 7/11/06
JX-256C	Kyocera Wireless Corp. Black Canary R&D ROI Buildup by Customer.	KWC 0039786	Remedy	Sanders	Admitted 7/11/06
JX-257C	Kyocera Wireless Corp. KCJ Royalty Calculation.	KWC 0039788	Remedy	Sanders	Admitted 7/11/06
JX-258C	Quotation To: Kyocera Wireless Corporation/Kyocera Corporation For CDMA ASIC Devices, dated 11/17/2005.	KWC 000811 - 000814	Remedy	Sanders; Mulhern;	
JX-259C	Deposition designations of Thomas Zeran, dated 1/13/2006.		Remedy	Manning	Admitted 7/11/06
JX-260C	Product Supply Agreement between Qualcomm and Kyocera Wireless Corp., dated 5/22/2003.		Remedy	Zeran	Admitted 7/11/06
JX-261C	Product Supply Agreement between Qualcomm and Kyocera Wireless Corp., dated 5/23/2003.	KWC000819-832	Remedy	Zeran	Admitted 7/11/06
JX-263C	Quote from Qualcomm to KWC for CDMA ASIC Devices, dated 11/17/2005.	KWC 000833-846	Remedy	Zeran	Admitted 7/11/06
JX-264C	Deposition designations of Thomas Zeran, dated 4/20/2006.	KWC000815-18	Remedy	Zeran	Admitted 7/11/06
JX-265C	Kyocera Wireless Corp. Products and Chips, dated March 2006.	KWC 0011450 - 0011451	Remedy	Zeran;	
JX-266C	Kyocera Wireless Corp. Sales Units.	KWC 0039750 - 0039751	Remedy	Mulhern	Admitted 7/11/06
JX-267C	KWC Product Development Process Overview, dated 3/15/2006.	KWC 0011511	Remedy	Sanders	Admitted 7/11/06
JX-269C	Deposition designations of Dan Gralak, dated 5/4/2006.		Remedy	Zeran	Admitted 7/11/06
JX-270C	CDMA LG Mobile Phone List For U.S. Market.	LGEMC004904 - 004905	Remedy	Gralak;	
JX-271C	GSM LG Mobile Phone List For U.S. Market.	LGEMC004914 - 004938	Remedy	Gralak;	
JX-272C	LG Handset Model Specifications Chart.	LGEMC003650 - 003654	Remedy	Song;	
JX-273C	LG Products that Contain MSM Chips.	LGEMC004488 - 004492	Remedy	Mulhern	Admitted 7/11/06
JX-274C	LG GSM Handset Model Sales Chart.	LGEMC004534 - 004538	Remedy	Gralak;	
JX-275C	Exhibit F: Sales and Distributor Business Overview.	LGEMC004524 - 004529	Remedy	Mulhern	Admitted 7/11/06
JX-276C	LG Market Research Data Sheet: Q4'05 US Market Share - IDC.	LGEMC004532 - 004533	Remedy	Gralak;	
JX-277C	LG Earnings Release 4Q'05, dated 1/24/2006.	LGEMC004872 - 004889	Remedy	Mulhern	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Final Joint Remedy Exhibit List

Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-279C	Deposition designations of Jong Wan Kim, dated 5/3/2006.		Remedy	Kim	Admitted 7/11/06
JX-280C	LG 2005 Product Roadmap.	LGEMC003640 - 003644	Remedy	Kim; Gralak	Admitted 7/11/06
JX-281C	LG 2006 Product Roadmap.			Kim; Song;	
JX-282C	Deposition designations of Seung Joon Park, dated 5/4/2006.	LGEMC003645 - 003649	Remedy	Mulhern;	Admitted 7/11/06
JX-283C	LG Handset Production Charts.		Remedy	Gralak	Admitted 7/11/06
JX-284C	Deposition designation of Sun-Tae Song, dated 5/5/2006.	LGEMC004530 - LGEMC004531	Remedy	Park	Admitted 7/11/06
JX-285C	Chipset Purchase and Incentive Agreement between Qualcomm and LG Electronics Inc, dated 7/11/2004.		Remedy	Park; Gralak	Admitted 7/11/06
JX-286C	Second Amendment to Chipset Purchase and Incentive Agreement between Qualcomm and LG Electronics Inc, dated 12/12/2005.	LGEMC004269 - 004275	Remedy	Song	Admitted 7/11/06
JX-287C	LG QCT Chipset/Chipset Price Chart.	LGEMC004265 - 004268	Remedy	Song; Gralak	Admitted 7/11/06
JX-288C	LG Handset/Chipset Model and Price Charts.	LGEMC005023	Remedy	Song; Gralak	Admitted 7/11/06
JX-289C	Exhibit B: Chipset Vendor Summary.	LGEMC004522 - 004523	Remedy	Song;	Admitted 7/11/06
JX-295C	LG Handset Worldwide Revenue, Profit, and Units, 2003-2005.			Mulhern;	
JX-306	Motorola Inc.'s 2003 10-K; dated 3/31/2004.		Remedy	Gralak	Admitted 7/11/06
JX-307	Motorola Inc.'s 2005 10-K, dated 3/2/2006.			Song;	
JX-309C	Deposition Designations for William Alberth, dated 5/3/2006.	LGEMC004257	Remedy	Mulhern;	Admitted 7/11/06
JX-310C	Motorola CDMA Handsets Imported Into the United States.	LGEMC004518	Remedy	Gralak	Admitted 7/11/06
JX-311C	Motorola CDMA Portfolio.	MOT/BQ 60967- MOT/BQ 61164	Remedy	Mulhern	Admitted 7/11/06
JX-312C	Motorola GSM Handsets.	MOT/BQ 62167- MOT/BQ 62329	Remedy	Mulhern;	Admitted 7/11/06
JX-313C	Motorola 3G (WCDMA) Handsets.		Remedy	Meyer	Admitted 7/11/06
JX-314C	Motorola M-Gates Description Document, Version 3.0, dated 3/5/2004.		Remedy	Alberth	Admitted 7/11/06
		MOT/BQ 62406 - 62407	Remedy	Alberth;	Admitted 7/11/06
		MOT/BQ 62408 - 62418	Remedy	Mulhern	Admitted 7/11/06
		MOT/BQ 62737 - 62738	Remedy	Alberth;	Admitted 7/11/06
		MOT/BQ 62739 - 62740	Remedy	Mulhern	Admitted 7/11/06
		MOT/BQ 60432 - 60477	Remedy	Alberth	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Final Joint Remedy Exhibit List

Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-315C	Quotation To: Motorola, Inc. For CDMA ASIC Devices, dated 11/28/2004.	MOT/BQ 62398 - 62402	Remedy	Alberth	Admitted 7/11/06
JX-316C	Joint Development Proposal to Motorola / Ultra-Low End Phone Development - "Moto 1", 4Q-2004.				
JX-317C	Purchase and Sale Agreement Between Verizon Wireless and Motorola, Inc., Execution Copy, dated 1/31/2000.	MOT/BQ 62709 - 62722	Remedy	Alberth	Admitted 7/11/06
JX-318C	Qualcomm QCT Complete Chipset Product Roadmap.	MOT/BQ 62541 - 62682	Remedy	Alberth	Admitted 7/11/06
JX-319C	Agreement to Amend the Patent License Agreement and Technology License Agreement and Software License Agreement between Motorola Inc. and Qualcomm, dated 3/23/2000.	MOT/BQ 62747 - 62755	Remedy	Alberth	Admitted 7/11/06
JX-320C	Deposition designations of Dennis Olis, dated 5/2/2006.	MOT/BQ 60395-60412	Remedy	Johnson	Admitted 7/11/06
JX-321	Motorola Inc. 2004 10-K, dated 3/4/2005.	MOT/BQ 61735 - 61951	Remedy	Olis	Admitted 7/11/06
JX-322	Motorola Inc. 2005 10-K/AI, dated 12/31/2005.	MOT/BQ 62330 - 62393	Remedy	Olis;	Admitted 7/11/06
JX-323C	Mobile Devices Business.	MOT/BQ 62723 - 62735	Remedy	Mulhern	Admitted 7/11/06
JX-324C	Motorola GSM Handsets.	MOT/BQ 62741 - 62743	Remedy	Olis;	Admitted 7/11/06
JX-325C	Motorola 3G (WCDMA) Handsets.				
JX-326C	Allocations for Motorola CDMA Research & Development.	MOT/BQ 62744 - 62746	Remedy	Mulhern	Admitted 7/11/06
JX-327C	Allocations for Motorola GSM & 3G (WCDMA) Research & Development.	MOT/BQ 62419	Remedy	Olis	Admitted 7/11/06
JX-328C	Deposition Designations for Jaesung Ahn, dated 5/11/2006.	MOT/BQ 62736	Remedy	Olis	Admitted 7/11/06
JX-330C	Samsung Mobile Phone List for US Market (03-'05).	SAMSUNG 032202-032203	Remedy	Ahn	Admitted 7/11/06
JX-331C	Samsung Part Classification Chart.	SAMSUNG 032198-032201	Remedy	Ahn	Admitted 7/11/06
JX-332C	2006 Samsung Product Development Chart.	SAMSUNG 068452-068475	Remedy	Ahn	Admitted 7/11/06
JX-333C	Samsung Mobile Phone List for US Market (by MSM Chipset), dated 2/8/2006.				
JX-334C	Samsung Mobile Phone List for US Market (by MSM Chipset), dated 2/8/2006.	SAMSUNG 068182-068187	Remedy	Ahn;	Admitted 7/11/06
JX-335C	Deposition designations of Hakju Lee, dated 5/10/2006.				
JX-338C	Samsung Worldwide Sales Figures Per Year for Handsets for 2003-2005. Profit and Loss Statement for SCH-A950WRXXAR, dated December '05 (Korean document); Translation of Profit and Loss Statement.	SAMSUNG 008811-009476	Remedy	Mulhern	Admitted 7/11/06
JX-339C	Samsung Mobile Phone Annual Sales & Profit (WW, US) 2003-2005.	SAMSUNG 024209; BCOM_RE 00017230	Remedy	Lee	Admitted 7/11/06
		SAMSUNG 009477-009478	Remedy	Lee	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Final Joint Remedy Exhibit List

Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-340C	2003-2005 Sales of CDMA Handsets by Samsung.	SAMSUNG 068477	Remedy	Lee	Admitted 7/11/06
JX-341C	Samsung Mobile Phone Sales Projection for 2006-2008.	SAMSUNG 068476	Remedy	Lee	Admitted 7/11/06
JX-342C	Qualcomm's Accused Products Annual Average Purchasing Price (03-05). Profit and Loss Statement for SCH-A890ZSVXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SCH-A890ZSVXAR, dated December 2005.	SAMSUNG 032265	Remedy	Lee	Admitted 7/11/06
JX-343C	Profit and Loss Statement for SCH-A950WRVXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SCH-A950WRVXAR, dated December 2005.	SAMSUNG 024206; BCOM_RE 00017228	Remedy	Mulhern	Admitted 7/11/06
JX-344C	Profit and Loss Statement for SCH-A970ZSVXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SCH-A970ZSVXAR, dated December 2005.	SAMSUNG 024208; BCOM_RE 00017229	Remedy	Mulhern	Admitted 7/11/06
JX-345C	Profit and Loss Statement for SECA890ZSVXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SECA890ZSVXAR, dated December 2005.	SAMSUNG 024210; BCOM_RE 00017231	Remedy	Mulhern	Admitted 7/11/06
JX-346C	Profit and Loss Statement for SEPA920WSSXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SEPA920WSSXAR, dated December 2005.	SAMSUNG 024226; BCOM_RE 00017232	Remedy	Mulhern	Admitted 7/11/06
JX-347C	Profit and Loss Statement for SPH-A790ZKSXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SPH-A790ZKSXAR, dated December 2005.	SAMSUNG 024256; BCOM_RE 00017233	Remedy	Mulhern	Admitted 7/11/06
JX-348C	Profit and Loss Statement for SPH-A900ZKSXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SPH-A900ZKSXAR, dated December 2005.	SAMSUNG 024332; BCOM_RE 00017235	Remedy	Mulhern	Admitted 7/11/06
JX-349C	Profit and Loss Statement for SPH-A920WSSXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SPH-A920WSSXAR, dated December 2005.	SAMSUNG 024343; BCOM_RE 00017236	Remedy	Mulhern	Admitted 7/11/06
JX-350C	Profit and Loss Statement for SPH-A920WSSXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SPH-A920WSSXAR, dated December 2005.	SAMSUNG 024344; BCOM_RE 00017237	Remedy	Mulhern	Admitted 7/11/06
JX-351C	Profit and Loss Statement for SECA970ZSVXR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SECA970ZSVXR, dated December 2005.	SAMSUNG 025657; BCOM_RE 00017324	Remedy	Mulhern	Admitted 7/11/06
JX-352C	Profit and Loss Statement for SECA970ZSVXR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SECA970ZSVXR, dated December 2005.	SAMSUNG 025663; BCOM_RE 00017325	Remedy	Mulhern	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
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Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-353C	Samsung Project List (Korean Document); Translation of Samsung Project List.	SAMSUNG 032284-99; BCOM RE 00017184-199	Remedy	Mulhern	Admitted 7/11/06
JX-354C	Samsung Project List (Korean Document); Translation of Samsung Project List.	SAMSUNG 032140-32189; BCOM RE 17134-183	Remedy	Mulhern; Lee	Admitted 7/11/06
JX-355	Sprint Nextel 2004 Form 10-K, dated 12/31/2004.	SN013484-SN013615	Remedy	Lambrechti	Admitted 7/11/06
JX-356C	Sprint Consolidated 13 Month Trend Subscriber Summary Actual Consolidated Results, 2005.	SN14215-SN14216	Remedy	Lambrechti	Admitted 7/11/06
JX-357C	Subscriber Activity and Revenue, 2002 & 2003.	SN14217-SN14219	Remedy	Lambrechti; Paisner	Admitted 7/11/06
JX-358C	Sprint PCS 13 Month Trend Subscriber Summary Actual Results, 2003 & 2004.	SN14213-SN14214	Remedy	Lambrechti	Admitted 7/11/06
JX-360	Sprint Nextel 2005 Form 10-K, dated 3/7/2006.	SN13759-SN13974	Remedy	Lambrechti	Admitted 7/11/06
JX-361	Press Release: Sprint Begins Launch of EV-DO Wireless High-Speed Data Service, dated 7/7/2005.	SN0012517-18	Remedy	Finnerty;	Admitted 7/11/06
JX-362C	Vendor Unit and Dollar Summary.	SN14188 - 14190	Remedy	Yarkosky Finnerty	Admitted 7/11/06
JX-363C	Vendor Unit and Dollar Summary with Chipsets.	SN0012519	Remedy	Finnerty;	Admitted 7/11/06
JX-364C	Number of Units, Associated Average Revenue and Minutes of Use.	SN16282	Remedy	Mulhern	Admitted 7/11/06
JX-365C	CDMA SRPs.	SN14006 - 14018	Remedy	Finnerty	Admitted 7/11/06
JX-367C	Financial Projections EV-DO Rev A.	SN16279 - 16280	Remedy	Finnerty	Admitted 7/11/06
JX-368C	Additional Release of Funds EV-DO Rev A.	SN16281	Remedy	Yarkosky	Admitted 7/11/06
JX-369C	2006 Projection of Revenues	SN14210-14212	Remedy	Paisner,	Admitted 7/11/06
JX-370C	2006 Power Vision Budget Subscriber Projections.	SN14191-14192	Remedy	Lambrechti	Admitted 7/11/06
JX-371C	Vision Revenue Projections.	SN14193-14196	Remedy	Paisner	Admitted 7/11/06
JX-372C	CDMA Customer Base Subscriber Projection.	SN14197-14209	Remedy	Paisner	Admitted 7/11/06
JX-373C	Subscriber Base and Revenue.	SN15004-15078	Remedy	Paisner;	Admitted 7/11/06
JX-375C	2003-2005 Handset Unit Sales & Subsidy.	VZW BC-QC 008 000003 - 000032	Remedy	Mulhern	Admitted 7/11/06
JX-376C	EVDO Handsets.	VZW BC-QC 008 000001	Remedy	Garavaglia; Smith	Admitted 7/11/06

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Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-377C	Verizon Wireless Retail - Approved Device List.	VZW BC-QC 008 002578 - 002580	Remedy	Garavaglia, Lynch, Mulhern, Zeran	Admitted 7/11/06
JX-378C	VZW Device Roadmap - March 2006.	VZW BC-QC 008 002581	Remedy	Garavaglia	Admitted 7/11/06
JX-379C	EV-DO: Verizon Wireless Broadband Market Entry & Strategy.	VZW BC-QC 008 002922 - 002970	Remedy	Lynch, Straight	Admitted 7/11/06
JX-380C	Verizon External Income Statements, Equipment Revenue Schedules, and Key Performance Indicators Supplementary 2003-2006	VZW BC-QC 008 002863 - 002876	Remedy	Lynch, Smith, Straight	Admitted 7/11/06
JX-381C	ARPU Total VZW, 2003-2006	VZW BC-QC 008 002877 - 002883	Remedy	Lynch, Smith, Straight	Admitted 7/11/06
JX-382C	Verizon Profitability Charts 2004-2005	VZW BC-QC 008 002884 - 002891	Remedy	Lynch, Smith, Straight	Admitted 7/11/06
JX-383C	Verizon Income Statements	VZW BC-QC 008 002892 - 002895	Remedy	Lynch, Smith	Admitted 7/11/06
JX-384C	Service & Data Revenue by Verizon Product	VZW BC-QC 008 002896 - 002897	Remedy	Lynch, Smith	Admitted 7/11/06
JX-385C	Verizon Customers - Supplementary, 2005-2006	VZW BC-QC 008 002898 - 002900	Remedy	Lynch, Smith	Admitted 7/11/06
JX-386C	Verizon Customer Overview; Data Revenue Generating Subscriptions, 2003-2010	VZW BC-QC 008 002901 - 002902	Remedy	Lynch, Smith, Mulhern, Straight	Admitted 7/11/06
JX-387C	Verizon Capital Expenditures, 2003-2010	VZW BC-QC 008 002903	Remedy	Lynch, Smith	Admitted 7/11/06
JX-388C	Verizon Equipment Subsidies, 2004-2005	VZW BC-QC 008 002904 - 002909	Remedy	Lynch, Smith	Admitted 7/11/06
JX-389C	Verizon Wireless Suite of Services.	VZW BC-QC 008 002641 - 002663	Remedy	Lynch, Straight	Admitted 7/11/06
JX-391C	VZW Strategy Session: Broadband Market Entry & Strategy.	VZW BC-QC 008 002971 - 003029	Remedy	Lynch, Straight	Admitted 7/11/06

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Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-393C	Table: EVDO Additional Deployment Plan.	VZW BC-QC 008 002910 - 002912	Remedy	Lynch	Admitted 7/11/06
JX-395C	Expansion of Existing Markets Chart.	VZW BC-QC 008 002919 - 002921	Remedy	Lynch	Admitted 7/11/06
JX-396C	Project Solomon: Vodafone/Verizon Wireless Meeting.	VZW BC-QC 008 003030 - 003080	Remedy	Lynch	Admitted 7/11/06
JX-398C	Business Products and Services.	VZW BC-QC 008 002738 - 002769	Remedy	Straight; Smith	Admitted 7/11/06
JX-400C	Total Verizon Wireless-2006 Actuals.	VZW BC-QC 008 0003096-3111	Remedy	Straight; Mulhern; Smith	Admitted 7/11/06
JX-401C	Phone Sell Thru and Margin Report, Total Verizon from January through April.	VZW BC-QC 008 003092-3095	Remedy	Garavaglia; Straight; Jackson	Admitted 7/11/06
JX-402C	Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, FEDERAL COMMUNICATIONS COMMISSION, Tenth Report, September 30, 2005.	BCOM RE 00002075-2181	Remedy	Mulhern; Carlton	Admitted 7/11/06
JX-403C	David Whelan, Cellular Scion, FORBES, November 28, 2005.	BCOM RE 00002067-2072	Remedy	Mulhern; Manning	Admitted 7/11/06
JX-405C	Samsung Models in Development.	SAMSUNG 066108-66120	Remedy	Mulhern	Admitted 7/11/06
JX-406	"Talking up New Treo, Palm CEO Bets Big On Smartphones", WSJ, May 15, 2006.	BCOM RE 00015377-379	Remedy	Lehr; Jackson	Admitted 7/11/06
JX-410C	Angel & Jade Break Even Analysis	KWC0039754-80	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-413C	Kyocera Monthly Financials, March 2005 Result.	KWC0040740-763	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-414C	Kyocera Monthly Financials, April 2006 Result.	KWC0040764-788	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-421C	Kyocera Wireless Corp. Sales Units, Sales Revenue, Direct Product Cost, and BOM+ Conversion, FY 2003-fy 2007.	KWC0040915-918	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-422C	FY07 Kyocera Market Overview.	KWC0040956-41018	Remedy	Mulhern; Sanders	Admitted 7/11/06

In the Matter of: Certain Baseband Processor Chips, Investigation No. 337-TA-543
Final Joint Remedy Exhibit List

Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-423C	US Handsets by Carrier 2006 - 2008.	KWC0041040-43	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-424C	Canada Handsets by Carrier 2006 -2008.	KWC0041044-45	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-426C	CDMA SAM Technology Forecast.	KWC0041050-52	Remedy	Mulhern; Sanders	Admitted 7/11/06
JX-428	CIBC World Markets, "Global Subscriber and Handset Trends," dated 12/4/05	BCMITC000313960-		Mulhern;	
JX-429C	Kyocera Wireless Corp. Sales Units, 2003-2007	BCMITC000314017	Remedy	Meyer;	Admitted 7/11/06
JX-431C	Samsung R&D Cost, 2003-2005	KWC 060004 - 060007	Remedy	Manning	Admitted 7/11/06
	Profit and Loss Statement for SPH-A960TSSXAR, dated December 2005 (Korean Document); Translation of Profit and Loss Statement for SPH-A960TSSXAR, dated December 2005.	SAMSUNG 009479	Remedy	Sanders	Admitted 7/11/06
JX-432C		SAMSUNG 024349; BCOM_RE 00017239	Remedy	Lee	Admitted 7/11/06
JX-433	Samsung Electronics Earnings Release Q4 2005, dated January 2006		Remedy	Mulhern	Admitted 7/11/06
JX-434	Sprint Investor Quarterly Update, First Quarter 2006 Results Presentation, dated 4/26/2006.	SAMSUNG 066871-066889	Remedy	Lehr;	Admitted 7/11/06
JX-435	Sprint Investor Quarterly Update, First Quarter 2006 results.		Remedy	Mulhern	Admitted 7/11/06
JX-436C	Alignment Review: Qualcomm	VZW BC-QC 004 020007 - 020022	Remedy	Lambrecht	Admitted 7/11/06
JX-439	2003-2005 Sprint Nextel Handset Sales		Remedy	Lambrecht	Admitted 7/11/06
JX-440C	Deposition designations of Charles Lambrecht, May 19, 2006.	SN16348-16855	Remedy	Garavaglia	Admitted 7/11/06
JX-441C	Deposition designations of Brian Finnerty, dated 2/9/2006.		Remedy	Finnerty;	Admitted 7/11/06
JX-442C	Deposition designations of Brian Finnerty, dated 5/10/2006.		Remedy	Mulhern	Admitted 7/11/06
JX-443C	Deposition designations of Mark Brazeal, dated 12/20/2005.		Remedy	Lambrecht	Admitted 7/11/06
JX-444C	Deposition designations of Mark Brazeal, dated 5/23/2006.		Remedy	Finnerty	Admitted 7/11/06
JX-445C	Deposition designations of Victoria Lee, dated 5/18/2006.		Remedy	Finnerty	Admitted 7/11/06
JX-447C	Deposition designations of Timothy Froehling, dated 12/5/2005.		Remedy	Brazeal	Admitted 7/11/06
JX-448C	Deposition designations of Timothy Johnson, dated 12/14/2005.		Remedy	Brazeal	Admitted 7/11/06
JX-449C	Deposition designations of Brian Redding, dated 11/30/2005.		Remedy	Lee, Victoria	Admitted 7/11/06
JX-452C	Deposition designations of Steven Paisner, dated 5/8/2005.		Remedy	Froehling	Admitted 7/11/06
			Remedy	Johnson	Admitted 7/11/06
			Remedy	Redding	Admitted 7/11/06
			Remedy	Paisner	Admitted 7/11/06

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Joint Exh. No.	Title	Bates Numbers	Purpose	Sponsoring Witness	Received
JX-454C	Deposition designations of Rosemary Garavaglia, dated 4/27/2005.		Remedy	Garavaglia	Admitted 7/11/06
JX-455C	Deposition designations of Richard Lynch, dated 5/12/2006.		Remedy	Lynch	Admitted 7/11/06
JX-456C	Deposition designations of Steven Smith, dated 5/5/2006.		Remedy	Smith	Admitted 7/11/06
JX-459C	Deposition designations of David Bush, dated 11/10/2005.		Remedy	Mulhern	Admitted 7/11/06
JX-460C	Deposition designations of Hank Robinson, dated 12/22/2005.		Remedy	Mulhern	Admitted 7/11/06
JX-463C	Deposition designations of Liat Ben-Zur, dated 11/8/2005.		Remedy	Ben-Zur	Admitted 7/11/06
JX-465C	Deposition designations of Jose Piazza, dated 6/22/2006		Remedy	Piazza	Admitted 7/11/06

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Charles E. Bullock
Administrative Law Judge**

_____) Investigation No. 337-TA-543
In the Matter of)
)
CERTAIN BASEBAND PROCESSOR)
CHIPS AND CHIPSETS, TRANSMITTER)
AND RECEIVER (RADIO) CHIPS, POWER)
CONTROL CHIPS AND PRODUCTS)
CONTAINING SAME, INCLUDING)
CELLULAR TELEPHONE HANDSETS)
_____)

INTERVENOR KYOCERA WIRELESS CORPORATION'S FINAL EXHIBIT LIST

Don F. Livornese
Ben Davidson
HOWREY LLP
550 South Hope Street, Suite 1100
Los Angeles, CA. 90071
(213) 892-1800

Roman E. Darmer
HOWREY LLP
2020 Main Street, Suite 1000
Irvine, CA. 92614
(948) 721-6900

Dan Shvodian
HOWREY LLP
1950 University Avenue, 4th Floor
East Palo Alto, CA. 94303
(650) 798-3500

Dated: July 21, 2006

Attorneys for Kyocera Wireless Corporation

DOCUMENTARY EXHIBITS

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-001C					Withdrawn
KX-002C	KWC 0040445	KWC 0040471	FY07 MP Expense Reports Final (P30-CCO)	Sanders	Admitted (7/11/06)
KX-003C	KWC 0040472	KWC 0040507	FY07 MP Expense Reports Final (P31-MFG)	Sanders	Admitted (7/11/06)
KX-004C	KWC 0040508	KWC 0040543	FY07 MP Expense Reports Final (P35-RD)	Sanders	Admitted (7/11/06)
KX-005C	KWC 0040544	KWC 0040563	FY07 MP Expense Reports Final (P33-Product Mgmt)	Sanders	Admitted (7/11/06)
KX-006C	KWC 0040564	KWC 0040593	FY07 MP Expense Reports Final (PXX-Sales)	Sanders	Admitted (7/11/06)
KX-007C	KWC 0040594	KWC 0040623	FY07 MP Expense Reports Final (P4G-Marketing)	Sanders	Admitted (7/11/06)
KX-008C	KWC 0040624	KWC 0040653	FY07 MP Expense Reports Final (P38-Service Operations)	Sanders	Admitted (7/11/06)
KX-009C	KWC 0040654	KWC 0040683	FY07 MP Expense Reports Final (P34-QA)	Sanders	Admitted (7/11/06)
KX-010C	KWC 0040684	KWC 0040713	FY07 MP Expense Reports Final (P32-GENADM)	Sanders	Admitted (7/11/06)
KX-011C	KWC 0040714	KWC 0040714	FY07 MP Expense Reports Final (P&L Line Items)	Sanders	Admitted (7/11/06)
KX-012C	KWC 0040715	KWC 0040739	Weekly KWC Department Headcount Report (5/4/2006)	Sanders	Admitted (7/11/06)
KX-015C	KWC 0040789	KWC 0040789	Kyocera Wireless Corp.'s Sales Overview Graph	Sanders	Admitted (7/11/06)
KX-016C	KWC 0040790	KWC 0040790	Kyocera Wireless Corp.'s Revenue & PBT Graph	Sanders	Admitted (7/11/06)
KX-017C	KWC 0040791	KWC 0040793	Kyocera Wireless Corp.'s Revenue & PBT Chart	Sanders	Admitted (7/11/06)
KX-018C	KWC 0040794	KWC 0040794	Kyocera Wireless Corp.'s Monthly Sales Trends (2003-2005)	Sanders	Admitted (7/11/06)
KX-019C	KWC 0040795	KWC 0040801	FY07 MP Net Revenue	Sanders	Admitted (7/11/06)
KX-020C	KWC 0040802	KWC 0040802	Kyocera Wireless Corp.'s Quarterly Units Trend Chart	Sanders	Admitted (7/11/06)

EXH NO	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-021C	KWC 0040803	KWC 0040803	KWC P&L by Month for Sales of Handsets by Quarter (2001-2005)	Sanders	Admitted (7/11/06)
KX-022C					Withdrawn
KX-023C					Withdrawn
KX-024C					Withdrawn
KX-025C	KWC 0040808	KWC 0040808	Kyocera Gross Margin and SGA Bar Chart (2002-2004)	Sanders	Admitted (7/11/06)
KX-026C	KWC 0040809	KWC 0040810	KWC Break Even Point Calculation Chart	Sanders; Meyer	Admitted (7/11/06)
KX-027C	KWC 0040811	KWC 0040811	Kyocera BEP Shipment Trend Graph (2002-2004)	Sanders	Admitted (7/11/06)
KX-028C					Withdrawn
KX-029C					Withdrawn
KX-030C					Withdrawn
KX-031C					Withdrawn
KX-032C					Withdrawn
KX-033C					Withdrawn
KX-034C					Withdrawn
KX-035C					Withdrawn
KX-036C					Withdrawn
KX-037C	KWC 0040844	KWC 0040847	Angel Executive Summary Chart	Sanders; Meyer	Admitted (7/11/06)
KX-038C	KWC 0040848	KWC 0040851	Angel Product Profitability, Program Refresh Chart	Sanders; Meyer	Admitted (7/11/06)
KX-039C	KWC 0040852	KWC 0040852	Angel Break Even Analysis	Sanders; Meyer	Admitted (7/11/06)
KX-040C	KWC 0040853	KWC 0040853	Angel DPC Build-Up by Quarter Chart	Sanders; Meyer	Admitted (7/11/06)
KX-041C	KWC 0040854	KWC 0040857	Angel R&D ROI Build-Up by Customer Chart	Sanders; Meyer	Admitted (7/11/06)
KX-042C	KWC 0040858	KWC 0040860	Angel Volume Pricing Chart (11-10-05)	Sanders; Meyer	Admitted (7/11/06)
KX-043C	KWC 0040861	KWC 0040863	Angel R&D Budget Chart	Sanders; Meyer	Admitted (7/11/06)
KX-044C	KWC 0040864	KWC 0040865	Angel Sustaining Budget Chart	Sanders; Meyer	Admitted (7/11/06)

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-045C	KWC 0040866	KWC 0040869	Jade Executive Summary Chart	Sanders; Meyer	Admitted (7/11/06)
KX-046C	KWC 0040870	KWC 0040873	Jade Product Profitability, Program Refresh Chart	Sanders; Meyer	Admitted (7/11/06)
KX-047C	KWC 0040874	KWC 0040875	Jade Break Even Analysis	Sanders; Meyer	Admitted (7/11/06)
KX-048C	KWC 0040876	KWC 0040876	Jade DPC Build-Up by Quarter Chart	Sanders; Meyer	Admitted (7/11/06)
KX-049C	KWC 0040877	KWC 0040877	Jade R&D ROI Build-Up by Customer Chart	Sanders; Meyer	Admitted (7/11/06)
KX-050C	KWC 0040878	KWC 0040878	Jade Volume Pricing Chart (11-10-05)	Sanders; Meyer	Admitted (7/11/06)
KX-051C	KWC 0040879	KWC 0040881	Jade R&D Budget Chart	Sanders; Meyer	Admitted (7/11/06)
KX-052C	KWC 0040882	KWC 0040882	Jade Sustaining Budget Chart	Sanders; Meyer	Admitted (7/11/06)
KX-060C					Withdrawn
KX-061C					Withdrawn
KX-063C					Withdrawn
KX-064C	KWC 0041020	KWC 0041039	Kyocera Wireless Corp. - P&L Performance Comparison Chart	Sanders; Meyer	Admitted (7/11/06)
KX-068C	KWC 0041048	KWC 0041049	Handset Sales Growth Assumptions	Sanders	Admitted (7/11/06)
KX-071C	KWC 0041061	KWC 0041131	Historic Chipset Costs between Qualcomm & Kyocera (2003-2006)	Zeran	Admitted (7/11/06)
KX-072C	KWC 0041132	KWC 0041144	Kyocera Wireless Corp's Department Spending by Account/Category Chart (FY07 MP)	Sanders	Admitted (7/11/06)
KX-073C	KWC 0041179	KWC 0041181	Kyocera Wireless Corp - Phone Direct Margin Analysis	Sanders	Admitted (7/11/06)
KX-075C	KWC 0002471	KWC 0002476	Letters from various cellular companies to Qualcomm re: CDMA Handset Purchase and Sale Agreement	Sanders	Admitted (7/11/06)
KX-077C	KWC 0002759	KWC 0002766	Kyocera Phone Sales Results/Plans (FY2004-2007)	Sanders	Admitted (7/11/06)

EXH NO	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-080C					Withdrawn
KX-082C	KWC 0002689	KWC 0002750	Project Phase Information (Zeran Depo. Ex. 6) (4/20/06)	Zeran	Admitted (7/11/06)
KX-083C	KWC 0002651	KWC 0002670	Project Phase Information, APG - Accessories Product Group (Zeran Depo. Ex. 5) (4/20/06)	Zeran	Admitted (7/11/06)
KX-085C	KWC 0039750	KWC 0039751	FY03-07 MP Schedules (Sales Units and Revenues) (Zeran Depo. Ex. 3) (4/20/06)	Zeran	Admitted (7/11/06)
KX-091C					Withdrawn
KX-092C					Withdrawn
KX-093C					Withdrawn
KX-094C					Withdrawn
KX-095					Withdrawn
KX-096					Withdrawn
KX-097					Withdrawn
KX-099	KWC 0070396	KWC 0070398	Internet/Website Printout - Kyocera Cell Phone Comparison (Kyocera 26)	Zeran	Admitted (7/11/06)
KX-102C	KWC 0040055	KWC 0040079	Chart of Kyocera Projects, Dates & Amounts (Sanders Depo. Ex. 14)	Sanders	Admitted (7/11/06)
KX-114C					Withdrawn
KX-116C					Withdrawn
KX-117C					Withdrawn
KX-118C					Withdrawn
KX-119C					Withdrawn
KX-120C					Withdrawn
KX-121C					Withdrawn

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-122C	KWC 0004580	KWC 0004581	Verizon's Requirements for E911	Zeran	Admitted (7/11/06)
KX-123C	KWC 0004582	KWC 0004592	Verizon Wireless' Technical Requirements for Location Determination Capable Terminals and Customer Premise Equipment	Zeran	Admitted (7/11/06)
KX-124C	KWC 0011487	KWC 0011510	Kyocera Wireless 2006 Product Roadmap	Zeran	Admitted (7/11/06)
KX-125C	KWC 0011511	KWC 0011511	KWC Product Development Process Overview	Zeran	Admitted (7/11/06)
KX-131C					Withdrawn
KX-134C	KWC 0039781	KWC 0039797	Black Canary Executive Summary	Sanders; Meyer	Admitted (7/11/06)
KX-135C	KWC 0039798	KWC 0039814	Jaguar EVDO Executive Summary	Sanders; Meyer	Admitted (7/11/06)
KX-136C	KWC 0039815	KWC 0039819	Kyocera Product Actualization with Control Excellence (PACE) Process	Zeran	Admitted (7/11/06)
KX-137C	KWC 0039820	KWC 0039827	Kyocera PACE Process Roles & Responsibilities	Zeran	Admitted (7/11/06)
KX-138C	KWC 0039828	KWC 0039838	Kyocera PACE Structured Development Overview	Zeran	Admitted (7/11/06)
KX-139C	KWC 0039839	KWC 0039846	Kyocera PACE Phase Review Overview	Zeran	Admitted (7/11/06)
KX-141C	KWC 0040407	KWC 0040407	Fixed Assets Additions (KWC only) (2002-2006)	Sanders	Admitted (7/11/06)
KX-143C	KWC 0041170	KWC 0041178	Jade Executive Summary, Product Profitability, Break Even Analysis, DPC Build-Up Charts	Zeran	Admitted (7/11/06)
KX-144C					Withdrawn
KX-145					Withdrawn
KX-146					Withdrawn
KX-147					Withdrawn
KX-148C					Withdrawn
KX-149					Withdrawn
KX-150C					Withdrawn

EXH NO	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-152C					Withdrawn
KX-158					Withdrawn
KX-159C					Withdrawn
KX-160					Withdrawn
KX-161					Withdrawn
KX-162					Withdrawn
KX-165					Withdrawn
KX-168					Withdrawn
KX-169C					Withdrawn
KX-170C					Withdrawn
KX-171C					Withdrawn
KX-172C					Withdrawn
KX-175	KWC 0041889	KWC 0041913	SA Handset Survey – April 2006	Sanders; Meyer	Admitted (7/11/06)
KX-176C	KWC 0041914	KWC 0041967	KX-18 Oracle Inventory Summary	Sanders	Admitted (7/11/06)
KX-177C	KWC 0041182	KWC 0041183	First Amendment to BREW Amendment to Subscriber Unit License Agreement (SULA) (3-14-02)	Sanders	Admitted (7/11/06)
KX-178C	KWC 0041184	KWC 0041185	Addendum Number 2 to Subscriber Unit License Agreement (6-27-03)	Sanders	Admitted (7/11/06)
KX-179C	KWC 0041186	KWC 0041196	Second Amendment to Subscriber Unit License Agreement	Sanders	Admitted (7/11/06)
KX-180C	KWC 0041197	KWC 0041205	Amendment to Subscriber Unit License Agreement (the "Amendment") (9-29-00)	Sanders	Admitted (7/11/06)
KX-181C	KWC 0041206	KWC 0041231	BREW Amendment to Subscriber Unit License Agreement (3-14-02)	Sanders	Admitted (7/11/06)
KX-182C	KWC 0041233	KWC 0041280	Subscriber Unit License Agreement (SULA) (8-31-96)	Sanders	Admitted (7/11/06)

EXH NO.	BEGPROD	ENDEROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-183C	KWC 0041968	KWC 0041982	Direct Testimony of Alan Sanders (Witness Statement)	Sanders	Admitted (7/10/06)
KX-184C					Withdrawn
KX-186	KWC 0042032	KWC 0042041	Curriculum Vitae of Paul K. Meyer (Attachment 1)	Meyer	Admitted (7/11/06)
KX-187	KWC 0042042	KWC 0042045	Paul K. Meyer – Testimony in Last Four Years (2002-Present) (Attachment 2)	Meyer	Admitted (7/11/06)
KX-188C	KWC 0042046	KWC 0042048	Documents Considered List of Paul K. Meyer (for 5-19-06 Report) (Attachment 3)	Meyer	Admitted (7/11/06)
KX-189C					Withdrawn
KX-190C	KWC 0042050	KWC 0042052	Kyocera Wireless – Value of Accused Baseband and RFT Chips as a Percentage of Wholesale Handset Price & Related Charts (Attachment 5-5.2)	Meyer	Admitted (7/11/06)
KX-193C	KWC 0042062	KWC 0042074	Kyocera Wireless – Subject EV-DO Handset Revenue/Profits & Related Charts (Attachment 8-8.7)	Meyer	Admitted (7/11/06)
KX-195C	KWC 0042083	KWC 0042083	Kyocera Wireless – Handset Development Costs (Attachment 10)	Meyer	Admitted (7/11/06)
KX-199C	KWC 0042088	KWC 0042089	Kyocera Wireless – Net Working Capital Deficit (April 30, 2006) (Attachment 14)	Meyer	Admitted (7/11/06)
KX-200C	KWC 0042090	KWC 0042090	Kyocera Wireless – Balance Sheet Accounts and Financial Ratios (Attachment 15)	Meyer	Admitted (7/11/06)
KX-201C	KWC 0042091	KWC 0042091	Kyocera Wireless – Balance Sheet Summary (Attachment 16)	Meyer	Admitted (7/11/06)
KX-202C	KWC 0042092	KWC 0042092	Kyocera Wireless – Weighted Average Cost of Capital (April 30, 2006) (Attachment 17)	Meyer	Admitted (7/11/06)

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-203C					Withdrawn
KX-204C	KWC 0042109	KWC 0042126	Phase 0 Exit Review – Project Definition Investment Approval, Pre- Read Package Cobra (12/3/03)	Zeran; Meyer	Admitted (7/11/06)
KX-205C	KWC 0042127	KWC 0042148	PAC Review – TI Alternative Chipset Readiness Evaluation for Cobra (5/3/04)	Zeran; Meyer	Admitted (7/11/06)
KX-206C	KWC 0042149	KWC 0042149	KX-18 Unit Sales (2004-2006)	Zeran	Admitted (7/11/06)
KX-207C	KWC 0042150	KWC 0042150	KX-18 Unit Sales (2004-2006) (Revised)	Zeran	Admitted (7/11/06)
KX-208C	KWC 0042151	KWC 0042151	Brightpoint Purchase Order re AmpJet & AmpAngel Products (4/20/06)	Zeran	Admitted (7/11/06)
KX-209C	KWC 0042177	KWC 0042252	Kyocera Unit Sales (2004-2006) (Spreadsheet)	Zeran	Admitted (7/11/06)
KX-210C	KWC 0042253	KWC 0042290	Kyocera Unit Sales (2004-2006) (Revised) (Spreadsheet)	Zeran	Admitted (7/11/06)
KX-226C	KWC 0042458	KWC 0042473	Expert Rebuttal Testimony of Paul K. Meyer (6-7-06)	Meyer	Admitted (7/11/06)
KX-227	KWC 0042291	KWC 0042299	Chetan Sharma, 3G <i>Hitting the Mass Market</i> , (www.MocoNews.net)	Meyer	Admitted (7/11/06)
KX-228	KWC 0042300	KWC 0042305	U.S. Wireless Commercial Video and Television Anticipates Rapid Market Growth, (www.3G.co.uk)	Meyer	Admitted (7/11/06)
KX-229C	KWC 0042306	KWC 0042307	Tom Zeran Notes (5/30/06)	Meyer	Admitted (7/11/06)
KX-230C	KWC 0042308	KWC 0042310	Tom Zeran Notes (5/24/06)	Meyer	Admitted (7/11/06)
KX-232C					Withdrawn
KX-233C					Withdrawn
KX-234	KWC 0042313	KWC 0042324	<i>The Role of CDMA2000 in the Success of Wireless Broadband</i> , dated May 2006, (www.edg.org)	Meyer	Admitted (7/11/06)

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-235	KWC 0042325	KWC 0042343	Yankee Group Presentation, <i>The US 3G Market Will Heat Up in 2006</i> , dated November 15, 2005	Meyer	Admitted (7/11/06)
KX-236	KWC 0042344	KWC 0042446	<i>Wireless Broadband in the USA</i> , dated November 14, 2005	Meyer	Admitted (7/11/06)
KX-238C	KWC 0042447	KWC 0042447	Kyocera Wireless – Impact on Planned Capital Positions and Net Worth from EV-DO Sales, Assuming Exclusion Order (Meyer Rebuttal Attachment)	Meyer	Admitted (7/11/06)
KX-239C	KWC 0042448	KWC 0042448	Kyocera Wireless EV-DO Planned Revenues & Profits, Compared to FY 2007 Master Plan (Meyer Rebuttal Attachment)	Meyer	Admitted (7/11/06)
KX-240C	KWC 0042449	KWC 0042449	Kyocera Wireless – North American Sales Forecast by Standard (Meyer Rebuttal Attachment)	Meyer	Admitted (7/11/06)
KX-241C	KWC 0042450	KWC 0042450	Kyocera Wireless – Subject EV-DO Handset Revenue & Profits (Meyer Rebuttal Attachment)	Meyer	Admitted (7/11/06)
KX-242C	KWC 0042451	KWC 0042456	List of Documents Received & Considered Since May 19, 2006 (Meyer Rebuttal Attachment)	Meyer	Admitted (7/11/06)
KX-243C	KWC 0042457	KWC 0042457	Kyocera Wireless – EV-DO Research and Development Cost, Actual & Projected (Meyer Rebuttal Attachment)	Meyer	Admitted (7/11/06)
KX-244C	KWC 0042474	KWC 0042477	Direct Rebuttal Testimony of Thomas Zeran (6/8/06)	Zeran	Admitted (7/10/06)
KX-245C	KWC 0042478	KWC 0042493	Direct Testimony of Paul K. Meyer (7/3/06) (REVISED)	Meyer	Admitted (7/11/06)

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KX-246C	KWC 0042494	KWC 0042514	Direct Testimony of Thomas Zeran (6/1/06) (REVISED)	Zeran	Admitted (7/10/06)
KX-247					Withdrawn
JX-220C	BCMITC 0000089111	BCMITC 0000089202	Broadcom Corporation Q1 '05 Financial Analysis & April '05 Outlook Earnings Release Date (Thursday, April 21, 2005)	Kohanteb	Admitted (7/11/06)
JX-247C	KWC 0002751	KWC 0002760	Kyocera Earnings/Projected Earnings Charts (2004-2006)	Sanders	Admitted (7/11/06)
JX-248C	KWC 0039711	KWC 0039712	Kyocera Wireless Corp. P & L Performance Comparison, 2002-2006	Sanders	Admitted (7/11/06)
JX-249C	KWC 0039847	KWC 0039847	Kyocera Wireless Corp. Project Financial Chart, 2002-2006	Sanders	Admitted (7/11/06)
JX-250C	KWC 0039848	KWC 0039849	Kyocera Wireless Corp. Sum of Burden Cost Chart 2002-2006	Sanders	Admitted (7/11/06)
JX-251C	KWC 0039716	KWC 0039737	Kyocera Wireless Corp. FY04 Revised Master Plan	Sanders	Admitted (7/11/06)
JX-252C	KWC 0039752	KWC 0039752	Kyocera Wireless Corp. Direct Product Cost Chart, 2003-2007	Sanders	Admitted (7/11/06)
JX-253C	KWC 0039754	KWC 0039754	Kyocera Wireless Corp. Angel & Jade Break Even Analysis	Sanders	Admitted (7/11/06)
JX-254C	KWC 0039756	KWC 0039759	Kyocera Wireless Corp. Angel Executive Summary	Sanders	Admitted (7/11/06)
JX-255C	KWC 0039785	KWC 0039785	Kyocera Wireless Corp. Black Canary DPC Buildup by Quarter	Sanders	Admitted (7/11/06)
JX-256C	KWC 0039786	KWC 0039786	Kyocera Wireless Corp. Black Canary R&D ROI Buildup by Customer	Sanders	Admitted (7/11/06)
JX-257C	KWC 0039788	KWC 0039788	Kyocera Wireless Corp. KCJ Royalty Calculation	Sanders	Admitted (7/11/06)

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INFO EVIDENCE
JX-258C	KWC 000811	KWC 000814	Quotation To: Kyocera Wireless Corporation/Kyocera Corporation For CDMA ASIC Devices, dated 11/17/2005	Sanders	Admitted (7/11/06)
JX-260C	KWC 000819	KWC 000832	Product Supply Agreement between Qualcomm and Kyocera Wireless Corp., dated 5/22/03.	Zeran	Admitted (7/11/06)
JX-261C	KWC 000833	KWC 000846	Product Supply Agreement between Qualcomm and Kyocera Wireless Corp., dated 5/23/03	Zeran	Admitted (7/11/06)
JX-265C	KWC 0011450	KWC 0011451	Kyocera Wireless Corp. Products and Chips, dated March 2006	Zeran	Admitted (7/11/06)
JX-413C	KWC 0040740	KWC 0040763	Kyocera Monthly Financials, March 2005 Result	Sanders	Admitted (7/11/06)
JX-414C	KWC 0040764	KWC 0040788	Kyocera Monthly Financials, April 2006 Result	Sanders	Admitted (7/11/06)
JX-421C	KWC 0040915	KWC 0040918	Kyocera Wireless Corp. Sales Units, Sales Revenue, Direct Product Cost, and BOM+ Conversion, FY 2003-FY 2007	Sanders	Admitted (7/11/06)
JX-422C	KWC 0040956	KWC 0041018	Kyocera Wireless Corporation's 2007 Market Overview	Sanders; Meyer	Admitted (7/11/06)
JX-423C	KWC 0041040	KWC 0041043	US Handsets by Carrier 2006 - 2008	Sanders	Admitted (7/11/06)
JX-424C	KWC 0041044	KWC 0041045	Canada Handsets by Carrier 2006 -2008	Sanders	Admitted (7/11/06)
JX-426C	KWC 0041050	KWC 0041052	CDMA SAM Technology Forecast	Sanders	Admitted (7/11/06)
JX-428	BCMITC 000313960	BCMITC 000314017	CIBC World Markets, "Global Subscriber and Handset Trends" (12/4/05)	Meyer	Admitted (7/11/06)
JX-429C	KWC 0060004	KWC 0060007	Kyocera Wireless Corp. Sales Units (2003-2007).	Sanders	Admitted (7/11/06)

DEMONSTRATIVE EXHIBITS

EXH NO.	BEGPROD	ENDPROD	TITLE	SPONSORING WITNESS	RECEIVED INTO EVIDENCE
KDX-001C					Withdrawn
KDX-002C					Withdrawn
KDX-003C					Withdrawn
KDX-004C					Withdrawn
KDX-005C					Withdrawn
KDX-006C					Withdrawn
KDX-007C					Withdrawn

Dated: July 21, 2006

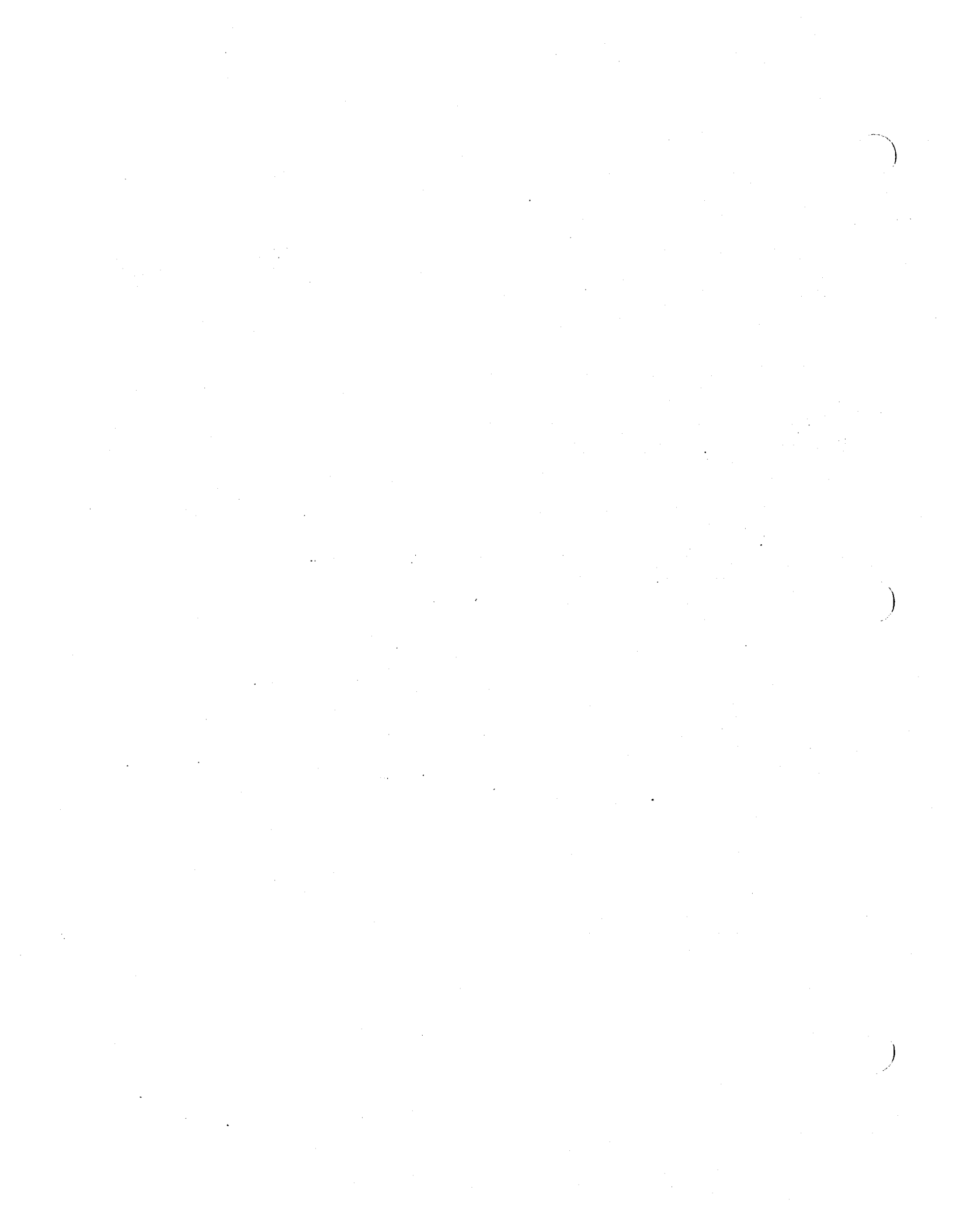
Respectfully submitted,

By: Don Livornese / *ESS*
Don F. Livornese
Ben M. Davidson
HOWREY LLP
550 South Hope Street, Suite 1100
Los Angeles, CA. 90071
(213) 892-1800

Roman E. Darmer
HOWREY LLP
2020 Main Street, Suite 1000
Irvine, CA. 92614
(949) 721-6900

Dan Shvodian
HOWREY LLP
1950 University Avenue, 4th Floor
East Palo Alto, CA. 94303
(650) 798-3500

Attorneys for Kyocera Wireless
Corporation



UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C. 20436

IN THE MATTER OF)

CERTAIN BASEBAND PROCESSOR)
CHIPS, POWER CONTROL CHIPS,)
AND PRODUCTS CONTAINING)
SAME, INCLUDING CELLULAR)
TELEPHONE HANDSETS)

INVESTIGATION NO. 337-TA-543

INTERVENOR LG ELECTRONICS MOBILECOMM U.S.A., INC.'S
FINAL TRIAL EXHIBIT LIST

Evelyn G. Heilbrunn
Timothy W. Riffe
Scott A. Elengold
Fish & Richardson P.C.
1425 K Street, N.W., 11th floor
Washington, DC 20005
Telephone: 202-783-5070
Facsimile: 202-783-2331

Todd G. Miller
Fish & Richardson P.C.
12390 El Camino Real
San Diego, CA 92130
Telephone: 858-678-5070
Facsimile: 858-678-5099

Dated: July 21, 2006

Attorneys for Intervening Party
LG Electronics Mobilecomm U.S.A., INC.

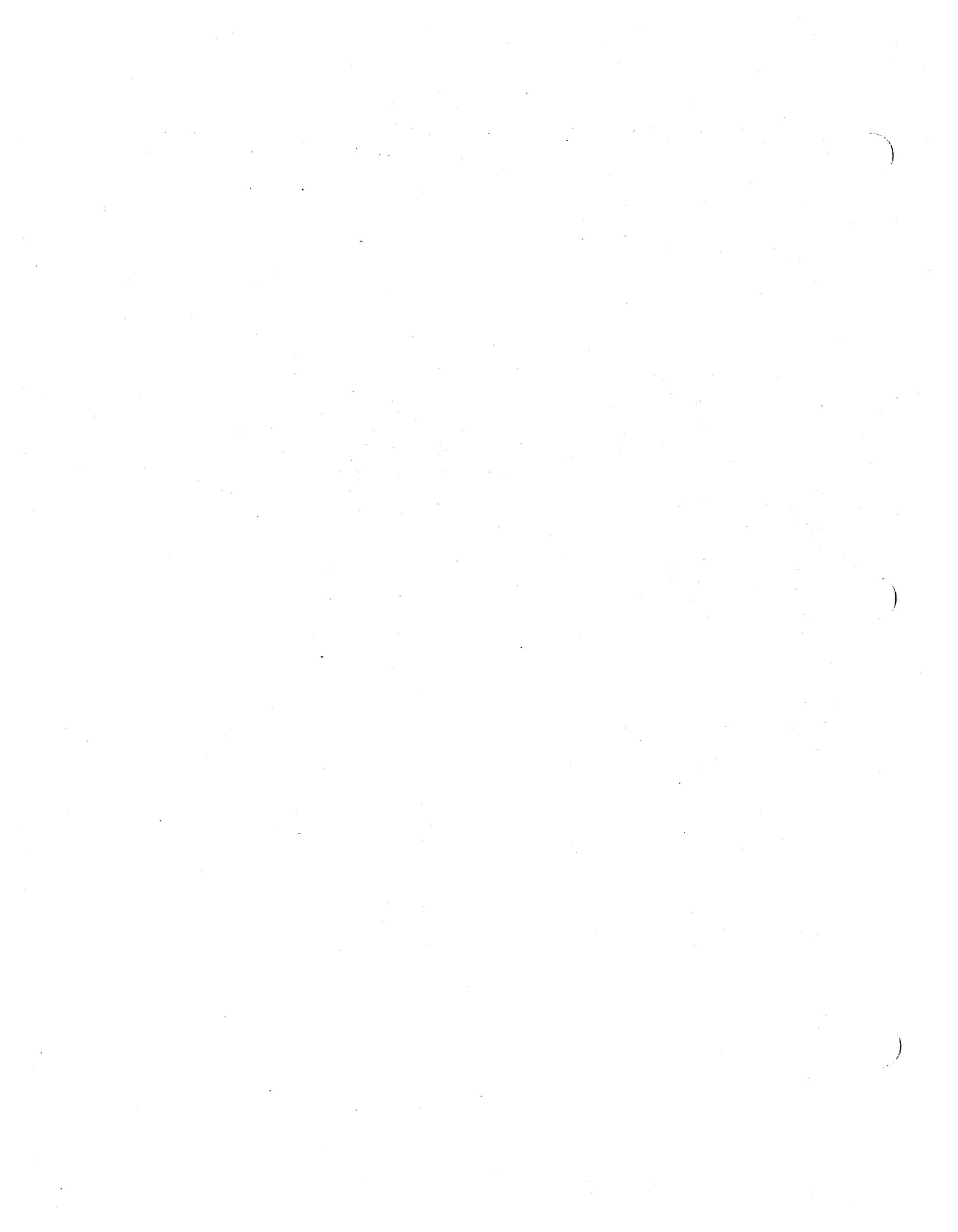


Exhibit No.	Date	Exhibit Description	Sponsoring Witness	Purpose	Received Into Evidence
LGX-001		WITHDRAWN			
LGX-002		WITHDRAWN			
LGX-003		WITHDRAWN			
LGX-004		WITHDRAWN			
LGX-005		WITHDRAWN			
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LGX-015		WITHDRAWN			
LGX-016		WITHDRAWN			
LGX-017		WITHDRAWN			
LGX-018C		Letter to LG fr Broadcom re Broadcom/Qualcomm litigations (LGEMC000001)	Cohen; Sollenberger	Remedy	Admitted 07/11/2006
LGX-019		WITHDRAWN			
LGX-020		WITHDRAWN			
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LGX-130	WITHDRAWN								
LGX-131C	Sales and Earning in US from 2003Q1-2006Q1 (LGEMC005679- LGEMC005695)			Dan Galalak		Remedy		Admitted 07/11/2006	
LGX-132	WITHDRAWN								
LGX-133	WITHDRAWN								
LGX-134	Fusic Datasheet (LGEMC005740-LGEMC005741)			Dan Galalak		Remedy		Admitted 07/11/2006	
LGX-135C	Witness Statement of Dan Galalak			Dan Galalak		Remedy		Admitted 07/10/2006	
LGX-136	VX8300 Userguide (LGEMC005766-LGEMC005883)			Dan Galalak		Remedy		Admitted 07/11/2006	
LGX-137	WITHDRAWN								
LGX-138	"Smartphone" from wikipedia, the free encyclopedia (http://en.wikipedia.org/wiki/Smartphone)			Lehr		Remedy		Admitted 07/11/2006	
LGX-139	WITHDRAWN								
LGX-140	WITHDRAWN								
LGX-141	WITHDRAWN								
LGX-142	WITHDRAWN								
LGX-143	WITHDRAWN								
LGDX-01	WITHDRAWN								
LGDX-02	WITHDRAWN								
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LGDX-14	WITHDRAWN			
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LGDX-16	WITHDRAWN			
LGPX-001	WITHDRAWN			
LGPX-002	WITHDRAWN			
LGPX-003	WITHDRAWN			

Respectfully submitted,

FISH & RICHARDSON P.C.

Dated: July 21, 2006

By: /s/ Timothy W. Riffe
 Evelyn G. Heilbrunn
 Timothy W. Riffe
 Scott A. Elengold
 Fish & Richardson P.C.
 1425 K Street, N.W., 11th floor
 Washington, DC 20005
 Telephone: 202-783-5070
 Facsimile: 202-783-2331

Todd G. Miller
 Fish & Richardson P.C.
 12390 El Camino Real
 San Diego, CA 92130
 Telephone: 858-678-5070
 Facsimile: 858-678-5099

Attorneys for Intervening Party
 LG ELECTRONICS MOBILECOMM U.S.A., INC.

CONTAINS CONFIDENTIAL BUSINESS INFORMATION
SUBJECT TO PROTECTIVE ORDER

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable Charles E. Bullock
Administrative Law Judge

_____)	
In the Matter of)	Investigation
)	No. 337-TA-543
CERTAIN BASEBAND PROCESSOR)	
CHIPS AND CHIPSETS, TRANSMITTER)	
AND RECEIVER (RADIO) CHIPS, POWER)	
CONTROL CHIPS, AND PRODUCTS)	
CONTAINING SAME, INCLUDING)	
CELLULAR TELEPHONE HANDSETS)	
_____)	

MOTOROLA, INC.'S FINAL REMEDY EXHIBIT LIST

Respectfully submitted,



Russell E. Levine, P.C.

James B. Coughlan

Nyika O. Strickland

Alison R. Aubry

Melody Drummond

KIRKLAND & ELLIS LLP

200 East Randolph Drive

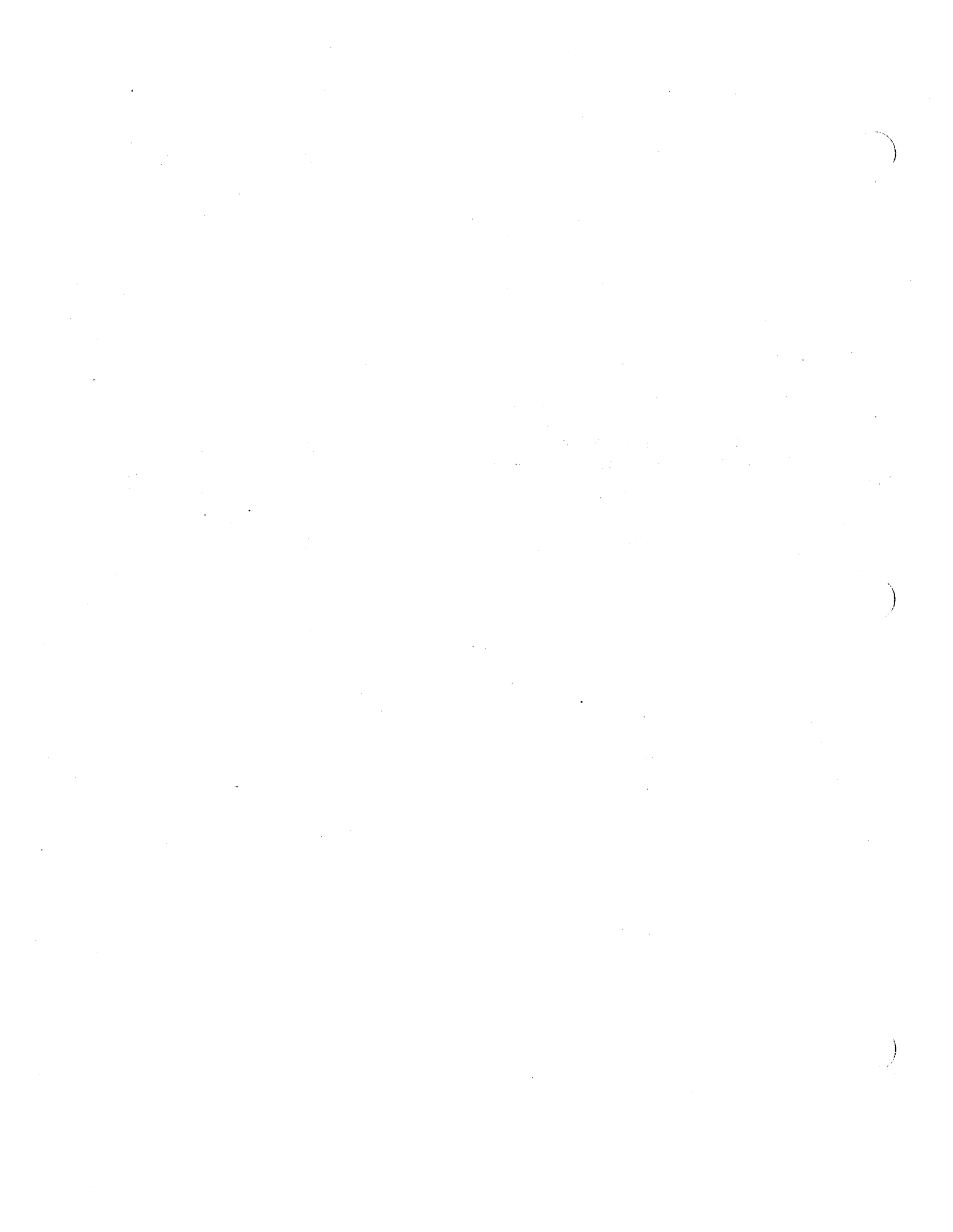
Chicago, Illinois 60601

Telephone: (312) 861-2000

Facsimile: (312) 861-2200

Dated: July 12, 2006

Attorneys for Intervenor
MOTOROLA, INC.



MOTOROLA, INC.'S FINAL REMEDY EXHIBIT LIST
 July 12, 2006

Exhibit No.	Bates Range	Description	Sponsoring Witness	Purpose	Received Into Evidence
MX-1C	MOT/BQ 60431	Correlation of MSM to RFT Chips Spreadsheet		Remedy	Rejected per 6/22/06 Order
MX-2	MOT/BQ 60478 - 60616	Form 10-K Annual Report; 03/27/2003	Dennis Ollis	Remedy	Admitted 7/11/06
MX-3	MOT/BQ 60617 - 60662	Form 10-K/A Amendment; 04/18/2003	Dennis Ollis	Remedy	Admitted 7/11/06
MX-4	MOT/BQ 60663 - 60785	Form 10-Q Quarterly Report; 05/13/2003	Dennis Ollis	Remedy	Admitted 7/11/06
MX-5	MOT/BQ 60786 - 60855	Form 10-Q Quarterly Report; 08/01/2003	Dennis Ollis	Remedy	Admitted 7/11/06
MX-6	MOT/BQ 60856 - 60935	Form 10-Q Quarterly Report; 11/06/2003	Dennis Ollis	Remedy	Admitted 7/11/06
MX-7	MOT/BQ 60936 - 60966	Form 10-Q/A Amendment; 03/08/2004	Dennis Ollis	Remedy	Admitted 7/11/06
MX-8	MOT/BQ 61165 - 61296	Form 10-Q Quarterly Report; 05/12/2004	Dennis Ollis	Remedy	Admitted 7/11/06
MX-9	MOT/BQ 61297 - 61654	Form 10-Q Quarterly Report; 08/11/2004	Dennis Ollis	Remedy	Admitted 7/11/06

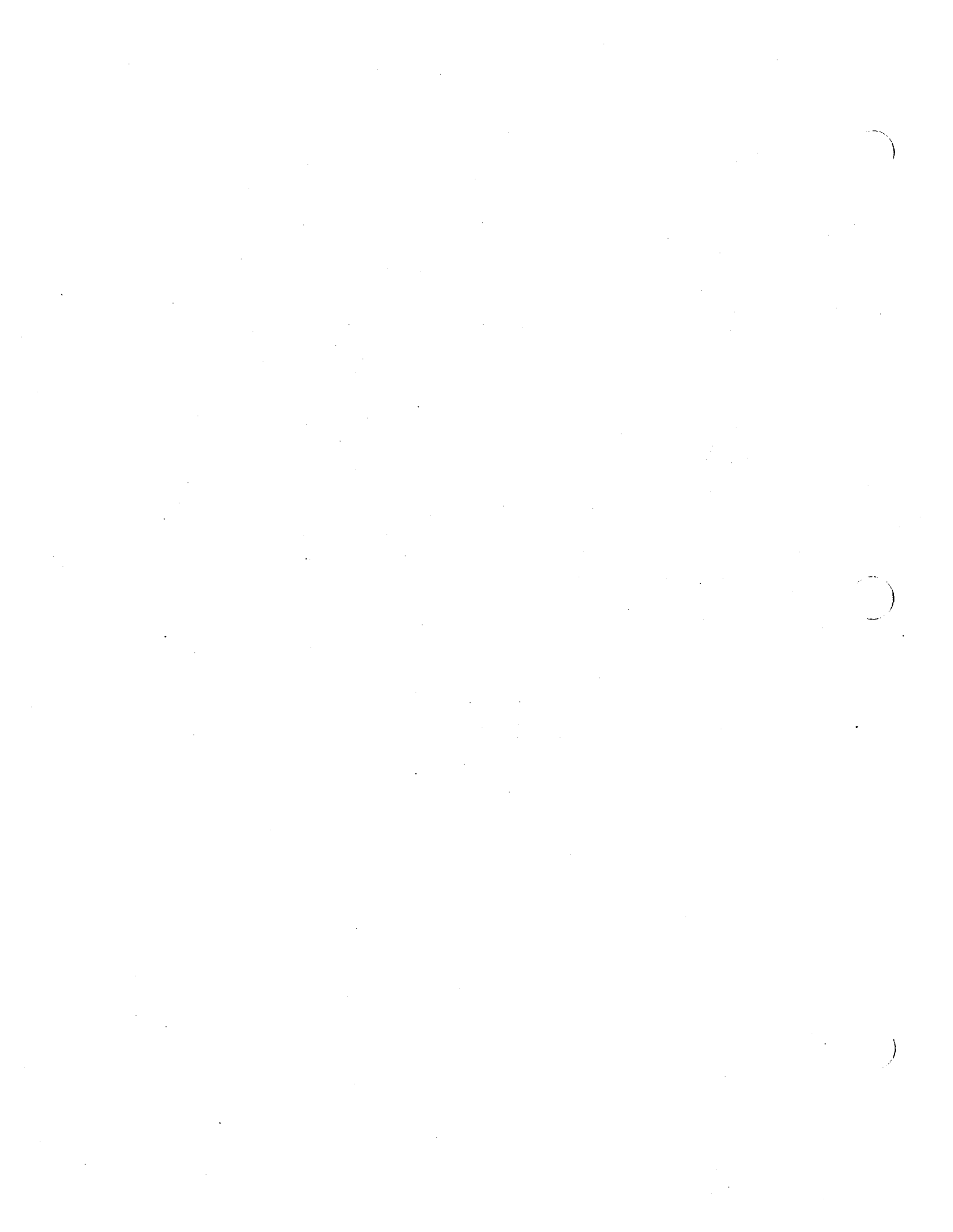


Exhibit No.	Bates Range	Description	Sponsoring Witness	Purpose	Received Into Evidence
MX-10	MOT/BQ 61655 - 61734	Form 10-Q Quarterly Report; 11/10/2004	Dennis Olis	Remedy	Admitted 7/11/06
MX-11	MOT/BQ 61952 - 62017	Form 10-Q Quarterly Report; 05/11/2005	Dennis Olis	Remedy	Admitted 7/11/06
MX-12	MOT/BQ 62018 - 62100	Form 10-Q Quarterly Report; 08/10/2005	Dennis Olis	Remedy	Admitted 7/11/06
MX-13	MOT/BQ 62101 - 62166	Form 10-Q Quarterly Report; 11/08/2005	Dennis Olis	Remedy	Admitted 7/11/06
MX-14C	MOT/BQ 62403 - 62405	Spreadsheet re Part List	William Alberth	Remedy	Admitted 7/11/06
MX-15C	MOT/BQ 62420	Spreadsheet re Motorola V260		Remedy	Rejected per 6/22/06 Order
MX-16C	MOT/BQ 62421 - 62428	Spreadsheet re Motorola V262		Remedy	Rejected per 6/22/06 Order
MX-17C	MOT/BQ 62429 - 62438	Spreadsheet re Motorola V265		Remedy	Rejected per 6/22/06 Order
MX-18C	MOT/BQ 62439 - 62449	Spreadsheet re Motorola V710		Remedy	Rejected per 6/22/06 Order
MX-19C	MOT/BQ 62450 - 62458	Spreadsheet re Motorola E815		Remedy	Rejected per 6/22/06 Order
MX-20C	MOT/BQ 62459	Spreadsheet re Motorola E816		Remedy	Rejected per 6/22/06 Order

CONTAINS CONFIDENTIAL BUSINESS INFORMATION
SUBJECT TO PROTECTIVE ORDER

Exhibit No.	Bates Range	Description	Sponsoring Witness	Purpose	Received Into Evidence
MX-21C	MOT/BQ 62460 - 62463	Spreadsheet re Motorola V3C		Remedy	Rejected per 6/22/06 Order
MX-22C	MOT/BQ 62464 - 62466	Spreadsheet re Motorola A840		Remedy	Rejected per 6/22/06 Order
MX-23C	MOT/BQ 62467	Spreadsheet re Motorola V323		Remedy	Rejected per 6/22/06 Order
MX-24C	MOT/BQ 62468 - 62470	Spreadsheet re Motorola V266		Remedy	Rejected per 6/22/06 Order
MX-25C	MOT/BQ 62471 - 62475	Spreadsheet re Motorola V276		Remedy	Rejected per 6/22/06 Order
MX-26C	MOT/BQ 62476 - 62477	Spreadsheet re Motorola V810		Remedy	Rejected per 6/22/06 Order
MX-27C					Withdrawn
MX-28C					Withdrawn
MX-29C					Withdrawn
MX-30C					Withdrawn
MX-31C	MOT/BQ 62478 - 62496	Handset Purchase Agreement between Motorola and United States Cellular Corp.		Remedy	Rejected per 6/22/06 Order
MX-32C	MOT/BQ 62497 - 62512	Agreement between Motorola and Alltel Supply		Remedy	Rejected per 6/22/06 Order

Exhibit No.	Bates Range	Description	Sponsoring Witness	Purpose	Received Into Evidence
MX-33C	MOT/BQ 62513 - 62528	Agreement between Motorola and Sprint Cellular Company		Remedy	Rejected per 6/22/06 Order
MX-34C	MOT/BQ 62529 - 62540	Amendment to Letter of Agreement between Motorola and Sprint Cellular		Remedy	Rejected per 6/22/06 Order
MX-35C	MOT/BQ 62683 - 62698	Wireless Products Supply Agreement between Motorola and Metro PCS		Remedy	Rejected per 6/22/06 Order
MX-36C	MOT/BQ 62699 - 62700	Term Sheet between Motorola and Metro PCS		Remedy	Rejected per 6/22/06 Order
MX-37C	MOT/BQ 62701 - 62702	Term Sheet # 2 between Motorola and Metro PCS		Remedy	Rejected per 6/22/06 Order
MX-38C	MOT/BQ 62703 - 62704	Term Sheet #2 between Metro PCS and Motorola		Remedy	Rejected per 6/22/06 Order
MX-39C	MOT/BQ 62705 - 62706	Term Sheet #3 between Metro PCS and Motorola		Remedy	Rejected per 6/22/06 Order
MX-40C	MOT/BQ 62707 - 62708	Term Sheet #4 between Metro PCS and Motorola		Remedy	Rejected per 6/22/06 Order
MX-41C	MOT/BQ 62394 - 62397	Qualcomm Quotations re CDMA ASIC Devices		Remedy	Rejected per 6/22/06 Order
MX-42C					Withdrawn
MX-43					Withdrawn

CONTAINS CONFIDENTIAL BUSINESS INFORMATION
SUBJECT TO PROTECTIVE ORDER

Exhibit No.	Bates Range	Description	Sponsoring Witness	Purpose	Received Into Evidence
MX-44					Withdrawn
MX-45C					Withdrawn
MX-46C					Withdrawn

SAMSUNG ELECTRONICS CO., LTD.'S REMEDY EXHIBIT LIST
July 21, 2006

Exh. No.	Description	Witness	Purpose	Received Into Evidence
SAMX-1C	2005 P&L Statements For Accused Handset Model SCH-A950 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SCH-A950 Samsung Doc. Nos. 21022	Lee	Remedy	Admitted 7/11/06
SAMX-2C	2005 P&L Statements For Accused Handset Model SPH-A900 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SPH-A900 Samsung Doc. Nos. 21025	Lee	Remedy	Admitted 7/11/06
SAMX-3C	2005 P&L Statements For Accused Handset Model SPH-A920 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SPH-A920 Samsung Doc. Nos. 21026	Lee	Remedy	Admitted 7/11/06
SAMX-4C				WITHDRAWN
SAMX-5C	2005 P&L Statements For Accused Handset Model SCH-A950 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SCH-A950 Samsung Doc. Nos. 21825	Lee	Remedy	Admitted 7/11/06
SAMX-6C				WITHDRAWN
SAMX-7C				WITHDRAWN
SAMX-8C				WITHDRAWN
SAMX-9C				WITHDRAWN
SAMX-10C				WITHDRAWN
SAMX-11C				WITHDRAWN
SAMX-12C				WITHDRAWN
SAMX-13C				WITHDRAWN
SAMX-14C				WITHDRAWN
SAMX-15C	2005 P&L Statements For Accused Handset Model SPH-A920 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SPH-A920 Samsung Doc. Nos. 21853	Lee	Remedy	Admitted 7/11/06
SAMX-16C	2005 P&L Statements For Accused Handset Model SCH-A795 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SCH-A795 Samsung Doc. Nos. 24202	Lee	Remedy	Admitted 7/11/06
SAMX-17C				WITHDRAWN
SAMX-18C				WITHDRAWN
SAMX-19C				WITHDRAWN
SAMX-20C	2005 P&L Statements For Accused Handset Model SEC-A795 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SEC-A795 Samsung Doc. Nos. 24225	Lee	Remedy	Admitted 7/11/06
SAMX-21C	2005 P&L Statements For Accused Handset Model SEC-A950 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SEC-A950 Samsung Doc. Nos. 24227	Lee	Remedy	Admitted 7/11/06
SAMX-22C				WITHDRAWN
SAMX-23C				WITHDRAWN

SAMX-24C				WITHDRAWN
SAMX-25C				WITHDRAWN
SAMX-26C	2005 P&L Statements For Accused Handset Model SEP-A790 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SEP-A790 Samsung Doc. Nos. 24250	Lee	Remedy	Admitted 7/11/06
SAMX-27C	2005 P&L Statements For Accused Handset Model SEP-A900 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SEP-A900 Samsung Doc. Nos. 24255	Lee	Remedy	Admitted 7/11/06
SAMX-28C	2005 P&L Statements For Accused Handset Model SEP-A940 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SEP-A940 Samsung Doc. Nos. 24257	Lee	Remedy	Admitted 7/11/06
SAMX-29C				WITHDRAWN
SAMX-30C				WITHDRAWN
SAMX-31C				WITHDRAWN
SAMX-32C				WITHDRAWN
SAMX-33C	2005 P&L Statements For Accused Handset Model SPH-A790 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SPH-A790 Samsung Doc. Nos. 24331	Lee	Remedy	Admitted 7/11/06
SAMX-34C				WITHDRAWN
SAMX-35C	2005 P&L Statements For Accused Handset Model SPH-A960 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SPH-A960 Samsung Doc. Nos. 24348	Lee	Remedy	Admitted 7/11/06
SAMX-36C				WITHDRAWN
SAMX-37C				WITHDRAWN
SAMX-38C				WITHDRAWN
SAMX-39C				WITHDRAWN
SAMX-40C				WITHDRAWN
SAMX-41C				WITHDRAWN
SAMX-42C				WITHDRAWN
SAMX-43C				WITHDRAWN
SAMX-44C				WITHDRAWN
SAMX-45C	2005 P&L Statements For Accused Handset Model SPH-A920 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SPH-A920 Samsung Doc. Nos. 24829	Lee	Remedy	Admitted 7/11/06
SAMX-46C	2005 P&L Statements For Accused Handset Model SEC-A950 (Korean document); Translation for 2005 P&L Statements For Accused Handset Model SEC-A950 Samsung Doc. Nos. 25662	Lee	Remedy	Admitted 7/11/06
SAMX-47C				WITHDRAWN
SAMX-48C				WITHDRAWN
SAMX-49C				WITHDRAWN
SAMX-50C				WITHDRAWN
SAMX-51C				WITHDRAWN
SAMX-52C				WITHDRAWN
SAMX-53C				WITHDRAWN
SAMX-54C				WITHDRAWN

SAMX-55C				WITHDRAWN
SAMX-56C				WITHDRAWN
SAMX-57C				WITHDRAWN
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SAMX-73C				WITHDRAWN
SAMX-74C				WITHDRAWN
SAMX-75C				WITHDRAWN
SAMX-76C				WITHDRAWN
SAMX-77C				WITHDRAWN
SAMX-78C				WITHDRAWN
SAMX-79	Samsung Electronics Co., Ltd. 2004 Annual Report Samsung Doc. Nos. 66544-66619		Remedy	Admitted 7/11/06
SAMX-80C	Income statements, balance sheets, retained earnings, statement of cash flows for 2005 Samsung Doc. Nos. 67443-67514		Remedy	Admitted 7/11/06
SAMX-81C				WITHDRAWN
SAMX-82C	Annual Average Purchasing Price of Baseband ('03-'05). Samsung Doc. Nos. 68450	Lee	Remedy	Admitted 7/11/06
SAMX-83C				WITHDRAWN
SAMX-84C				WITHDRAWN
SAMX-85C				WITHDRAWN
SAMX-86C				WITHDRAWN
SAMX-87C				WITHDRAWN
SAMX-88C				WITHDRAWN
SAMX-89C				WITHDRAWN
SAMX-90C				WITHDRAWN
SAMX-91C				WITHDRAWN
SAMX-92C				WITHDRAWN
SAMX-93C				WITHDRAWN
SAMX-94C				WITHDRAWN
SAMX-95C				WITHDRAWN
SAMX-96C				WITHDRAWN
SAMX-97C				WITHDRAWN
SAMX-98				WITHDRAWN
SAMX-99				WITHDRAWN
SAMX-100				WITHDRAWN
SAMX-101				WITHDRAWN

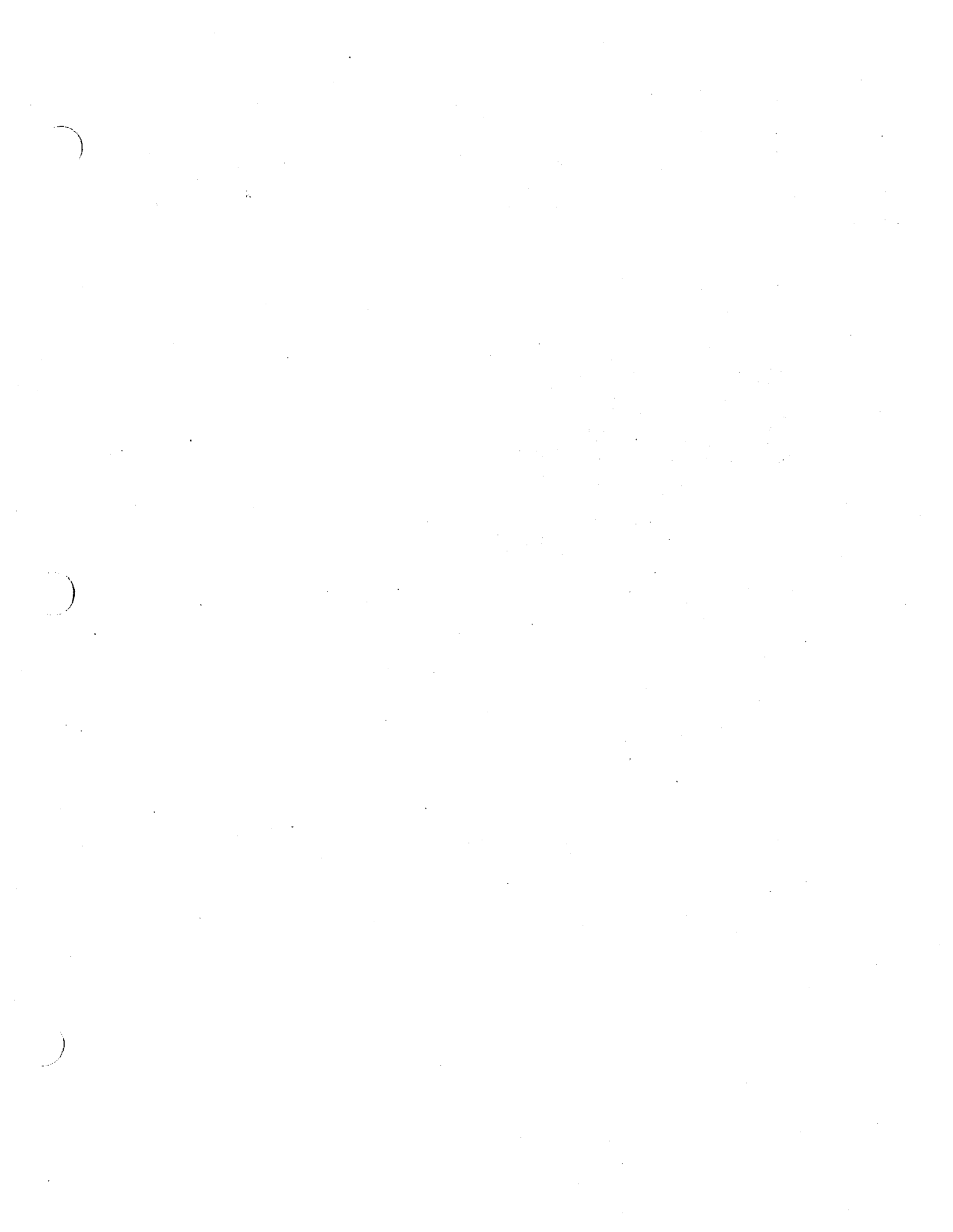
SAMX-102				WITHDRAWN
SAMX-103	Office of the Press Secretary., "President Bush Meets with First-Time Homebuyers in NM and AZ- Remarks by the President on Homeownership." Press Release March 26, 2004 http://www.whitehouse.gov/news/releases/2004/03/20040326-9.html . (Hausman Report of May 19, 2006, Exh. C44)	Hausman	Remedy	Admitted 7/11/06
SAMX-104				WITHDRAWN
SAMX-105				WITHDRAWN
SAMX-106				WITHDRAWN
SAMX-107				WITHDRAWN
SAMX-108				WITHDRAWN
SAMX-109				WITHDRAWN
SAMX-110C				WITHDRAWN
SAMX-111C				WITHDRAWN
SAMX-112C				WITHDRAWN
SAMX-113C	Amendment to Infrastructure and Subscriber Unit License and Technical Assistance Agreement, March 29, 2004 Samsung Doc. Nos. 69121-69128	Lee	Remedy	Admitted 7/11/06
SAMX-114C				WITHDRAWN
SAMX-115C				WITHDRAWN
SAMX-116C				WITHDRAWN
SAMX-117C				WITHDRAWN
SAMX-118C				WITHDRAWN
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SAMX-121C				WITHDRAWN
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SAMX-123C				WITHDRAWN
SAMX-124C				WITHDRAWN
SAMX-125C				WITHDRAWN
SAMX-126C				WITHDRAWN

SAMX-127C	PLC Document (Korean document); Translation for PLC Document Samsung Doc. Nos. 8775-8800	Lee	Remedy	Admitted 7/11/06
SAMX-128C				WITHDRAWN
SAMX-129C	New Product Development Activity Rules Samsung Doc. Nos. 68098-68181	Ahn	Remedy	Admitted 7/11/06
SAMX-130C	Expert Witness Statement of Jerry A. Hausman	Hausman	Remedy	Admitted 7/7/06
SAMX-131C	Rebuttal Expert Witness Statement of Jerry A. Hausman	Hausman	Remedy	Admitted 7/7/06
SAMX-132C				WITHDRAWN
SAMX-133C				WITHDRAWN
SAMX-134C				WITHDRAWN
SAMX-135C				WITHDRAWN
SAMX-136C				WITHDRAWN
SAMX-137C				WITHDRAWN
SAMX-138C	Exhibit A of Jerry A. Hausman's Supplemental Expert Report: Curriculum Vitae of Jerry A. Hausman	Hausman	Remedy	Admitted 7/11/06
SAMX-139C	Exhibit B of Jerry A. Hausman's Supplemental Expert Report: Trial and Deposition Testimony of Jerry A. Hausman	Hausman	Remedy	Admitted 7/11/06
SAMX-140C	Exhibit C of Jerry A. Hausman's Supplemental Expert Report: List of Documents Relied Upon	Hausman	Remedy	Admitted 7/11/06
SAMX-141C	Exhibit D of Jerry A. Hausman's Supplemental Expert Report: Price of Baseband Chips and RF chips as a percentage of Cost of Goods Sold and Wholesale Price	Hausman	Remedy	Admitted 7/11/06
SAMX-142C	Exhibit E of Jerry A. Hausman's Supplemental Expert Report: Percentage of Handsets Containing Accused Chips	Hausman	Remedy	Admitted 7/11/06

Demonstrative Exhibits

Exh. No.	Description	Witness	Purpose	Received Into Evidence
SAMDX-1C				WITHDRAWN
SAMDX-2C	Demonstrative Exhibit	Hausman	Remedy	Admitted 7/11/06
SAMDX-3C				WITHDRAWN
SAMDX-4C				WITHDRAWN
SAMDX-5C				WITHDRAWN

SAMDX-6C	Demonstrative Exhibit	Hausman	Remedy	Admitted 7/11/06
SAMDX-7C	Demonstrative Exhibit	Hausman	Remedy	Admitted 7/11/06
SAMDX-8C				WITHDRAWN
SAMDX-9C	Demonstrative Exhibit	Hausman	Remedy	Admitted 7/11/06
SAMDX-10C	Demonstrative Exhibit	Hausman	Remedy	Admitted 7/11/06
SAMDX-11C				WITHDRAWN
SAMDX-12C				WITHDRAWN
SAMDX-13C				WITHDRAWN
SAMDX-14C				WITHDRAWN



**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.
Before the Honorable Charles E. Bullock
Administrative Law Judge**

In the Matter of)

Investigation No. 337-TA-543

CERTAIN BASEBAND PROCESSOR)
CHIPS AND CHIPSETS, TRANSMITTER)
AND RECEIVER (RADIO) CHIPS, POWER)
CONTROL CHIPS, AND PRODUCTS)
CONTAINING SAME, INCLUDING)
CELLULAR TELEPHONE HANDSETS)

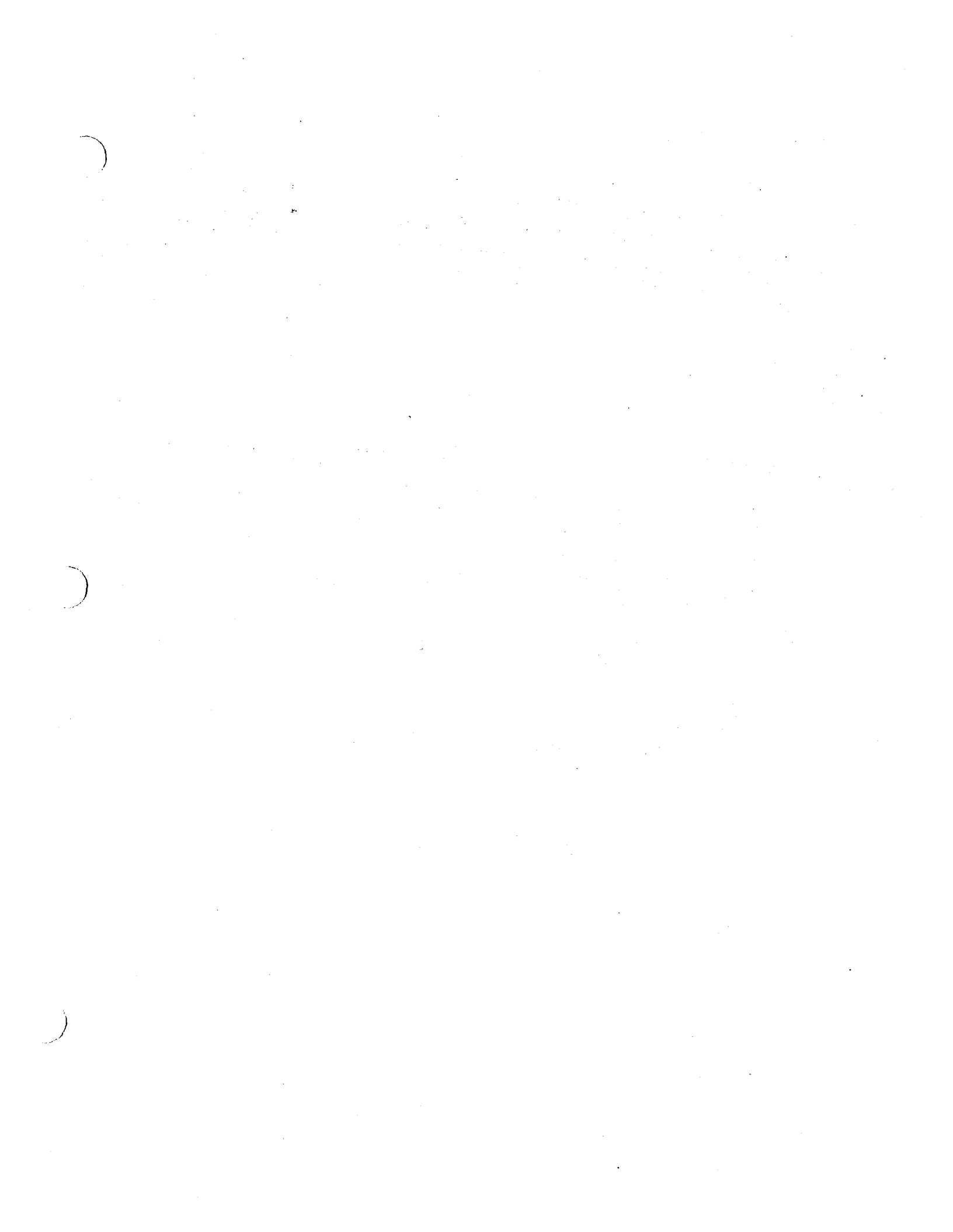
**INTERVENOR SPRINT NEXTEL CORPORATION'S
FINAL REMEDY EXHIBIT LIST**

Frederic R. Klein
Oscar L. Alcantara
Brian D. Fagel
GOLDBERG KOHN BELL BLACK
ROSENBLOOM & MORITZ, LTD.
55 East Monroe Street
Suite 3700
Chicago, Illinois 60603
(312) 201-4000

Mary Jean Fell
SPRINT NEXTEL CORPORATION
2001 Edmund Halley Drive
Reston, Virginia 20191
(703) 433-4000

Dated: July 21, 2006

Counsel for Intervenor Sprint Nextel Corporation



SPRINT NEXTEL CORPORATION DOCUMENTARY EXHIBITS

Exhibit No.	Description	SN Range	Remedy	Yarkosky	Status
SNX-1					WITHDRAWN
SNX-2					WITHDRAWN
SNX-3					WITHDRAWN
SNX-4					WITHDRAWN
SNX-5					WITHDRAWN
SNX-6					WITHDRAWN
SNX-7C	<i>How Sprint Remains Second-to-None in Wireless Data, Finance Follow up to March 30, 2004 Meeting, April 15, 2004</i>	SN15080-SN15086	Remedy	Yarkosky	Admitted 7/11/06
SNX-8C	<i>Appendix to How Sprint Remains Second-to-None in Wireless Data, April 15, 2004</i>	SN15087-SN15136	Remedy	Yarkosky	Admitted 7/11/06
SNX-9C	<i>How Sprint Remains Second-to-None in Wireless Data, Situation Assessment and Action Plan, March 30, 2004</i>	SN15137-SN15154	Remedy	Yarkosky	Admitted 7/11/06
SNX-10C	Board Meeting Presentation, June 8, 2004	SN15155-SN15169	Remedy	Yarkosky	Admitted 7/11/06
SNX-11C	Wireless High Speed Data Discussion Guide, December 19, 2003	SN15170-SN15214	Remedy	Yarkosky	Admitted 7/11/06
SNX-12C	Wireless High Speed Data (EVDO) Business Case Project Athens, June 4, 2004	SN15215-SN15239	Remedy	Yarkosky	Admitted 7/11/06
SNX-13C	Wireless High Speed Data (EVDO) Business Case Project Athens, June 23, 2004	SN15240-SN15268	Remedy	Yarkosky	Admitted 7/11/06
SNX-14C	EVDO Network Cashflow with Wholesale Calculation 06.02.2004	SN15307-SN15326	Remedy	Yarkosky	Admitted 7/11/06
SNX-15C	EVDV-C Overlay Analysis 10 year	SN15327-SN15339	Remedy	Yarkosky	Admitted 7/11/06

Case No.	Description	SN Range	Remedy	Yarkosky	Admitted
SNX-16C	EVDV-D Overlay Analysis	SN15340-SN15367	Remedy	Yarkosky	Admitted 7/11/06
SNX-17C	Subscriber and Revenue Forecasts by Scenario	SN15368-SN15390	Remedy	Yarkosky	Admitted 7/11/06
SNX-18C	<i>Sell Through, By all Outsources</i> spreadsheet	SN15391	Remedy	Yarkosky	Admitted 7/11/06
SNX-19C	Wireless High Speed Data - "1X to DV Base Case"	SN15392-SN15514	Remedy	Yarkosky	Admitted 7/11/06
SNX-20C	Wireless High Speed Data - "DO to DO-A Case"	SN15515-SN15647	Remedy	Yarkosky	Admitted 7/11/06
SNX-21C	Wireless High Speed Data - "DV-C to DV-D"	SN15648-SN15764	Remedy	Yarkosky	Admitted 7/11/06
SNX-22C	Cost Curves Analysis 03-27-2004	SN15765-SN15774	Remedy	Yarkosky	Admitted 7/11/06
SNX-23C	Wireless High Speed Data - High Speed Markets	SN15775-SN15776	Remedy	Yarkosky	Admitted 7/11/06
SNX-24C	Cluster Allocation of Wireless High Speed Data	SN15777	Remedy	Yarkosky	Admitted 7/11/06
SNX-25C	Spectrum Need and Cost	SN15778-SN15780	Remedy	Yarkosky	Admitted 7/11/06
SNX-26C	Overview of SCS WiHSD (Wireless High Speed Data), March 2, 2004	SN15781-SN15816	Remedy	Yarkosky	Admitted 7/11/06
SNX-27C	SBS Integrated Solutions Strategy Group - Wireless High Speed Data (WHSD) Business Case: Update & Summary of Issues, March 25, 2004	SN15817-SN15859	Remedy	Yarkosky	Admitted 7/11/06
SNX-28C	Wireless High Speed Data Business Case, SCS Assumptions, June 3, 2004	SN15860-SN15881	Remedy	Yarkosky	Admitted 7/11/06
SNX-29C	Wireless High Speed Internet Study - Final Report, May 17, 2004	SN15882-SN15948	Remedy	Yarkosky	Admitted 7/11/06
SNX-30C	Sprint Wireless Data SBS Strategic Review, April 28, 2004	SN15949-SN15980	Remedy	Yarkosky	Admitted 7/11/06

SNX-31C	Wireless High Speed Data - Key Insights from Korea and Japan, February 9, 2004	SN15981-SN16001	Remedy	Yarkosky	Admitted 7/11/06
SNX-32C	Sprint PCS NY BTA EV-DO Business case, September 3, 2003	SN16002-SN16064	Remedy	Yarkosky	Admitted 7/11/06
SNX-33C	Qualcomm-Sprint High Speed Mobile Data - 1xEV-DO, October 9, 2003	SN16065-SN16094	Remedy	Yarkosky	Admitted 7/11/06
SNX-34C	Qualcomm - Sprint The Case for High Speed Mobile Data, February 2004	SN16095-SN16121	Remedy	Yarkosky	Admitted 7/11/06
SNX-35	Waryas, Keith, Dana Throuat and Scott Ellison, IDC Market Analysis - <i>U.S. Consumer Wireless Subscriber Forecast, 2003-2007: The New Mobile Majority</i> , March 2003	SN16122-SN16151	Remedy	Yarkosky	Admitted 7/11/06
SNX-36	Giusto, Randy, et al., IDC Technology Assessment, <i>It's a Wireless World: CTIA Reveals Hot Trends</i> , April 2003	SN16152-SN16166	Remedy	Yarkosky	Admitted 7/11/06
SNX-37	Direcks, Becky, In-Stat MDR, <i>Wireless Data in the Business Environment - Vertical Market Drivers and Opportunities</i> , May 2003	SN16167-SN16210	Remedy	Yarkosky	Admitted 7/11/06
SNX-38	Ellison, Scott, IDC Event Flash, <i>Verizon Wireless Launches EVDO: "Real" 3G Arrives in the United States</i> , September 2003	SN16211-SN16212	Remedy	Yarkosky	Admitted 7/11/06
SNX-39	Hyers, Ken, Reed Electronics Group, <i>In-Stat MDR Research Note: US WAN Wireless Data Customer Forecast: 2003-2007</i> , December 2003	SN16213-SN16226	Remedy	Yarkosky	Admitted 7/11/06
SNX-40C	06/04/2004 E-mail from Peter Cannistra re WHSD Business Case Adjustments	SN16227-SN16228	Remedy	Yarkosky	Admitted 7/11/06
SNX-41C	Draft Sprint Wireless High Speed Data (EVDO) Business Case Project Athens, June 4, 2005 (Redline)	SN16229-SN16253	Remedy	Yarkosky	Admitted 7/11/06

Case No.	Description	SN	Remedy	Witness	Admitted
SNX-42C	Sprint Wireless High Speed Data (EVDO) Business Case Project Athens, June 4, 2005	SN16254-SN16278	Remedy	Yarkosky	Admitted 7/11/06
SNX-43C	EVDO Rev A Plan of Record	SN16283-SN16347	Remedy	Yarkosky	Admitted 7/11/06
SNX-44C	Sprint Nextel EVDO Revenue and Projections	SN16856-SN16876	Remedy	Paisner	Admitted 7/11/06
SNX-45C	2006 Data Subscriber Summaries	SN16877-SN16886	Remedy	Paisner	Admitted 7/11/06
SNX-46					WITHDRAWN
SNX-47					WITHDRAWN
SNX-48					WITHDRAWN
SNX-49					WITHDRAWN
SNX-50	Sharma, Chetan, <i>3-G—Hitting the Mass Market</i> , Wireless World, March 2006		Remedy	Sharma	Admitted 7/11/06
SNX-51C	Revised Direct Expert Witness Statement of Chetan Sharma		Remedy	Sharma	Admitted 7/10/06
SNX-52C	Rebuttal Expert Witness Statement of Chetan Sharma		Remedy	Sharma	Admitted 7/10/06
SNX-53C	Direct Witness Statement of Mark Yarkosky		Remedy	Yarkosky	Admitted 7/10/06
SNX-54C	Direct Witness Statement of Steven Paisner		Remedy	Paisner	Admitted 7/10/06
SNX-55C					WITHDRAWN
SNX-56C					WITHDRAWN
SNX-57C					WITHDRAWN
SNX-58C					WITHDRAWN
SNX-59					WITHDRAWN
SNX-60					WITHDRAWN
SNX-61					WITHDRAWN
SNX-62					WITHDRAWN

Case No.	Topic	Party	Witness	Disposition
SNX-63				WITHDRAWN
SNX-64C				WITHDRAWN
SNX-65C				WITHDRAWN
SNX-66C				WITHDRAWN
SNX-67C				WITHDRAWN
SNX-68C				WITHDRAWN
SNX-69				WITHDRAWN
SNX-70				WITHDRAWN
SNX-71C				WITHDRAWN
SNX-72				WITHDRAWN
SNX-73C				WITHDRAWN
SNX-74C				WITHDRAWN
SNX-75				WITHDRAWN
SNX-76				WITHDRAWN
SNX-77C				WITHDRAWN
SNX-78				WITHDRAWN
SNX-79				WITHDRAWN
SNX-80				WITHDRAWN
SNX-81				WITHDRAWN
SNX-82				WITHDRAWN
SNX-83C	EVDO Overview	Remedy	Paisner	Admitted 7/11/06
SNX-84C	Rebuttal Witness Statement of Steven Paisner	Remedy	Paisner	Admitted 7/10/06
SNX-85	Chetan Sharma Curriculum Vitae (Appendix A to Chetan Sharma Expert Report)	Remedy	Sharma	Admitted 7/11/06
SNX-86C	Sources Relied upon by Chetan Sharma (Appendix B to Chetan Sharma Expert Report)	Remedy	Sharma	Admitted 7/11/06

Case No.	Case Title	Case No.	Case Type	Case Status
SNX-87	Mobile Service Relicensing in Hong Kong: Economic Considerations, submitted by Professor Janusz A. Ordover and William D. Lehr, 06/18/2004	SN16968-SN17040	Remedy	Admitted 7/11/06

SPRINT NEXTEL CORPORATION DEMONSTRATIVE EXHIBITS

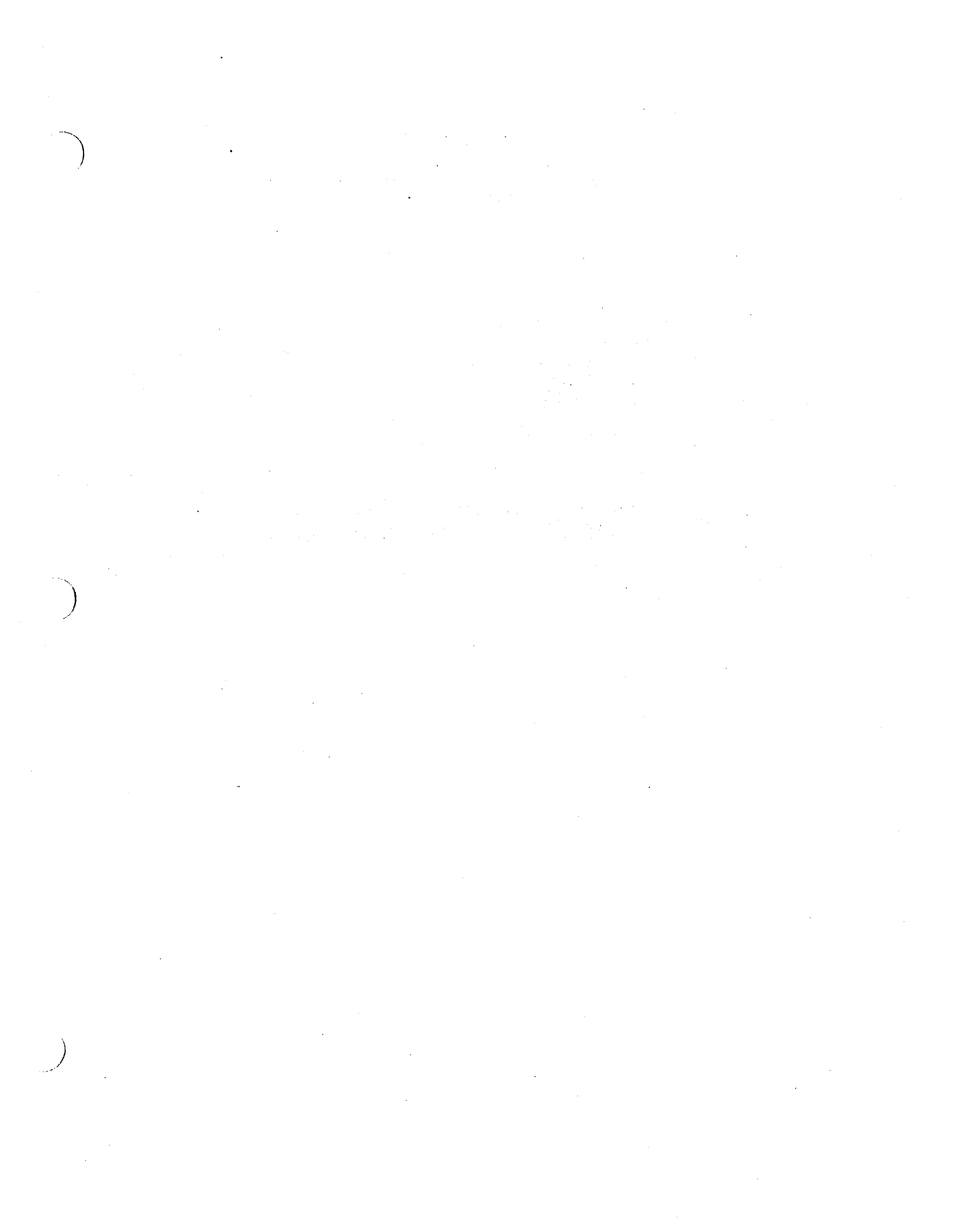
SNDX-1	Demonstrative Exhibit	Remedy	Lehr	Admitted 7/11/06
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SPRINT NEXTEL CORPORATION

By /s/ Brian D. Fagel
One of Its Attorneys

Frederic R. Klein
Oscar L. Alcantara
Brian D. Fagel
GOLDBERG KOHN BELL BLACK
ROSENBLUM & MORITZ, LTD.
55 East Monroe Street
Suite 3700
Chicago, Illinois 60603
(312) 201-4000

Mary Jean Fell
SPRINT NEXTEL CORPORATION
2001 Edmund Halley Drive
Reston, Virginia 20191
(703) 433-4000



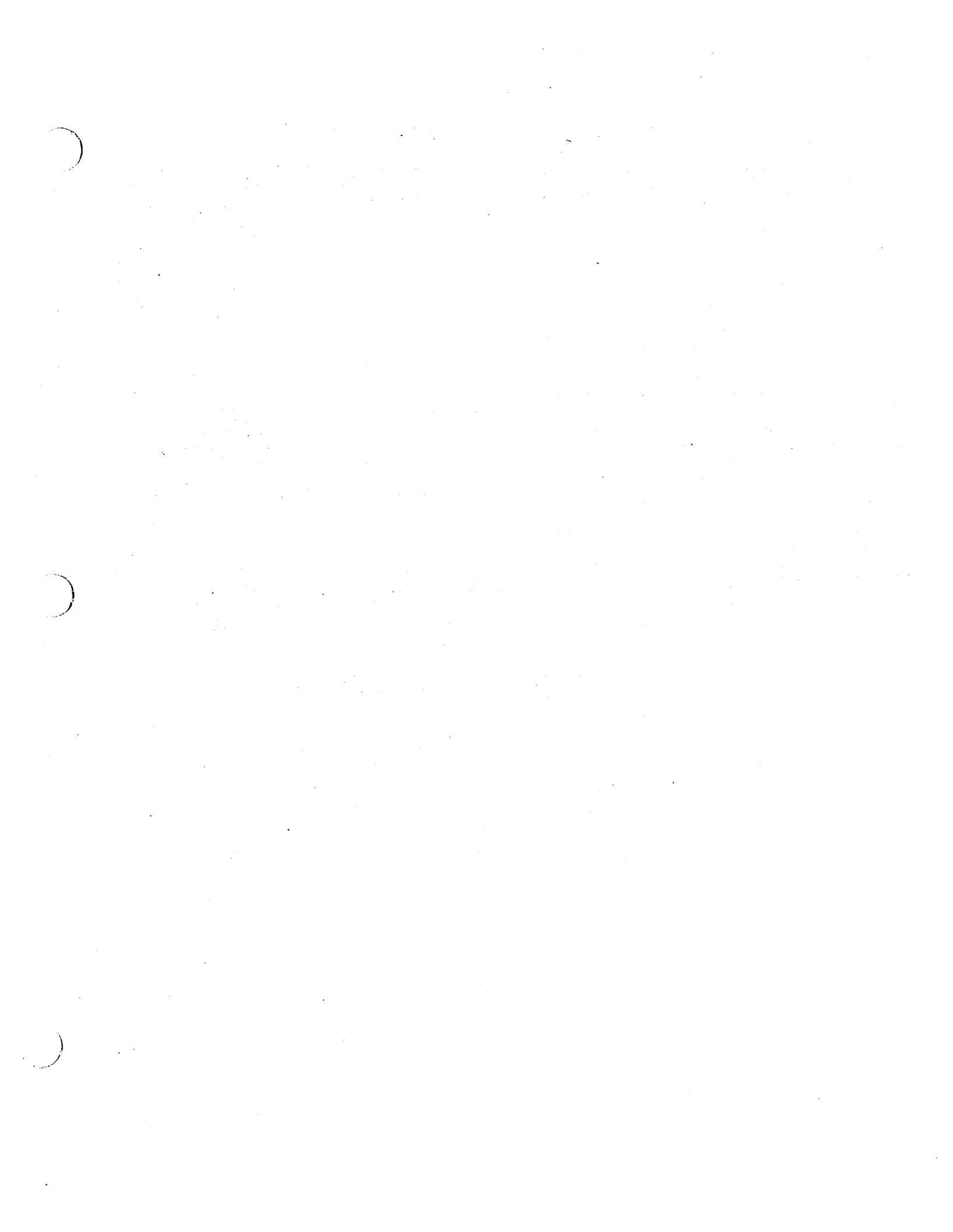
**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.
Before the Honorable Charles E. Bullock
Administrative Law Judge**

In the Matter of:

**CERTAIN BASEBAND PROCESSOR
CHIPS AND CHIPSETS, TRANSMITTER
AND RECEIVER (RADIO) CHIPS,
POWER CONTROL CHIPS, AND
PRODUCTS CONTAINING SAME,
INCLUDING CELLULAR TELEPHONE
HANDSETS**

Investigation No. 337-TA-543

**INTERVENOR CELLCO PARTNERSHIP D/B/A
VERIZON WIRELESS'S FINAL REMEDY EXHIBIT LIST**



Documentary Exhibits

Exhibit	Description	Purpose	Sponsoring Witness	Received in Litigation
VX-001C				Withdrawn
VX-002C				Withdrawn
VX-003C				Withdrawn
VX-004				Withdrawn
VX-005				Withdrawn
VX-006				Withdrawn
VX-007	01/27/2005 Verizon Wireless Press Release, "Verizon Reports Strong 4Q and 2004 Results" VZW BC-QC 008 000359-000378	Remedy	J. Straight	Admitted (07/11/06)
VX-008C				Withdrawn
VX-009C				Withdrawn
VX-010C				Withdrawn
VX-011C				Withdrawn
VX-012C				Withdrawn
VX-013C	Verizon Wireless Presentation - Consumer Products and Services; Business Products and Services VZW BC-QC 008 002587-002593	Remedy	J. Straight	Admitted (07/11/06)
VX-014C				Withdrawn
VX-015C				Withdrawn
VX-016C	Verizon Wireless Presentation - VZOffice - Enterprise Data Services VZW BC-QC 008 002615-002627	Remedy	J. Straight	Admitted (07/11/06)
VX-017C	Verizon Wireless Presentation - Data and Multimedia Services Marketing Operations Review October, 2005 VZW BC-QC 008 002628-002640	Remedy	J. Straight	Admitted (07/11/06)
VX-018C				Withdrawn
VX-019C	Verizon Wireless Presentation - EVDO Enterprise Services VZW BC-QC 008 002664-002683	Remedy	J. Straight	Admitted (07/11/06)
VX-020C	Verizon Wireless Presentation - Consumer Products and Services (2005-2006) VZW BC-QC 008 002684-002703	Remedy	J. Straight	Admitted (07/11/06)
VX-021C	Verizon Wireless Presentation - Business Products and Services (2005-2006) VZW BC-QC 008 002704-002716	Remedy	J. Straight	Admitted (07/11/06)

Exhibit	Description	Purpose	Sponsoring Witness	Relevant to Evidence
VX-022C	Verizon Wireless Presentation - VZW's Data Revenue is Accelerating VZW BC-QC 008 002717-002736	Remedy	J. Straight	Admitted (07/11/06)
VX-023C				Withdrawn
VX-024C	Verizon Wireless Presentation - EVDO Services Update B2B and Consumer Applications	Remedy	J. Straight	Admitted (07/11/06)
VX-025C	Verizon Wireless Presentation - Wireless Broadband Deployment and Services VZW BC-QC 008 002770-002792	Remedy	J. Straight	Admitted (07/11/06)
VX-026C				Withdrawn
VX-027C	Verizon Wireless Presentation - Data and Internet Services VZW BC-QC 008 002824-002846	Remedy	J. Straight	Admitted (07/11/06)
VX-028C				Withdrawn
VX-029C				Withdrawn
VX-030C				Withdrawn
VX-031C				Withdrawn
VX-032C				Withdrawn
VX-033C				Withdrawn
VX-034C				Withdrawn
VX-035C				Withdrawn
VX-036C				Withdrawn
VX-037C				Withdrawn
VX-038C				Withdrawn
VX-039C				Withdrawn
VX-040C				Withdrawn
VX-041C				Withdrawn
VX-042C				Withdrawn
VX-043C				Withdrawn
VX-044C				Withdrawn
VX-045C				Withdrawn
VX-046C				Withdrawn
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VX-057C				Withdrawn
VX-058C				Withdrawn
VX-059C				Withdrawn
VX-060C				Withdrawn
VX-061C				Withdrawn

Exhibit	Description	Purpose	Sponsoring Witness	Admitted/Withdrawn
VX-062C				Withdrawn
VX-063C				Withdrawn
VX-064C	Economic Comparison of 1x-RTT vs. EV-DO VZW BC-QC 003 000779-000789	Remedy	J. Straight	Admitted (07/11/06)
VX-065				Withdrawn
VX-066C				Withdrawn
VX-067C				Withdrawn
VX-068C				Withdrawn
VX-069C				Withdrawn
VX-070C				Withdrawn
VX-071C				Withdrawn
VX-072C				Withdrawn
VX-073C				Withdrawn
VX-074C				Withdrawn
VX-075				Withdrawn
VX-076C				Withdrawn
VX-077C				Withdrawn
VX-078C				Withdrawn
VX-079C				Withdrawn
VX-080	http://www.verizonwireless.com/b2c/mobileoptions/broadband/index.jsp?action=broadbandAccess , accessed May 5, 2006. VZW BC-QC 008 004223-004224	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-081C	Broadcom - Qualcomm EVDO Financial Impact Analysis: Customers, Revenue, CAO/COR, and Other (Broadcom - Qualcomm 051806.xls), 05/18/2006 VZW BC-QC 008 004225-004229	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-082	http://www.verizonwireless.com/bcb/mobileoptions/broadband/serviceoverview.jsp , accessed May 5, 2006 VZW BC-QC 008 005875-005876	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-083	"Beneficiaries of Wireless Data Adoption," Wachovia Securities, March 22, 2006 VZW BC-QC 008 004232-004259	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-084	http://www.verizonwireless.com/bcb/mobileoptions/broadband/serviceoverview.jsp , accessed May 15, 2006 VZW BC-QC 008 004230-004231	Remedy	D. Carlton (expert)	Admitted (07/11/06)

Exhibit	Description	Purpose	Sponsoring Witness	Relevant Evidence
VX-085	eMarketer, "Mobile Television for Marketers: Monetizing the Smallest Screen," April 2006 VZW BC-QC 008 004260-004278	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-086	http://getitnow.vzwshop.com/index.aspx?id=vcast_technology , accessed May 9, 2006 VZW BC-QC 008 004279-004280	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-087	http://www.t-mobile.com/shop/addons/services/information.aspx?tp=svc_Tab_DataEm/Svcs , accessed on May 9, 2006 VZW BC-QC 008 004281	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-088	http://www.uscellular.com/uscellular/SilverStream/Pages/x_page.html?p=bb_home , accessed on May 9, 2006 VZW BC-QC 008 004282-004283	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-089	http://www.sprint.com/business/products/products/pcsVisionPlan_tabA.html , accessed May 9, 2006 VZW BC-QC 008 004284-004285	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-090	Sprint News Release, "Sprint extends mobility leadership with aggressive broadband network expansion." March 30, 2006. VZW BC-QC 008 004286-004288	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-091	http://cingular.mediaroom.com/index.php?s=pageB&item=3 , accessed May 2, 2006 VZW BC-QC 008 004289-004291	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-092	http://cingular.mediaroom.com/index.php?s=press_releases&item=1501 , accessed May 2, 2006 VZW BC-QC 008 004292-004293	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-093	https://www.cingular.com/media/cingular_video_purchase , accessed May 8, 2006. VZW BC-QC 008 004294	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-094	Cingular press release, "First quarter 2006 financial and operational results," April 19, 2006. VZW BC-QC 008 004295-004319	Remedy	D. Carlton (expert)	Admitted (07/11/06)

Exhibit	Description	Purpose	Sponsoring Witness	Relevant to Evidence
VX-095	Baird Communications Services, "Wireless data: the third screen cometh," August 2005. VZW BC-QC 008 004320-004408	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-096	Gartner Research, "How to stimulate interest in mobile video," October 21, 2005. VZW BC-QC 008 004409-004419	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-097	http://www.mobileburn.com/news.jsp?id=1870&source=SIDEBAR , accessed on May 9, 2006. VZW BC-QC 008 004420-004424	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-098	http://www.networkworld.com/news/2006/040506-ctia-disney-mobile-aims-squarely.html , accessed on May 9, 2006 VZW BC-QC 008 004425-004428	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-099	CIBC World Markets, "Mobile Service Delivery Platforms," December 7, 2005. VZW BC-QC 008 004429-004467	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-100				Withdrawn
VX-101	Colin Thirtle and Vernon Ruttan, "The Role of Demand and Supply in the Generation and Diffusion of Technical Change," Fundamental of Pure and Applied Economics 21: 1987 (Harwood Academic Publishers), pp. 1, 11 VZW BC-QC 008 004575-004578	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-102	Goolsbee, Austan (2006), "The value of broadband and the deadweight loss of taxing new technology," Contributions to Economic Analysis & Policy (B.E. Press Journals) VZW BC-QC 008 004579-004602	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-103	Goolsbee, Austan and Peter Klenow (2006), "Valuing consumer products by the time spent using them: an application to the Internet," American Economic Review (Papers and Proceedings), May 2006. VZW BC-QC 008 004603-004615	Remedy	D. Carlton (expert)	Admitted (07/11/06)

Exhibit	Description	Admission	Sponsoring Witness	Relevant to Discovery Evidence
VX-104	Hausman, Jerry (1997), "Valuing the effect of regulation on new services in telecommunications," Brookings Papers: Microeconomics. Hausman, Jerry VZW BC-QC 008 004616-004654	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-105	Hausman, Jerry (2003), "Cellular 3G Broadband and WiFi," Frontiers of Broadband, Electronic and Mobile Commerce, edited by R. Cooper and G. Madden. Heidelberg, Germany, Physica-Verlag: 9-25. VZW BC-QC 008 004655-004663	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-106	David Lewin and Roger Entner, "Impact of the US wireless telecom industry on the US economy: A study for CTIA – The Wireless Association," Ovum Consulting September 2005. VZW BC-QC 008 004664-004708	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-107				Withdrawn
VX-108	Comparison of Verizon Wireless and Cingular Coverage in Chicago, http://www.verizonwireless.com/b2c/CoverageLocatorController?requesttype=newsearch and http://www.cingular.com/media/downloads/CING_U_ILchi_v3.pdf , accessed May 9, 2006 VZW BC-QC 008 004709-004710	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-109	GfK ARBOR Group, "Wireless Data Service Pricing Impact," prepared for Verizon Wireless, June 2005. VZW BC-QC 008 004711-004773	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-110				Withdrawn
VX-111	http://news.vzw.com/news/2004/01/pr2004-01-07.html , accessed May 4, 2006 VZW BC-QC 008 004774-004777	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-112	http://news.vzw.com/news/2005/06/pr2005-06-28.html , accessed 03 May 2006. VZW BC-QC 008 004778-004780	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-113	http://news.vzw.com/news/2005/08/pr2005-08-26g.html , accessed May 16, 2006 VZW BC-QC 008 004781-004782	Remedy	D. Carlton (expert)	Admitted (07/11/06)

Exhibit	Description	Purpose	Sponsoring Witness	Received In Evidence
VX-114	Goldman Sachs, "3G EnterPRIZE," September 7, 2005 VZW BC-QC 008 004783-004807	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-115	http://news.vzw.com/news/2006/01/pr2006-01-05.html (accessed May 19, 2006) VZW BC-QC 008 004808-004809	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-116	BellSouth, "BLS Investor News," April 20, 2006 VZW BC-QC 008 004810-004822	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-117	http://www.cingular.com/midtolarge/network , accessed May 8, 2006 VZW BC-QC 008 004823-004825	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-118	http://powervision.sprint.com/home.html , accessed May 9, 2006. VZW BC-QC 008 004826-004828	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-119	http://mobile.espn.go.com/the-service.html , accessed on May 9, 2006 VZW BC-QC 008 004829-004832	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-120				Withdrawn
VX-121				Withdrawn
VX-122				Withdrawn
VX-123				Withdrawn
VX-124				Withdrawn
VX-125				Withdrawn
VX-126				Withdrawn
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VX-144				Withdrawn
VX-145				Withdrawn
VX-146				Withdrawn
VX-147				Withdrawn

Exhibit	Description	Purpose	Sponsoring Witness	Received in Evidence
VX-148				Withdrawn
VX-149				Withdrawn
VX-150				Withdrawn
VX-151				Withdrawn
VX-152				Withdrawn
VX-153				Withdrawn
VX-154				Withdrawn
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VX-198				Withdrawn
VX-199				Withdrawn

Ambl	Description	Purpose	Sponsoring Witness	Reframing Grants
VX-200				Withdrawn
VX-201				Withdrawn
VX-202				Withdrawn
VX-203				Withdrawn
VX-204				Withdrawn
VX-205				Withdrawn
VX-206				Withdrawn
VX-207				Withdrawn
VX-208				Withdrawn
VX-209				Withdrawn
VX-210				Withdrawn
VX-211				Withdrawn
VX-212				Withdrawn
VX-213				Withdrawn
VX-214				Withdrawn
VX-215				Withdrawn
VX-216	Remarks by the President at American Association of Community Colleges Annual Convention; President Unveils Tech Initiatives for Energy, Health Care, Internet (04/26/2004) VZW BC-QC 008 003620-003629	Remedy	J. Straight	Rejected (07/06/06)
VX-217	Remarks by the President on Innovation; President Bush: High Tech Improving Economy, Health Care, Education (04/24/2004) VZW BC-QC 008 003630-003635	Remedy	J. Straight	Rejected (07/06/06)
VX-218	South Dakota Public Utilities Commission Wireless Conference "The President's Broadband Vision"; Meredith Attwell Senior Advisor to the Assistant Secretary National Telecommunications and Information Administration U.S. Department of Commerce (09/27/2004) VZW BC-QC 008 003639-003666	Remedy	J. Straight	Rejected (07/06/06)
VX-219	A New Generation of American Innovation; Bush Technology Agenda (April 2004) VZW BC-QC 008 003690-003707	Remedy	J. Straight	Rejected (07/06/06)
VX-220	US Deployment of Third Generation Wireless Services: When Will it Happen and Where Will it Happen?; Hearing before the Subcommittee on Telecommunications and the Internet (07/24/2001) VZW BC-QC 008 003708-003783	Remedy	J. Straight	Rejected (07/06/06)

Exhibit	Description	Purpose	Sponsoring Witness	Rejection Evidence
VX-221	Commercial Spectrum Enhancement Act; 108th Congress, report 108-137 (06/03/2003) VZW BC-QC 008 003784-003811	Remedy	J. Straight	Rejected (07/06/06)
VX-222	"Bucks for Broadband Summit", Commissioner Kevin J. Martin (01/12/2005) VZW BC-QC 008 003812-003843	Remedy	J. Straight	Rejected (07/06/06)
VX-223	US-EU Information Society Dialogue; Spectrum and Wireless Services Discussion; Michael D. Gallagher (09/16/2004) VZW BC-QC 008 003844-003869	Remedy	J. Straight	Rejected (07/06/06)
VX-224	Association of Corporate Counsel 2005 Annual Meeting "The Merger of Telecom and IT: U.S. Innovation Driving Economic Growth"; Michael D. Gallagher (10/18/2005) VZW BC-QC 008 003870-003888	Remedy	J. Straight	Rejected (07/06/06)
VX-225	ISD December 2005 EU--US Plenary Session: Focus on Broadband; Michael D. Gallagher (12/20/2005) VZW BC-QC 008 003889-003898	Remedy	J. Straight	Rejected (07/06/06)
VX-226	ISD December 2005 EU--US Plenary Session: Focus on Wireless Issues; Michael D. Gallagher (12/20/2005) VZW BC-QC 008 005930-005940	Remedy	J. Straight	Rejected (07/06/06)
VX-227	The President's Broadband Vision and the Proliferation of Wireless Broadband Technologies; "Moore Meets Marconi: Spectrum Policy for the 21st Century" Law Seminars International; Michael D. Gallagher (10/01/2004) VZW BC-QC 008 003899-003928	Remedy	J. Straight	Rejected (07/06/06)
VX-228	Remarks of Michael K. Powell Chairman, Federal Communications Commission at the FCC Wireless Broadband Forum (05/19/2004) VZW BC-QC 008 003929-003932	Remedy	J. Straight	Rejected (07/06/06)
VX-229	Qualcomm: Emergency Cellular Communications during Hurricanes Katrina and Rita VZW BC-QC 008 003941-003974	Remedy	J. Straight	Rejected (07/06/06)

Exhibit	Description	Purpose	Sponsoring Witness	Result of the Evidence
VX-230	Qualcomm: DEPLOYABLE CELLULAR COMMUNICATIONS; Background and Recommendations for Deployable Cellular Communications	Remedy	J. Straight	Rejected (07/06/06)
VX-231				Withdrawn
VX-232	Qualcomm: 3G CDMA Enabling Mobile Wireless Data (04/04/2006) VZW BC-QC 008 003981-004023	Remedy	J. Straight	Admitted (07/11/06)
VX-233	W.J. "Billy" Tauzin, Chairman Statement on Third Generation Wirelss Devices VZW BC-QC 008 004024-004025	Remedy	J. Straight	Rejected (07/06/06)
VX-234	Transcript of Wireless Broadband Forum (05/19/2004) VZW BC-QC 008 005766-005874	Remedy	J. Straight	Rejected (07/06/06)
VX-235	Prepared Statement of The Honorable Fred Upton on Third Generation Wireless Devices (07/24/2001) VZW BC-QC 008 004026-004028	Remedy	J. Straight	Rejected (07/06/06)
VX-236	U.S. and European Approaches to the Future of Broadband; Nancy J. Victory (06/19/2002) VZW BC-QC 008 004029-004035	Remedy	J. Straight	Rejected (07/06/06)
VX-237	The Economic Impact of Third Generation Wireless Technology (10/01/2000) VZW BC-QC 008 004036-004055	Remedy	J. Straight	Admitted (07/11/06)
VX-238	Connected & on the Go: Broadband Goes Wireless (02/05/2006) VZW BC-QC 008 004056-004168	Remedy	J. Straight	Admitted (07/11/06)
VX-239	From President Richard Nixon to President George W. Bush: The Rising Importance of Communications Technology and Trade in the 21st Century; Michael D. Gallagher (05/14/2004) VZW BC-QC 008 004169-004192	Remedy	J. Straight	Admitted (07/11/06)
VX-240	United States of Broadband, Wall Street Journal (07/07/2005) VZW BC-QC 008 003636-003637	Remedy	J. Straight	Rejected (07/06/06)

Exhibit	Description	Purpose	Sponsoring Witness	Revised into Evidence
VX-241	Verizon Wireless Recap of Hurricanes Katrina and Rita Business Continuity / Disaster Recovery Program (Draft) (10/01/2005) VZW BC-QC 008 003667-003683	Remedy	J. Straight	Rejected (07/06/06)
VX-242	Business Continuity / Disaster Recovery Program – Overview VZW BC-QC 008 003684-003689	Remedy	J. Straight	Rejected (07/06/06)
VX-243	Letter from 82nd Airborne Division to Verizon Wireless (10/05/2005) VZW BC-QC 008 003638	Remedy	J. Straight	Rejected (07/06/06)
VX-244				Withdrawn
VX-245C	E-mail from Yossi Cohen regarding QCOM (10/14/2005) BCMITC0000916761-916762	Remedy	R. Rango	Rejected (07/06/06)
VX-246C				Withdrawn
VX-247C				Withdrawn
VX-248C				Withdrawn
VX-249C				Withdrawn
VX-250C				Withdrawn
VX-251C				Withdrawn
VX-252C				Withdrawn
VX-253C				Withdrawn
VX-254C				Withdrawn
VX-255C				Withdrawn
VX-256C				Withdrawn
VX-257C				Withdrawn
VX-258C				Withdrawn
VX-259C				Withdrawn
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VX-261C				Withdrawn
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VX-263C				Withdrawn
VX-264C				Withdrawn
VX-265C				Withdrawn
VX-266C				Withdrawn
VX-267C				Withdrawn
VX-268C				Withdrawn
VX-269C				Withdrawn
VX-270C				Withdrawn
VX-271C				Withdrawn
VX-272C				Withdrawn
VX-273C				Withdrawn
VX-274C				Withdrawn
VX-275C				Withdrawn
VX-276C				Withdrawn
VX-277C				Withdrawn

Exhibit	Description	Purpose	Sponsoring Witness	Received into Evidence
VX-278C	Status of Qualcomm Litigation (01/01/2006) BCOM RE00015394-15399	Remedy	M. Brazeal	Admitted (07/11/06)
VX-279	CDMA Tracks, CDMA Development Group (05/01/2006) VZW BC-QC 008 003122-003123	Remedy	J. Straight	Admitted (07/11/06)
VX-280	Integrated Telecommunication Services, U.S. Government VZW BC-QC 008 003580-003587	Remedy	J. Straight	Admitted (07/11/06)
VX-281C				Withdrawn
VX-282C				Withdrawn
VX-283C				Withdrawn
VX-284C				Withdrawn
VX-285C	Verizon Wireless presentation, "Lehman Brothers Worldwide Wireless and Wireless Conference" (05/22/2006) VZW BC-QC 008 003142-003159	Remedy	J. Straight	Admitted (07/11/06)
VX-286C	Multi-Media Domain Plus (MMD+) System Architecture (04/01/2006) VZW BC-QC 008 003284-003551	Remedy	R. Lynch; J. Straight	Admitted (07/11/06)
VX-287C	Motorola, 1xEV-DO Rev. A VoIP over DO-A White Paper (12/01/2004) VZW BC-QC 008 003596-003611	Remedy	J. Straight	Admitted (07/11/06)
VX-288				Withdrawn
VX-289C	EVDO Traffic Summary and Forecast (12/14/2005) VZW BC-QC 008 003112-003120	Remedy	J. Straight	Admitted (07/11/06)
VX-290C				Withdrawn
VX-291C				Withdrawn
VX-292C				Withdrawn
VX-293C				Withdrawn
VX-294C				Withdrawn
VX-295C				Withdrawn
VX-296C				Withdrawn
VX-297C				Withdrawn
VX-298C				Withdrawn
VX-299C	Direct Witness Statement of Rosemary Garavaglia	Remedy	R. Garavaglia	Admitted (07/07/06)
VX-300C	Direct Witness Statement of Richard Lynch	Remedy	R. Lynch	Admitted (07/07/06)
VX-301C	Direct Witness Statement of Steven Smith	Remedy	S. Smith	Admitted (07/07/06)

Exhibit	Description	Purpose	Sponsoring Witness	Recovery or Evidence
VX-302C	Direct Witness Statement of James Straight	Remedy	J. Straight	Portions Rejected (07/06/06); Admitted as Redacted (07/11/06)
VX-303	http://www.cingular.com/business/3G_cov_maps_pop VZW BC-QC 008 005762	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-304	http://www2.sprint.com/nr/news_dtl.do?page=print&id=5680 (accessed May 17, 2006). VZW BC-QC 008 005763	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-305	http://www2.sprint.com/nr/news_dtl.do?id=8120 (accessed May 17, 2006). VZW BC-QC 008 005764 - 005765	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-306C	Verizon Wireless presentation EV-DO Rev A Deployment Strategy VZW BC-QC 008 005877 - 005880	Remedy	R. Lynch	Admitted (07/11/06)
VX-307C	2005 Handset Quarterly Sales VZW BC-QC 008 000033 - 000034	Remedy	R. Garavaglia	Admitted (07/11/06)
VX-308C				Withdrawn
VX-309C				Withdrawn
VX-310C				Withdrawn
VX-311C				Withdrawn
VX-312C				Withdrawn
VX-313C				Withdrawn
VX-314C				Withdrawn
VX-315C				Withdrawn
VX-316C				Withdrawn
VX-317C				Withdrawn
VX-318C				Withdrawn
VX-319C				Withdrawn
VX-320C				Withdrawn
VX-321C				Withdrawn
VX-322C				Withdrawn
VX-323C				Withdrawn
VX-324				Withdrawn
VX-325C	Verizon Wireless May 2006 Sell-Thru and Margin Report VZW BC-QC 008 005942	Remedy	R. Garavaglia	Admitted (07/11/06)
VX-326C	Direct Witness Statement of Katherine Greene	Remedy	C. Greene	Rejected (07/06/06)
VX-327C	Direct Expert Witness Statement of Dennis Carlton	Remedy	D. Carlton (expert)	Admitted (07/10/06); Admitted (07/11/06)
VX-328C				Withdrawn

Exhibit	Description	Purpose	Sponsoring Witness	Received into Evidence
VX-329C				Withdrawn
VX-330C				Withdrawn
VX-331C	Rebuttal Expert Witness Statement of Dennis Carlton	Remedy	D. Carlton (expert)	Admitted (07/10/06); Admitted (07/11/06)
VX-332C				Withdrawn
VX-333C				Withdrawn
VX-334C				Withdrawn
VX-335C				Withdrawn
VX-336C				Withdrawn
VX-337C				Withdrawn
VX-338C				Withdrawn
VX-339C				Withdrawn
VX-340	Dennis W. Carlton Curriculum Vitae (updated May 2006) VZW BC-QC 008 006015 - 006035	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VX-341C				Withdrawn
VX-342C				Withdrawn
VX-343C				Withdrawn
VX-344				Withdrawn
VX-345				Withdrawn
VX-346				Withdrawn
VX-347				Withdrawn
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VX-350				Withdrawn
VX-351				Withdrawn
VX-352C				Withdrawn
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VX-362				Withdrawn
VX-363				Withdrawn
VX-364				Withdrawn
VX-365				Withdrawn
VX-366				Withdrawn
VX-367				Withdrawn
VX-368				Withdrawn

Demonstrative Exhibits

Exhibit	Description	Purpose	Sponsoring Witness	Received Into Evidence
VDX-001				Withdrawn
VDX-002				Withdrawn
VDX-003C	Carlton Analysis: One Effect of Proposed Exclusion Order on EV-DO-Handset Customer Revenue (2007-2010)	Remedy	C. Mulhern (expert); D. Carlton (expert)	Admitted (07/11/06)
VDX-004C				Withdrawn
VDX-005C				Withdrawn
VDX-006C	Carlton Analysis: Consumer Surplus Lost Due to Exclusion Order: 2007-08	Remedy	C. Mulhern (expert)	Admitted (07/11/06)
VDX-007C				Withdrawn
VDX-008C				Withdrawn
VDX-009C	Carlton Analysis: Net Income Lost by Verizon Wireless Due to Proposed Exclusion Order: 2007-2010	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-010C				Withdrawn
VDX-011C				Withdrawn
VDX-012C	VCAST Subscribers Per Month January 2005 - April 2006	Remedy	J. Straight	Admitted (07/11/06)
VDX-013C				Withdrawn
VDX-014	1xRTT vs. EV-DO: User Experience	Remedy	C. Mulhern (expert)	Admitted (07/11/06)
VDX-015C	1xRTT is No Substitute for EV-DO	Remedy	C. Mulhern (expert)	Admitted (07/11/06)
VDX-016C through VDX-025C				Withdrawn
VDX-026C				Withdrawn
VDX-027C through VDX-075C				Withdrawn
VDX-076C	Verizon Wireless 2007-2010 Net Income Tables (Appendix II) VZW BC-QC 008 004214-004217	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-077C	Aggregate Consumer Surplus Lost (Appendix III) VZW BC-QC 008 004218	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-078C	Mobile Broadband Customer Projections with Sources (Appendix IV) VZW BC-QC 008 004219-004220	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-079C	Illustrative Estimates of Consumer Surplus Loss due to Exclusion Order (Appendix V) VZW BC-QC 008 004221-004222	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-080 through VDX-307				Withdrawn

Exhibit	Description	Purpose	Sponsoring Witness	Received into Evidence
VDX-308C				Withdrawn
VDX-309C				Withdrawn
VDX-310C				Withdrawn
VDX-311C				Withdrawn
VDX-312C				Withdrawn
VDX-313C				Withdrawn
VDX-314C				Withdrawn
VDX-315C				Withdrawn
VDX-316C				Withdrawn
VDX-317C				Withdrawn
VDX-318C				Withdrawn
VDX-319C				Withdrawn
VDX-320C				Withdrawn
VDX-321C				Withdrawn
VDX-322C				Withdrawn
VDX-323C				Withdrawn
VDX-324 through VDX-340				Withdrawn
VDX-341C	Table 2: Verizon Wireless's Estimates of the Financial Impact of the Proposed Exclusion Order VZW BC-QC 008 006036	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-342C	Table 3 Illustrative Estimates of Consumer Surplus Loss due to Exclusion Order VZW BC-QC 008 006037	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-343C	Table 1: Verizon Wireless Projections of Mobile Broadband Subscribers and Revenue VZW BC-QC 008 006038	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-344 through VDX-351				Withdrawn
VDX-352C	Table 1 Verizon Wireless's Estimates of the Financial Impact of New Proposed Exclusion Order VZW BC-QC 008 006041 - 006047	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-353C	Table 2: Illustrative Estimates of Consumer Surplus Loss Due to New Proposed Exclusion Order VZW BC-QC 008 006048 - 006052	Remedy	D. Carlton (expert)	Admitted (07/11/06)
VDX-354C	Table 3: Illustrative Estimates of Consumer Surplus Loss due to New Proposed Exclusion Order VZW BC-QC 008 006053 - 006057	Remedy	D. Carlton (expert)	Admitted (07/11/06)

Physical Exhibits

Exhibit	Description	Purpose	Sponsoring Witness	Received into Evidence
VPX-1C	Craft SCH-u710 Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-2C	Samsung-SCHa990 Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-4C	XV6700 Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-7C	LG VX8500 Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-9C	LG VX9900 Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-15C	K1c Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-20C	Sam Music Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-21C	Palm Treo 700W Wireless Device	Remedy	R. Garavaglia	Admitted (07/07/06)
VPX-3C				Withdrawn
VPX-5C				Withdrawn
VPX-6C				Withdrawn
VPX-8C				Withdrawn
VPX-10C				Withdrawn
VPX-11C				Withdrawn
VPX-12C				Withdrawn
VPX-13C				Withdrawn
VPX-14C				Withdrawn
VPX-16C				Withdrawn
VPX-17C				Withdrawn
VPX-18C				Withdrawn
VPX-19C				Withdrawn

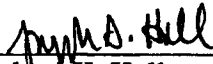
Dated: July 21, 2006

Respectfully submitted,

KELLOGG, HUBER, HANSEN,
TODD, EVANS & FIGEL, P.L.L.C.

Robert L. Ernst
Susan Vinci
VERIZON WIRELESS
One Verizon Way
Basking Ridge, NJ 07920-1097

John Thorne
Robert H. Griffen
VERIZON COMMUNICATIONS INC.
1515 N. Courthouse Road
Arlington, VA 22201



Michael K. Kellogg
Mark C. Hansen
Reid M. Figel
Aaron M. Panner
Rebecca A. Beynon
Joseph S. Hall
1615 M Street, N.W., Suite 400
Washington, D.C. 20036
Telephone: 202-326-7900
Facsimile: 202-326-7999

Daniel M. Price
Richard Wilder
Maria DiGiulian
SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, D.C. 20005
Telephone: 202-736-8000
Facsimile: 202-736-8711

Peter H. Kang
Robert B. Morrill
Georgia K. Van Zanten
SIDLEY AUSTIN LLP
555 California Street, Suite 2000
San Francisco, CA 94104
Telephone: 415-772-1200
Facsimile: 415-772-7400

Counsel for Intervenor Cellco Partnership d/b/a Verizon Wireless