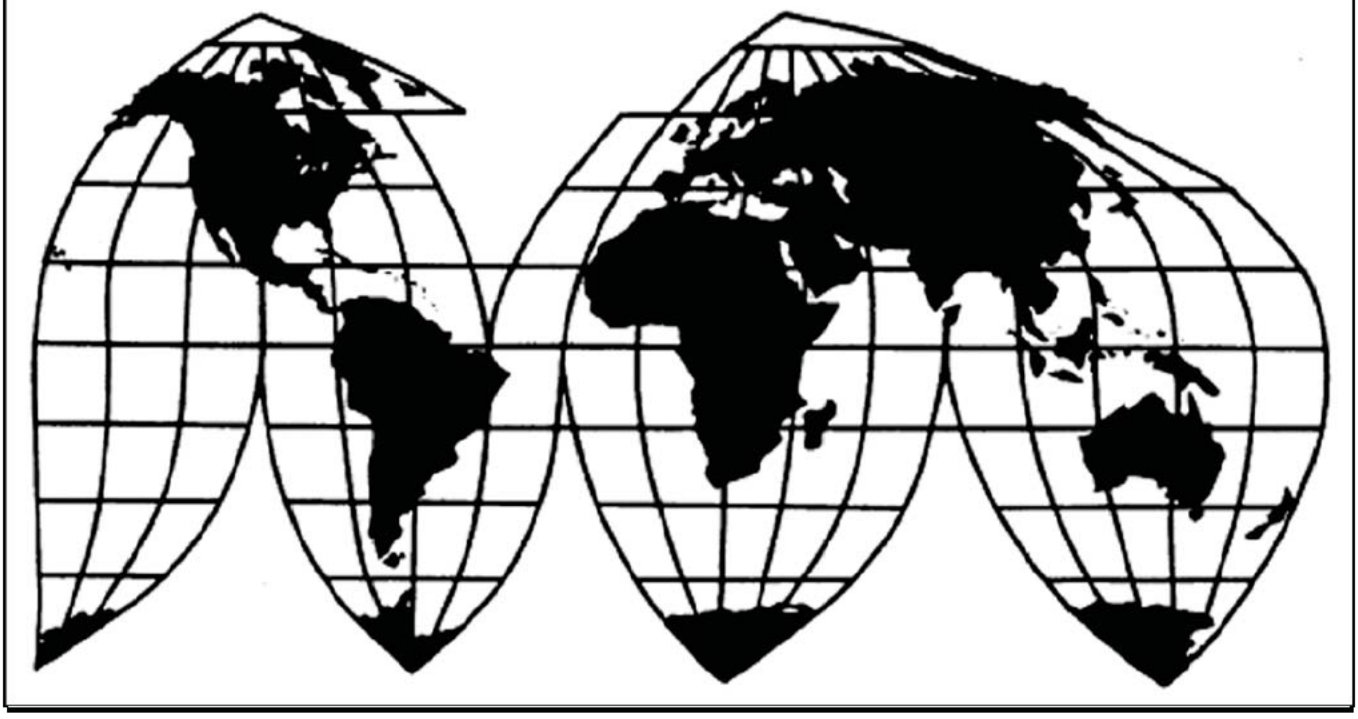
In the Matter of

Certain Ceramic Capacitors and Products Containing Same

Investigation No. 337-TA-692

Publication 4291 **November 2011**

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C. 20436

In the Matter of **CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME**	**Investigation No. 337-TA-692**

NOTICE OF THE COMMISSION'S FINAL DETERMINATION OF NO VIOLATION OF SECTION 337; TERMINATION OF THE INVESTIGATION

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined that there has been no violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, in this investigation, and has terminated the investigation.

FOR FURTHER INFORMATION CONTACT: Panyin A. Hughes, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-3042. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-2000. General information concerning the Commission may also be obtained by accessing its Internet server at *http://www.usitc.gov*. The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov*. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205-1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on November 4, 2009, based on a complaint filed by Murata Manufacturing Co., Ltd. of Kyoto, Japan and Murata Electronics North America, Inc. of Smyrna, Georgia (collectively, "Murata"). 74 *Fed. Reg.* 57193-94 (Nov. 4, 2009). The complaint alleged violations of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain ceramic capacitors and products containing the same by reason of infringement of various claims of United States Patent Nos. 6,266,229 ("the '229 patent"); 6,014,309 ("the '309 patent"); 6,243,254 ("the '254 patent"); and 6,377,439 (subsequently terminated from the investigation). The complaint named Samsung Electro-Mechanics Co., Ltd. of Suwon City, Korea and Samsung Electro-Mechanics America, Inc. of Irvine, California (collectively, "Samsung") as respondents.

On December 22, 2010, the ALJ issued his final ID, finding no violation of section 337 by Respondents with respect to any of the asserted claims of the asserted patents. Specifically, the ALJ found that the accused products do not infringe the asserted claims of the '254 patent. The ALJ also found that none of the cited references anticipates the asserted claims and that none of the cited references renders the asserted claims obvious. The ALJ further found that the asserted claims are not rendered unenforceable due to inequitable conduct. The ALJ, however, found that asserted claims 11-14, 19, and 20 of the '254 patent fail to satisfy the requirements of 35 U.S.C. § 112 for lack of written description. Regarding the '309 patent, the ALJ found that the accused products do not infringe asserted claim 3 and that none of the cited references anticipates or renders obvious asserted claim 3. The ALJ further found that the asserted claim is not rendered unenforceable due to inequitable conduct. With respect to the '229 patent, the ALJ found that the accused products meet all the limitations of the asserted claims and that the asserted claims are not rendered unenforceable due to inequitable conduct. The ALJ further found that the cited references do not anticipate the asserted claims but found that the prior art renders the asserted claims obvious. The ALJ concluded that an industry exists within the United States that practices the '254 patent and the '229 patent but that a domestic industry that practices the '309 patent does not exist as required by 19 U.S.C. § 1337(a)(2) and (3).

On January 4, 2011, Murata and the Commission investigative attorney filed petitions for review of the ID. That same day, Samsung filed a contingent petition for review of the ID. On January 12, 2011, the parties filed responses to the various petitions and contingent petition for review.

On February 23, 2011, the Commission determined to review the final ID in part and requested briefing on several issues it determined to review, and on remedy, the public interest and bonding. 76 *Fed. Reg.* 11275 (Mar. 1, 2011). The Commission determined to review the findings related to the '229 patent and in particular the finding that the AAPA (Applicant Admitted Prior Art) does not invalidate the asserted claims of the '229 patent. The Commission determined not to review any issues related to the '309 patent and the '254 patent and terminated those patents from the investigation.

On March 8, 2011, the parties filed written submissions on the issues under review, remedy, the public interest, and bonding. On March 15, 2011, the parties filed reply submissions on the issues on review, remedy, the public interest and bonding.

Having examined the record of this investigation, including the ALJ's final ID, the Commission has determined that there is no violation of section 337. Specifically, the Commission has determined to (1) reverse the ALJ's finding to the extent that it suggests that the AAPA cannot constitute prior art and (2) find that the asserted claims of the '229 patent are obvious in light of a combination of (i) the AAPA and the knowledge in the art at the time of filing the patent's priority document, (ii) the AAPA and Nagakari (Japanese unexamined patent application H11-21429), or (iii) the AAPA and the deNeuf product (product samples sold by Murata and provided by Mr. deNeuf). The Commission vacates the ALJ's finding that the AAPA does not anticipate the asserted claims of the '229

patent; however, given the Commission's finding that the asserted claims of the '229 patent are invalid for obviousness, the Commission does not reach the issue of anticipation. The Commission adopts the ALJ's findings regarding the '229 patent in all other respects.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), and in sections 210.42-46 of the Commission's Rules of Practice and Procedure (19 C.F.R. §§ 210.42-46).

By order of the Commission.

James R. Holbein
Acting Secretary to the Commission

Issued: April 22, 2011

CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME **Inv. No. 337-TA-692**

PUBLIC CERTIFICATE OF SERVICE

I, James R. Holbein, hereby certify that the attached **NOTICE OF THE COMMISSION'S FINAL DETERMINATION OF NO VIOLATION OF SECTION 337; TERMINATION OF THE INVESTIGATION** has been served by hand upon, the Commission Investigative Attorney, **Aarti Shah, Esq.**, and the following parties as indicated on **April 22, 2011.**

James R. Holbein, Acting Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

On Behalf of Complainants Murata Manufacturing Co, Ltd. and Murata Electronics North America, Inc.:

Sten A. Jensen, Esq.
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( ) Via Hand Delivery
(X) Via Overnight Delivery
( ) Via First Class Mail
( ) Other:_____

On Behalf of Respondents Samsung Electro-Mechanics Co, Ltd. and Samsung Electro-Mechanics America, Inc.:

V. James Adduci, II, Esq.
ADDUCI, MASTRIANI & SCHAUMBERG LLP
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Washington, DC 20036

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( ) Other:_____

PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME**	**Investigation No. 337-TA-692**

COMMISSION OPINION

This investigation is before the Commission for a final disposition. The Commission has determined to affirm the presiding administrative law judge's ("ALJ") determination that Respondents did not violate section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in connection with claims 1-4, 7, 17, 18, 23, 28-31, 34, and 51-53 of United States Patent No. 6,266,229 ("the '229 patent").[1] The ALJ found that the Applicant Admitted Prior Art ("AAPA") cannot constitute a "single allegedly anticipatory reference pursuant to Section 102." ID at 139. Specifically, the AAPA refers to characterizations of figures 15 through 17 of Japanese Unexamined Patent Publication No. H2-256216 in the specification of the '229 patent. *See, e.g.*, '229 patent (JX-1) Background of the Invention. To the extent that the ALJ's findings suggest that the AAPA is not prior art, the Commission reverses that finding. As a result, the Commission finds that the asserted claims of the '229 patent are obvious in light of a combination of (1) the AAPA and the knowledge in the art at the time of filing the '229 patent's

[1] The Commission adopted the ALJ's findings that Respondents did not violate section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in connection with claims 1, 2, 9, 11-14, and 19-20 of United States Patent No. 6,243,254 and claim 3 of United States Patent No. 6,014,309 and terminated those patents from the investigation in its Notice issued on February 23, 2011 to review the final ID in part. 76 *Fed. Reg.* 11275 (Mar. 1, 2011).

priority document, (2) the AAPA and Nagakari, or (3) the AAPA and the deNeuf product. The Commission vacates the ALJ's finding that the AAPA does not anticipate the asserted claims of the '229 patent; and given the Commission's finding that the asserted claims are invalid for obviousness, the Commission does not reach the issue of anticipation. The Commission adopts the ALJ's findings regarding the '229 patent in all other respects.

I. BACKGROUND

A. Procedural History

The Commission instituted this investigation on November 4, 2009, based on a complaint filed by Murata Manufacturing Co., Ltd. of Kyoto, Japan and Murata Electronics North America, Inc. of Smyrna, Georgia (collectively, "Murata"). 74 *Fed. Reg.* 57193-94 (Nov. 4, 2009). The complaint alleged violations of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain ceramic capacitors and products containing the same by reason of infringement of various claims of the '229 patent and United States Patent Nos. 6,243,254 ("the '254 patent"); 6,014,309 ("the '309 patent"); and 6,377,439 ("the '439 patent"). The complaint named Samsung Electro-Mechanics Co., Ltd. of Suwon City, Korea and Samsung Electro-Mechanics America, Inc. of Irvine, California (collectively, "Samsung") as respondents. The '439 patent was subsequently terminated from the investigation.

On December 22, 2010, after a hearing and briefing from the parties, the ALJ issued his final ID, finding no violation of section 337 by Respondents with respect to any of the asserted

claims of the'254 patent, the '309 patent, and the '229 patent. With respect to the '229 patent, the ALJ found that the accused products meet all the limitations of the asserted claims, that a domestic industry that practices the patent exists, and that the asserted claims are not rendered unenforceable due to inequitable conduct. The ALJ further found that the cited references do not anticipate the asserted claims but found that the prior art rendered the asserted claims obvious. Thus, he found no violation with respect to the '229 patent.

On January 4, 2011, Murata filed a petition for review of the ID challenging several of the ALJ's findings. *See* Complainants' Petition for Review of the Initial Determination on Violation of Section 337 ("Murata Pet."). With respect to the asserted claims of the '229 patent, Murata challenged the ALJ's finding that the prior art renders the asserted claims of the patent obvious. Murata Pet. at 18.

Also on January 4, 2011, the Commission investigative attorney ("IA") filed a petition for review of the ID. *See* Petition of the Office of Unfair Import Investigations for Review of the Initial Determination on Violation of Section 337 ("IA Pet."). Specifically, the IA asked the Commission to review, among other things, the ALJ's finding that the asserted claims of the '229 patent are not rendered obvious by the AAPA. *Id.* at 28.

Further on January 4, 2010, Samsung filed a contingent petition for review.[2] *See*

[2] Under the Commission's Rules, contingent petitions for review are treated as petitions for review. 19 C.F.R. § 210.42(b)(3).

Respondents' Contingent Petition for Review ("Samsung Pet."). In the event that the Commission granted Murata's or the IA's petition for review, Samsung requested that the Commission review certain issues in the ID, including the ALJ's finding that the asserted claims of the '229 patent are not anticipated and/or rendered obvious by the AAPA.

On January 12, 2011, Samsung filed a reply to Murata's petition for review. *See* Respondents' Response to Complainants' Petition for Review. Also on January 12, 2011, Murata filed a consolidated response to the IA's petition for review and Samsung's contingent petition for review. *See* Complainants' Consolidated Response to Respondents' Contingent Petition for Review and the Staff's Petition for Review of the Initial Determination on Violation of Section 337. That same day, the IA also filed a response to the petitions for review. *See* Response of the Office of Unfair Import Investigation to Complainants' and Respondents' Petitions for Review of the Initial Determination on Violation of Section 337.

On February 23, 2011, the Commission determined to review the final ID in part and requested briefing on several issues it determined to review, and on remedy, the public interest and bonding. 76 *Fed. Reg.* 11275 (Mar. 1, 2011). Specifically, the Commission determined to review the findings related to the '229 patent and in particular the finding that the AAPA does not invalidate the asserted claims of the '229 patent. The Commission determined not to review any issues related to the '309 patent and the '254 patent and, therefore, terminated those patents from the investigation. In its notice of review, the Commission asked the parties to brief the

following questions:

1. Can characterizations of the prior art that patent applicants make in the specification constitute the "single allegedly anticipatory reference pursuant to Section 102"? *See* ID at 139. Even if those characterizations cannot constitute such a reference, are applicants bound by characterizations of the prior art contained in the specification? In your response, please consider *Pharmastem Therapeutics, Inc. v. Viacell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007) and *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988).

2. Assume that patent applicants are bound by their characterizations as described above. Have the '229 applicants made concessions showing that the asserted claims of the '229 patent are anticipated or obvious? Please specify how the alleged applicant admissions disclose that a single prior art reference discloses each limitation of the asserted claims and/or that a combination of prior art references render the claims obvious. Please cite only record evidence and relevant legal authority to support your position.

3. Assume that the specification can constitute a single allegedly anticipatory reference pursuant to Section 102. Please provide an analysis as to anticipation and obviousness. Please cite only record evidence and relevant legal authority to support your position.

On March 8, 2011, the parties filed written submissions on the issues under review, remedy, the public interest, and bonding. *See* Complainant's Response to Notice of Commission Determination to Review in Part a Final Initial Determination Finding No Violation of Section 337 ("Murata Br."); OUII's Submission on the Issues Under Review and on Remedy, the Public Interest and Bonding ("IA Br."); Respondents' Brief in Response to the Commission's Notice to Review in Part the ALJ's Final Initial Determination ("Samsung Br."). On March 15, 2011, the parties filed reply briefs.

B. Patents and Technology at Issue

The technology at issue in this investigation covers certain multi-layer ceramic capacitors ("MLCCs"). ID at 3-4. Capacitors are "passive" electronic devices that consist of one or more pairs of parallel, conducting electrode plates separated by an insulating material (*i.e.*, dielectric). *Id.* at 3. Multi-layer capacitors contain more than one pair of electrode plates, or internal (inner) electrodes, embedded in a ceramic block with a dielectric layer between each pair of electrodes. *Id.* at 3-4. The internal electrodes are electrically connected, either directly or with a lead electrode, to external (outer) electrodes. *Id.* at 4. In an electrical circuit, when a voltage is applied to the external electrodes of a multilayer capacitor, the parallel internal electrodes in each pair acquire equal but opposite (positive and negative) charges, and energy is stored in the dielectric between the internal electrodes. *Id.*

The '229 patent, entitled "Multilayer Capacitor," resulted from U.S. Patent Application No. 09/501,084, filed on February 9, 2000, which is a continuation-in-part of Application No. 09/042,379, filed on March 13, 1998, now U.S. Patent No. 6,072,687. The '229 patent issued on July 24, 2001 and claims priority to (JP) 9-306717, dated November 10, 1997, and (JP) 11-370803, dated December 27, 1999. The '229 patent names Yasuyuki Naito, Masaaki Taniguchi, Yoichi Kuroda, Takanori Kondo, Michihiro Murata, and Yoshitaka Tanino as the inventors, and lists Murata Manufacturing Co., Ltd. as the assignee.

The '229 patent discloses a "multi-layer capacitor device" that includes a capacitor body including "first electrode plates and a plurality of second electrode plates," and the asserted

claims are generally directed to a multilayer capacitor where the lead portion of the electrodes have a specified arrangement with a length-to-width (L/W) ratio falling between a certain range. *See* Abstract. Murata has asserted independent claims 1, 28, and 51 together with dependent claims 2-4, 7, 17, 18, 23, 29-31, 34, 52, and 53 in this investigation. *See* ID at 7-8.

C. Products at Issue

The accused products in this investigation are MLCCs, including high capacitance MLCCs and low equivalent series induction ("ESL") MLCCs. Murata accuses Samsung of importing and selling the products accused in this investigation. ID at 12.[3]

IV. VIOLATION ISSUES UNDER REVIEW

A. Applicable Law

1. Anticipation

"Claimed subject matter is 'anticipated' when it is not new; that is, when it was previously known." *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1082 (Fed. Cir. 2008). "Invalidation on this ground requires that every element and limitation of the claim was previously described in a single prior art reference, either expressly or inherently, so as to place a person of ordinary skill in possession of the invention." *Id.* A prior art reference that does not expressly set forth a particular claim element, may still anticipate the claim if the missing element is inherently disclosed by the reference. *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002); *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). Inherent

[3] For a detailed listing of accused products, see pages 12-14 of the final ID.

anticipation occurs when "the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." *Id.*

2. Obviousness

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." 35 U.S.C. § 103(a). Obviousness is a question of law, but "it is well understood that there are factual issues underlying the ultimate obviousness decision." *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed. Cir. 1997) (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966)).

After claim construction, "[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." *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1354 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17). The existence of secondary considerations of non-obviousness does not control the obviousness determination. *Richardson-Vicks*, 122 F.3d at 1483. Rather, a court must consider "the totality of the evidence" before reaching a decision on obviousness. *Id.*

The Supreme Court considered the obviousness inquiry in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 389 (2007) ("*KSR*"). The Court explained:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson's-Black Rock* are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.
>
> Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.
>
> * * *
>
> The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

KSR, 550 U.S. at 417-19.

The Federal Circuit has since held that when a patent challenger contends that a patent is

invalid for obviousness based on a combination of several prior art references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007) (citations omitted). Regarding the Federal Circuit's TSM test,[4] the Court has explained that

> [t]he TSM test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence—teachings, suggestions (a tellingly broad term), or motivations (an equally broad term)—that arise before the time of invention as the statute requires. As *KSR* requires, those teachings, suggestions, or motivations need not always be written references but may be found within the knowledge and creativity of ordinarily skilled artisans.

Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc., 520 F.3d 1358, 1365 (Fed. Cir. 2008).

B. Whether the AAPA Anticipates or Renders Obvious the Asserted Claims of the '229 Patent

The Commission determined to review the findings related to the '229 patent and in particular the ALJ's finding that the AAPA does not invalidate the asserted claims of the '229 patent. Claim 1 of the '229 patent, with the key claim term emphasized for clarity, is reproduced below:

Asserted independent claim 1 recites:

> **1.** A multi-layer capacitor device comprising:

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[4] TSM test refers to teaching, suggestion, or motivation to combine references.

a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation;

a dielectric material located between each opposed set of the first and second electrode plates;

the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and

a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein

each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and

at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

The ALJ found that the AAPA failed to anticipate or render obvious the asserted claims of the '229 patent because the AAPA cannot constitute a "single allegedly anticipatory

reference." ID at 138-142. Samsung relied on representations of the prior art, particularly those referring to Japanese Unexamined Patent Publication No. H2-256216 ("H2 application"), that the patentees made in the background section of the '229 patent and argued that those representations either anticipated or rendered obvious the asserted claims of the patent. *Id.* The ALJ found that Samsung's argument presented "some difficulty as to what is considered the single alleged anticipatory reference pursuant to Section 102" and added that "[s]urely Samsung is not attempting to argue that the '229 patent specification itself is this anticipatory reference." *Id.* at 139. The ALJ further stated that "[i]f Samsung means the H2 application, it is unclear why Samsung indirectly approaches this reference through the '229 patent specification." *Id.* The ALJ then compared the prior art drawings in the '229 patent with the drawings in the H2 application and noted that "[i]t is apparent that the '229 patentees have added something to the description and drawings of the H2 application that is not contained within the four corners of that reference," concluding that "it is clear that Samsung has not met its burden of showing by clear and convincing evidence that the AAPA, as disclosed in the '229 patent rather than in the H2 application, meets the requirements of a single prior art reference pursuant to Section 102." *Id.* at 141.

We find that the ALJ erred in finding that the AAPA cannot be used to invalidate the asserted claims of the '229 patent. ID at 138-142. Indeed Murata agrees that Federal Circuit precedent establishes that the characterizations of the prior art in the asserted patent itself can constitute prior art. Murata Br. at 3-4. For example, in *In re Nomiya*, the specification of the

asserted patent included two figures depicted as "prior art." *In re Nomiya*, 509 F.2d 566, 567 (CCPA 1975). The United States Patent and Trademark Office ("PTO") examiner combined those figures with another reference and rejected the claims as being obvious. The applicants challenged the PTO's consideration of the figures as prior art. The Federal Circuit's predecessor, the Court of Customs and Patent Appeals rejected the challenge, stating:

> We see no reason why appellants' representations in their application should not be accepted at face value as admissions that Figs. 1 and 2 be considered 'prior art' for any purpose, including use as evidence of obviousness under 103. . . . By filing an application containing Figs. 1 and 2 labeled prior art, *ipsissimis verbis*, and statements explanatory thereof, appellants have conceded what is to be considered as prior art in determining obviousness of their improvement.

Id. at 570-571; Manual of Patent Examination and Procedure §§ 2129 (I), 706.02 (8th ed. 2010). The Federal Circuit has followed this reasoning and concluded that "a statement by an applicant during prosecution identifying certain matter not the work of the inventor as 'prior art' is an admission that the matter is prior art." *Riverwood Int'l Corp. v. R.A. Jones & Co., Inc.*, 324 F.3d 1346, 1354 (Fed. Cir. 2003). That is, characterizations of the prior art that applicants make can constitute prior art. *Id.* ("Valid prior art may be created by the admissions of the parties," citing *In re Fout*, 675 F.2d 297, 300 (CCPA 1982)); *see also Pharmastem Therapeutics, Inc. v. Viacell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007); *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988). As in *In re Nomiya*, the '229 applicants admitted in the specification that certain figures, specifically figures 15 through 17, represent prior art. '229 patent (JX-1), col. 1, l. 13 - col. 2, l. 50; col. 5, ll. 65-68. Thus, based on Federal Circuit

precedent, the applicants' characterization of figures 15 through 17 as capacitors well known in the art can be considered "prior art." We therefore reverse the ALJ's finding to the extent it suggests that the AAPA cannot constitute prior art.

We find that the asserted claims of the '229 patent are obvious in light of the AAPA and the knowledge in the art at the time of filing the patent's priority document, or alternatively are rendered obvious by a combination of the AAPA with Japanese unexamined patent application H11-21429 ("Nagakari") or a combination of the AAPA with product samples sold by Murata and provided by Mr. deNeuf ("deNeuf product"). Murata states in its brief that "the AAPA is not materially different from DuPré [U.S. Patent No. 5,880,925 to DuPré et al.] " (Murata Br. at 1), and has not challenged the ALJ's finding that DuPré discloses all the limitations of the asserted independent claims except for the recited L/W ratios. ID at 171. Moreover, Murata concedes that figures 15 through 17 disclose all the limitations of the asserted claims except for the L/W ratio. Murata's Post Hearing Brief at 119-120. The only question remaining therefore is whether the recited L/W ratios were within the knowledge of one of ordinary skill in the art at the time of filing the priority document for the '229 patent. We find that the record evidence contains ample documentation corroborating Dr. Randall's testimony that the claimed invention, including L/W ratios, would have been obvious to one of ordinary skill in the art. Randall Tr. at 1611-14.

Papers written by AVX[5] engineers prior to the filing of the priority document for the

[5] AVX refers to AVX Corporation, an entity in the MLCC arena that has (or had) licensing agreements with Murata. AVX Corporation is not a party to the investigation.

patent show that the L/W ratio was relevant to inductance. *See* RX-532, RX-538, CX-569. These publications teach that reducing the L/W ratio leads to a reduction in the effective series inductance ("ESL"), a goal of the recited L/W ratio in the asserted claims. *See, e.g.*, '229 patent, col. 14, ll. 62-64. One of the papers states that "[t]he effective series inductance (ESL) defines that loss element which must be overcome as current flow is constricted within a given envelope. The tighter the restriction (high aspect ratio or L/W), the higher the ESL, and vice versa." RX-532 at SEMC000263240; Randall Tr. at 1631:12-20. Another paper includes a chart that illustrates the reduction in inductance that arises directly from a reduction in the L/W ratio. RX-538; Randall Tr. at 1630:12-1631:2. Murata disputes the relevance of these publications, arguing that they are directed to conventional, end terminated capacitors and thus not applicable. Murata Pet. at 22-23. Murata, however, fails to present any evidence to substantiate its allegation that because those papers are directed to conventional, end terminated capacitors, an ordinarily skilled artisan would not have consulted them or known about them. Murata merely relies on its own attorney arguments, despite testimony that an ordinarily skilled artisan would have known of this relationship. Randall Tr. at 1632:6-10 ("Q. Dr. Randall, this relationship between the length and the width and the reductions in inductance, would that be known to a person of skill in the art in 1999? A. Absolutely. It would be known.").

In addition, as the ALJ found, Murata's own expert, Dr. Ulrich, confirmed that a person of skill in the art would have understood that lowering the L/W ratio would result in reduced inductance, the objective of the recited L/W ratio in the asserted claims. *See, e.g.*, '229 patent,

col. 14, ll. 62-64. He testified that an ordinarily skilled artisan "would have known that shortening the current path by widening the lead electrode tabs [W] would have reduced inductance" and that "shortening lead electrodes [L] would also result in a reduction of inductance." ID at 171 (citing Ulrich Tr. at 1288, 1294-96, 1300-01); *see also* Ulrich Tr. at 1004:13-1005:5; 1290:3-12 ("[Y]ou can reduce the path length of the current in the device [to reduce inductance]. And that's well known."). Murata accuses the ALJ of misunderstanding Dr. Ulrich's testimony. Murata Pet. at 28. According to Murata, "Prof. Ulrich testified that a person of skill in the art would have known not only that a wider lead would reduce the current path between adjacent leads but also that changing the lead dimension would not reduce the much longer path lengths for current travels across a MLCC" and that this means that there would be no impact on inductance. *Id.* at 29 (citing its findings of fact CFF5.547-550; CRFF6.40). Dr. Ulrich's testimony on this point, however, is clear, and Murata's interpretation of his testimony does not negate the fact that he testified that an ordinarily skilled artisan would have known that "shortening lead electrodes" would reduce inductance and that "increasing the width of a lead electrode would also reduce inductance." Ulrich Tr. at 1004:13-1005:5; 1290:3-12.

As the ALJ correctly found, Dr. Randall's testimony was also corroborated by the unrebutted testimonies of Mr. Galvagni, a designer of "interdigitated low inductance products in the 1980's through the mid-1990's, who testified that he never designed general purpose interdigitated capacitors with tabs having a L/W ratio greater than 3 because that would 'violate

some of the first principles,'" and Mr. deNeuf, "who designed and manufactured multilayer capacitor devices for a Murata U.S. subsidiary until 1995" and who testified that "one of the considerations for determining the width of the lead electrodes for the capacitor he designed was 'to improve the ESR inductance properties of the products.'" Galvagni Tr. at 1474-77; deNeuf Tr. at 1485-87, 1489, 1492-93, 1500-01. Murata does not present any evidence to rebut these testimonies. Rather, Murata argues that Mr. Galvagni has more than just ordinary skill in the art and that Mr. deNeuf's testimony is "garbled." Murata Pet. at 24-27. The simple fact that Mr. Galvagni has extensive experience in the art does not mean that he cannot testify as a fact witness to what the knowledge of an ordinarily skilled artisan would have been, and Murata cites no authority for that proposition. The allegation that Mr. deNeuf's testimony is "garbled" is just that—an allegation, and not substantiated by any evidence other than attorney argument. Thus, we find that clear and convincing evidence establishes that combining the AAPA with the knowledge in the art as of the date of the priority document for the '229 patent renders the asserted claims obvious.

Clear and convincing evidence also supports a finding that the AAPA in combination with either Nagakari or the deNeuf product renders the asserted claims obvious. We find that an ordinarily skilled artisan would combine the AAPA with either Nagakari or the deNeuf product because all three are in the same field of endeavor and reducing inductance is a well understood goal in the field. *See* Randall Tr. at 1632:6-10. In particular, Nagakari discloses a design for low

inductance MLCC having first and second electrode plates including at least one lead electrode on each plate and describes three mechanisms for reducing inductance: (1) short current paths, (2) increased magnetic field cancellation, and (3) use of lead electrodes or tabs to create multiple current paths. Randall Tr. at 1646:10-1647:3; Nagakari (RX-413) at ¶¶ 0010, 0021, 0043, 0053, Figs. 1 and 6. Nagakari specifically discloses dimensions of the lead electrode as 0.1 mm long and 0.15 mm wide, resulting in a L/W ratio of 0.667, which is within the narrowest L/W range claimed in the asserted claims. *Id.* As noted above, the only limitation that Murata argues is missing from the AAPA is the recited L/W ratio. Thus, the AAPA in combination with Nagakari renders the asserted claims obvious.

With respect to the deNeuf product, no dispute exists that they have electrode tabs with a L/W ratio between 1.59 and 2.9, well within the range of the asserted claims. ID at 172-173. Murata argues that one of ordinary skill in the art would not combine them because "the deNeuf product is a product, not a writing, and so it does not provide any guidance or teaching whatsoever." Murata Pet. at 33. Murata, however, points to no authority for the proposition that one cannot combine a product with a publication in an obviousness inquiry, but relies exclusively on its attorneys' argument. *See Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1344 (Fed. Cir. 2007) (indicating that a prior art product can be combined with other references to render claims obvious).[6] As noted above, the AAPA discloses all the claim limitations except for the range of

[6] We note that there is no dispute that the deNeuf product is prior art to the '229 patent. deNeuf Tr. at 1490:7-18, 1492:16-25, 1493:1-6; CRFF 6.742-6.747; ID at 172. Specifically, the deNeuf products were manufactured and sold in the United States between 1993 and 1995, more

the L/W ratio, and the deNeuf product discloses L/W ratios within the claimed range. Moreover, both the AAPA and the deNeuf product are in the same field of endeavor. Thus, an ordinarily skilled artisan would combine the AAPA with the deNeuf product, rendering the asserted claims obvious.

Because the Commission finds that the asserted claims of the '229 patent are invalid for obviousness, the Commission does not reach the issue of anticipation.[7] The Commission thus vacates the ALJ's finding that the AAPA does not anticipate the asserted claims of the '229 patent.

VIII. CONCLUSION

For the reasons set forth above, to the extent the ALJ's finding that the AAPA cannot constitute a "single allegedly anticipatory reference pursuant to Section 102" suggests that the AAPA is not prior art, the Commission reverses that finding. The Commission finds that the asserted claims of the '229 patent are obvious in light of a combination of (1) the AAPA and the knowledge in the art at the time of filing the patent's priority document, (2) the AAPA and Nagakari or (3) the AAPA and the deNeuf product. Given our determination that the asserted claims are invalid for obviousness, we do not reach the issue of anticipation. We adopt the ALJ's findings regarding the '229 patent in all other respects, including his finding that DuPré

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than a year before the earliest priority date of November, 1997 for the '229 patent.

[7] *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) ("The Commission . . . is at perfect liberty to reach a 'no violation' determination on a single dispositive issue. That approach may often save the Commission, the parties, and this court substantial unnecessary effort.").

either alone or in combination with Nagakari or the deNeuf product renders the asserted claims obvious.

By order of the Commission.

James R. Holbein
Secretary to the Commission

Issued: May 16, 2011

CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME **Inv. No. 337-TA-692**

PUBLIC CERTIFICATE OF SERVICE

I, James R. Holbein, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon, the Commission Investigative Attorney, Aarti Shah, Esq., and the following parties as indicated on **May 17, 2011.**

James R. Holbein, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

On Behalf of Complainants Murata Manufacturing Co, Ltd. and Murata Electronics North America, Inc.:

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On Behalf of Respondents Samsung Electro-Mechanics Co, Ltd. and Samsung Electro-Mechanics America, Inc.:

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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C. 20436

In the Matter of **CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME**	**Investigation No. 337-TA-692**

NOTICE OF COMMISSION DETERMINATION TO REVIEW IN PART A FINAL INITIAL DETERMINATION FINDING NO VIOLATION OF SECTION 337; SCHEDULE FOR FILING WRITTEN SUBMISSIONS ON THE ISSUES UNDER REVIEW AND ON REMEDY, THE PUBLIC INTEREST AND BONDING

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined to review in part the final initial determination ("ID") issued by the presiding administrative law judge ("ALJ") on December 22, 2010, finding no violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, in this investigation.

FOR FURTHER INFORMATION CONTACT: Panyin A. Hughes, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-3042. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-2000. General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov*. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205-1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on November 4, 2009, based on a complaint filed by Murata Manufacturing Co., Ltd. of Kyoto, Japan and Murata Electronics North America, Inc. of Smyrna, Georgia (collectively, "Murata"). 74 *Fed. Reg.* 57193-94 (Nov. 4, 2009). The complaint alleged violations of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain ceramic capacitors and products containing the same by reason of infringement of various claims of United States Patent Nos. 6,266,229 ("the '229 patent"); 6,014,309 ("the '309 patent"); 6,243,254 ("the '254 patent"); and 6,377,439 (subsequently terminated from the investigation). The complaint named Samsung Electro-Mechanics Co., Ltd. of Suwon City, Korea and Samsung Electro-Mechanics America, Inc. of Irvine, California (collectively, "Samsung") as respondents.

On December 22, 2010, the ALJ issued his final ID, finding no violation of section 337 by Respondents with respect to any of the asserted claims of the asserted patents. Specifically, the ALJ found that the accused products do not infringe the asserted claims of the '254 patent. The ALJ also found that none of the cited references anticipated the asserted claims and that none of the cited references rendered the asserted claims obvious. The ALJ further found that the asserted claims were not rendered unenforceable due to inequitable conduct. The ALJ, however, found that asserted claims 11-14, 19, and 20 of the '254 patent failed to satisfy the requirements of 35 U.S.C. § 112 for lack of written description. Likewise, the ALJ found that the accused products do not infringe asserted claim 3 of the '309 patent and that none of the cited references anticipated or rendered obvious the asserted claims. The ALJ further found that the asserted claim was not rendered unenforceable due to inequitable conduct. Similarly, the ALJ found that the accused products meet all the limitations of the asserted claims of the '229 patent and that the claims are not rendered unenforceable due to inequitable conduct. The ALJ further found that the cited references do not anticipate the asserted claims but found that the prior art rendered the asserted claims obvious. The ALJ concluded that an industry exists within the United States that practices the '254 and '229 patents but that a domestic industry does not exist with respect to the '309 patent as required by 19 U.S.C. § 1337(a)(2) and (3).

On January 4, 2011, Murata and the Commission investigative attorney filed petitions for review of the ID. That same day, Samsung filed a contingent petition for review of the ID. On January 12, 2011, the parties filed responses to the various petitions and contingent petition for review.

Having examined the record of this investigation, including the ALJ's final ID, the petitions for review, and the responses thereto, the Commission has determined to review the final ID in part. Specifically, the Commission has determined to review the findings related to the '229 patent and in particular the finding that AAPA (Applicant Admitted Prior Art) does not invalidate the asserted claims of the '229 patent. With respect to the '309 patent, it is unclear whether the ALJ made a specific finding that Nakano discloses a thickness ratio of 0.01 to 10. ID at 167. To the extent that the ALJ made such a finding, the Commission reverses and does not adopt such a finding as its own. The Commission has determined not to review the issues related to the '309 patent and '254 patent raised by the petitions for review and terminates the '309 and '254 patents from the investigation.

The parties are requested to brief their positions on the issues under review with reference to the applicable law and the evidentiary record. In connection with its review, the Commission is particularly interested in responses to the following questions:

1. Can characterizations of the prior art that patent applicants make in the specification constitute the "single allegedly anticipatory reference pursuant to Section 102"? *See* ID at 139. Even if those characterizations cannot constitute such a reference, are applicants bound by characterizations of the prior art contained in the specification? In your response, please consider *Pharmastem Therapeutics, Inc. v. Viacell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007) and *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988).

2. Assume that patent applicants are bound by their characterizations as described above. Have the '229 applicants made concessions showing that the asserted claims of the '229 patent are anticipated or obvious? Please specify how the alleged applicant admissions disclose that a single prior art reference discloses each limitation of the asserted claims and/or that a combination of prior art references render the claims obvious. Please cite only record evidence and relevant legal authority to support your position.

3. Assume that the specification can constitute a single allegedly anticipatory reference pursuant to Section 102. Please provide an analysis as to anticipation and obviousness. Please cite only record evidence and relevant legal authority to support your position.

In connection with the final disposition of this investigation, the Commission may (1) issue an order that could result in the exclusion of the subject articles from entry into the United States, and/or (2) issue one or more cease and desist orders that could result in the respondent(s) being required to cease and desist from engaging in unfair acts in the importation and sale of such articles. Accordingly, the Commission is interested in receiving written submissions that address the form of remedy, if any, that should be ordered. If a party seeks exclusion of an article from entry into the United States for purposes other than entry for consumption, the party should so indicate and provide information establishing that activities involving other types of entry either are adversely affecting it or likely to do so. For background, *see In the Matter of Certain Devices for Connecting Computers via Telephone Lines*, Inv. No. 337-TA-360, USITC Pub. No. 2843 (December 1994) (Commission Opinion).

If the Commission contemplates some form of remedy, it must consider the effects of that remedy upon the public interest. The factors the Commission will consider include the effect that an exclusion order and/or cease and desist orders would have on (1) the public health and welfare, (2) competitive conditions in the U.S. economy, (3) U.S. production of articles that are like or directly competitive with those that are subject to investigation, and (4) U.S. consumers. The Commission is therefore interested in receiving written submissions that address the aforementioned public interest factors in the context of this investigation.

If the Commission orders some form of remedy, the U.S. Trade Representative, as delegated by the President, has 60 days to approve or disapprove the Commission's action. *See* Presidential Memorandum of July 21, 2005, 70 *Fed. Reg.* 43251 (July 26, 2005). During this period, the subject articles would be entitled to enter the United States under bond, in an amount determined by the Commission. The Commission is therefore interested in receiving submissions concerning the amount of the bond that should be imposed if a remedy is ordered.

WRITTEN SUBMISSIONS: The parties to the investigation are requested to file written submissions on the issues identified in this notice. Parties to the investigation, interested government agencies, and any other interested parties are encouraged to file written submissions on the issues of remedy, the public interest, and bonding. Such submissions should address the recommended determination by the ALJ on remedy and bonding with respect to the '229 patent. Complainants and the IA are also requested to submit proposed remedial orders for the Commission's consideration. Complainants are also requested to state the date that the patent expires and the HTSUS numbers under which the accused products are imported. The written submissions and proposed remedial orders must be filed no later than close of business on Tuesday, March 8, 2011. Reply submissions must be filed no later than the close of business on Tuesday, March 15, 2011. No further submissions on these issues will be permitted unless otherwise ordered by the Commission.

Persons filing written submissions must file the original document and 12 true copies thereof on or before the deadlines stated above with the Office of the Secretary. Any person desiring to submit a document to the Commission in confidence must request confidential treatment unless the information has already been granted such treatment during the proceedings. All such requests should be directed to the Secretary of the Commission and must include a full statement of the reasons why the Commission should grant such treatment. *See* 19 C.F.R. § 210.6. Documents for which confidential treatment by the Commission is sought will be treated accordingly. All nonconfidential written submissions will be available for public inspection at the Office of the Secretary.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), and in sections 210.42-46 and 210.50 of the Commission's Rules of Practice and Procedure (19 C.F.R. §§ 210.42-46 and 210.50).

By order of the Commission.

William R. Bishop
Hearings and Meetings Coordinator

Issued: February 23, 2011

CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME **Inv. No. 337-TA-692**

PUBLIC CERTIFICATE OF SERVICE

I, James R. Holbein, hereby certify that the attached **NOTICE OF COMMISSION DETERMINATION TO REVIEW IN PART A FINAL INITIAL DETERMINATION FINDING NO VIOLATION OF SECTION 337; SCHEDULE FOR FILING WRITTEN SUBMISSIONS ON THE ISSUES UNDER REVIEW AND ON REMEDY, THE PUBLIC INTEREST AND BONDING** has been served by hand upon, the Commission Investigative Attorney, Aarti Shah, Esq. and the following parties as indicated on **February 23, 2011.**

James R. Holbein JWC

James R. Holbein, Acting Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

On Behalf of Complainants Murata Manufacturing Co, Ltd. and Murata Electronics North America, Inc.:

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On Behalf of Respondents Samsung Electro-Mechanics Co, Ltd. and Samsung Electro-Mechanics America, Inc.:

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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of	
CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME	Inv. No. 337-TA-692

NOTICE RE CORRECTION OF ERROR IN FINAL INITIAL DETERMINATION

(January 11, 2011)

One of the parties has brought it to the attention of the Administrative Law Judge that there is an error on page 192 of the Final Initial Determination, dated December 22, 2010 ("Final ID"), with respect to the initial identification of the domestic industry products asserted by Complainants. While the error does not affect the analysis or conclusions in the Final Initial Determination (the evidence and arguments with respect to the correct products were analyzed), in order to reduce any confusion the Administrative Law Judge makes the following corrections to the initial identification of the products asserted by Complainants to support their assertions with respect to technical domestic industry, appearing on page 192 of the Final ID.

> Thus, in this Investigation Murata must show that it satisfies both the technical and economic prongs of the domestic industry requirement with respect to the '254, '309, and '229 patents. For the '254 patent, Murata has identified hundreds of Murata products (collectively, the "Murata '254 Products") that it alleges practice the '254 patent in order to show that Murata meets the domestic industry requirement. (CX-15C; SFF 100 (undisputed).) The private parties have stipulated that GRM155B30J105KE18D is representative of the Murata '254 Products manufactured using compositions { } and { }. (CBr. at 40; CFF 3.649 (undisputed).) Staff relies on Murata product GRM32CR72A105KA35, representative of Murata MLCCs using compositions { }, and Murata product GRM32CR72A105KA35, which Staff says "is representative of Murata MLCCs using compositions { } and { } but uses composition { }." (SBr. at 33.) For the '309 patent, Murata selected dozens of MLCCs (the "DI Products") that it alleges practices the '309 patent in order to show that Murata meets the domestic industry

requirement. (CX-8C; SFF 175; COSFF 175.) For the '229 patent, Murata selected two representative products, LLM315R70J225MA11 and LLA215CG105MA14 (collectively, the "Murata '229 Products") that it alleges practice the '229 patent in order to show that Murata meets the domestic industry requirement. (CBr. at 116; SBr. at 109.)

Within seven days of the date of this document, each party shall submit to the Office of the Administrative Law Judges a statement as to whether or not it seeks to have any portion of this document deleted from the public version. The parties' submissions may be made by facsimile and/or 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' submissions concerning the public version of this document need not be filed with the Commission Secretary.

SO ORDERED.

E. James Gildea
Administrative Law Judge

IN THE MATTER OF CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME

337-TA-692

PUBLIC CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **ORDER** has been served by hand upon, the Commission Investigative Attorney, **Aarti Shah, Esq.**, and the following parties as indicated on January 21, **2011.**

Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112A
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FOR RESPONDENT SAMSUNG ELECTRO-MECHANICS CO., LTD.,; SAMSUNG ELECTRO-MECHANICS AMERICA, INC.

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IN THE MATTER OF CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME

337-TA-692

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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of	
CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME	**Inv. No. 337-TA-692**

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

Administrative Law Judge E. James Gildea

(December 22, 2010)

Appearances:
For the Complainants Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc.:

Steven J. Roth, Esq.; and Sten A. Jensen, Esq. of Orrick, Herrington & Sutcliffe, LLP of Washington, D.C.

William H. Wright, Esq. of Orrick, Herrington & Sutcliffe, LLP of Los Angeles, California.

For the Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc.:

George A. Riley, Esq.; and Anne E. Huffsmith, Esq. of O'Melveny & Myers, LLP of San Francisco, California

John Kappos, Esq.; and Bo Moon, Esq. of O'Melveny & Myers, LLP of Newport Beach, California

Stephen J. Akerley, Esq. of O'Melveny & Myers, LLP of Menlo Park, California

Brian M. Berliner, Esq. of O'Melveny & Myers, LLP of Los Angeles, California

R. Paul Zeineddin, Esq. of O'Melveny & Myers, LLP of Washington, D.C.

David H. Hollander, Jr., Esq. of Adduci, Mastriani & Schaumberg, LLP of Washington, D.C.

For the Commission Investigative Staff:

Lynn I. Levine, Esq., Director; Anne Goalwin, Esq., Supervisory Attorney; Aarti Shah, Esq., Investigative Attorney, of the Office of Unfair Import Investigations, U.S. International Trade Commission, of Washington, D.C.

Pursuant to the Notice of Investigation, 74 Fed. Reg. 57194 (November 4, 2009), this is the Initial Determination of the Investigation in the Matter of Certain Ceramic Capacitors and Products Containing Same, United States International Trade Commission Investigation No. 337-TA-692. *See* 19 C.F.R. § 210.42(a).

With respect to Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc., it is held that no violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain multi-layer ceramic capacitors by reason of infringement of one or more of claims 1, 2, 9, 11-14, and 19-20 of United States Patent No. 6,243,254.

With respect to Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc., it held that no violation of Section 337 of the Tariff Act of 1930, as amended, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain multi-layer ceramic capacitors by reason of infringement of claim 3 of United States Patent No. 6,014,309.

With respect to Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc., it is held that no violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain multi-layer ceramic capacitors by reason of infringement of one or more of claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of United States Patent No. 6,266,229.

It is further held that a domestic industry exists that practices U.S. Patent Nos. 6,243,254 and 6,266,229, but not U.S. Patent No. 6,014,309.

TABLE OF CONTENTS

The following abbreviations may be used in this Initial Determination:

JX	Joint Exhibit
CX	Complainants' exhibit
CDX	Complainants' demonstrative exhibit
CPX	Complainants' physical exhibit
CFF	Complainants' proposed findings of fact
CCL	Complainants' proposed conclusions of law
CBr.	Complainants' initial post-hearing brief
CORFF	Complainants' objections to Respondents' proposed findings of fact
COSFF	Complainants' objections to Staff's proposed findings of fact
CRBr.	Complainants' reply post-hearing brief
RX	Respondents' exhibit
RDX	Respondents' demonstrative exhibit
RPX	Respondents' physical exhibit
RFF	Respondents' proposed findings of fact
RCL	Respondents' proposed conclusions of law
RBr.	Respondents' initial post-hearing brief
ROCFF	Respondents' objections to Complainants' proposed findings of fact
ROSFF	Respondents' objections to Staff's proposed findings of fact
RRBr.	Respondents' reply post-hearing brief
SFF	Staff's proposed findings of fact
SCL	Staff's proposed conclusions of law
SBr.	Staff's initial post-hearing brief
SOCFF	Staff's objections to Complainants' proposed findings of fact
SORFF	Staff's objections to Respondents' proposed findings of fact
SRBr.	Staff's reply post-hearing brief
Tr.	Hearing transcript

I. BACKGROUND.

A. Institution and Procedural History of this Investigation.

By publication of a Notice of Investigation in the *Federal Register* on September 16, 2009, pursuant to subsection (b) of Section 337 of the Tariff Act of 1930, as amended, the Commission instituted Investigation No. 337-TA-692 with respect to U.S. Patent No. 6,266,229 (the "'229 patent"), U.S. Patent No. 6,014,309 (the "'309 patent"), U.S. Patent No. 6,377,439 (the "'439 patent") and U.S. Patent No. 6,243,254 (the "'254 patent") to determine the following:

> whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ceramic capacitors or products containing same that infringe one or more of claims 1–4, 7–9, 11–14, 17–24, 28–31, 34–47, 51–53, 55, and 56 of U.S. Patent No. 6,266,229; claim 3 of U.S. Patent No. 6,014,309; claims 1–3, and 5 of U.S. Patent No. 6,377,439; and claims 1, 2, 9–14, 19, and 20 of U.S. Patent No. 6,243,254, and whether an industry in the United States exists as required by subsection (a)(2) of section 337[.]

74 Fed. Reg. 57194 (2009).

Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc. are named in the Notice of Investigation as the Complainants. *Id.* The Respondents named in the Notice of Investigation are Samsung Electro-Mechanics Co., Ltd. of Suwon City, Korea and Samsung Electro-Mechanics America, Inc., of Irvine, California. *Id.* The Commission Investigative Staff of the Commission's Office of Unfair Import Investigations is also a party in this Investigation. *Id.*

A pre-hearing conference was held on March 24, 2010. (*See* Order Nos. 10, 14.) Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc. (collectively, "Samsung"); Complainants Murata Manufacturing Co., Ltd. and Murata

Electronics North America, Inc. ("collectively, Murata"); and Commission Investigative Staff ("Staff"), were represented by counsel at the pre-hearing conference.

On June 17, 2010, the Administrative Law Judge issued an initial determination granting Murata's unopposed motion to partially terminate the Investigation with respect to U.S. Patent No. 6,377,439. (*See* Order No. 35.) The Commission determined not to review the order. (*See* Notice of Commission Decision Not to Review an Initial Determination Granting Complainants' Unopposed Motion to Terminate the Investigation in Part as to United States Patent No. 6,377,439 (July 7, 2010).)

The evidentiary hearing on the question of violation of Section 337 began on July 22, 2010, and ended on July 30, 2010. Samsung, Murata, and Staff were represented by counsel at the hearing.

B. The Parties.

1. Complainants Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc.

Murata Manufacturing Co., Ltd. is a Japanese corporation having its principal place of business in Kyoto, Japan. (*See* Complaint Under Section 337 of the Tariff Act of 1930, as Amended ("Complaint") at 3; CFF 1.13 (undisputed).) Murata Manufacturing Co., Ltd. manufactures capacitors, filters, sensors, modules, circuit components, and other electronics products. (Complaint at 3; CFF 1.22 (undisputed).) It is also engaged in the research and development of new technology and products, including research and development activities relating to multi-layer ceramic capacitors. (CFF 1.28 (undisputed); CFF 1.30; ROCFF 1.30-1.)

Murata Electronics North America, Inc. is a corporation organized under the laws of Texas, having its principal place of business in Smyrna, Georgia. (*See* Complaint at 4; CFF 1.39 (undisputed).) Murata Electronics North America, Inc. is a wholly-owned subsidiary of Murata

Manufacturing Co., Ltd. (Complaint at 4; CFF 1.36 (undisputed).) Murata Electronics North America, Inc. provides quality assurance services, technical engineering functions, technical assistance, sales and marketing, and other services relating to multi-layer ceramic capacitors. (CFF 1.44-45; CFF 1.48-49.)

2. Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc.

Samsung Electro-Mechanics Co., Ltd. is a South Korean corporation with its principal place of business in Suwon City, South Korea. (Complaint at 5; CFF 1.182 (undisputed).) Samsung Electro-Mechanics Co., Ltd. manufactures, imports, and sells ceramic capacitors accused of infringing the asserted patents. (Complaint at 5; CFF 1.183-84 (undisputed); CFF 1.186-190 (undisputed).)

Samsung Electro-Mechanics America, Inc. is a California corporation with its principal place of business in Irvine, California. (Complaint at 5; CFF 1.205 (undisputed).) Samsung Electro-Mechanics America, Inc. is a wholly owned subsidiary of Samsung Electro-Mechanics Co., Ltd. (*Id.*) Samsung Electro-Mechanics America, Inc. purchases ceramic capacitors accused of infringing the asserted patents from Samsung Electro-Mechanics Co., Ltd., stores them in inventory, and then sells them. (Complaint at 5; CFF 1.209-10 (undisputed).)

C. Overview of the Technology.

At issue are certain multi-layer ceramic capacitors ("MLCCs"). (CFF 1.271 (undisputed); CFF 1.274 (undisputed).) Capacitors are "passive" electronic devices consisting of "one or more pairs of parallel, conducting electrode plates which are separated by a 'dielectric'—i.e., insulating material." (CFF1.271 (undisputed).) Multi-layer capacitors contain more than one pair of electrode plates, or internal (inner) electrodes, embedded in a ceramic block with a

dielectric layer between each pair of electrodes. (CFF 1.276 (undisputed); CFF 1.278 (undisputed).) The internal electrodes are electrically connected, either directly or with a lead electrode, to external (outer) electrodes. (CFF 1.280 (undisputed).) In an electrical circuit, when a voltage is applied to the external electrodes of a multilayer capacitor, the parallel internal electrodes in each pair acquire equal but opposite (positive and negative) charges, and energy is stored in the dielectric between the internal electrodes. (CFF 1.281 (undisputed).)

D. The Patents at Issue.

U.S. Patent No. 6,243,254.

This Investigation concerns U.S. Patent No. 6,243,254 (the "'254 patent"), entitled "Dielectric Ceramic Composition and Laminated Ceramic Capacitor Using the Same," which resulted from U.S. Patent Application No. 09/369,988, filed on August 6, 1999, and claims priority to (JP) 10-227202 and 10-227203, both dated August 11, 1998. (*See* JX-4 at JX-04.002.) The '254 patent issued on June 5, 2001. (*Id.*) The '254 patent names Nobuyuki Wada, Masamitsu Shibata, Takashi Hiramatsu, and Yukio Hamaji as the inventors. (*Id.*) The '254 patent was assigned to Murata Manufacturing Co., Ltd. (JX-8.)

The '254 patent discloses a composition for a dielectric ceramic and a laminated ceramic capacitor of that composition.

The '254 patent has nine asserted claims, one of which is independent. Asserted claims 1, 2, 9, 11-14, and 19-20 read as follows:

1. A dielectric ceramic comprising

$$(Ba_{1-x}Ca_xO)_mTiO_2+\alpha Re_2O_3+\beta MgO+\gamma MnO$$

in which Re is at least one member selected from the group consisting of Y, Gd, Tb, Dy, Ho, Er and Yb; α, β γ, m and x are molar ratios; $0.001\leq\alpha\leq0.10$; $0.001\leq\beta\leq0.12$; $0.001<\gamma\leq0.12$; $1.000<m\leq1.035$; and $0.005<x\leq0.22$, and

about 0.2 to 5.0 parts by weight of either a first sub-component or a second sub-component or a third sub-component relative to 100 parts by weight of $(Ba_{1-x}Ca_xO)_mTiO_2$, wherein

[a] the $(Ba_{1-x}Ca_xO)_mTiO_2$ contains about 0.02% by weight or less of alkali metal oxides,

[b] the first sub-component is a Li_2O—$(Si, Ti)O_2$—MO oxide in which M is at least one of Al and Zr,

[c] the second sub-component is a SiO_2—TiO_2—XO oxide in which X is at least one selected from the group consisting of Ba, Ca, Sr, Mg, Zn and Mn, and the third sub-component is SiO_2.

2. A dielectric ceramic according to claim **1**, wherein the $(Ba_{1-x}Ca_xO)_mTiO_2$ has a mean particle size of about 0.1 to 0.7 μm.

9. A dielectric ceramic according to claim **1** in which the third sub-component is present.

11. A laminated ceramic capacitor having:

[a] a plurality of dielectric layers containing the dielectric ceramic according to claim 1;

[b] a plurality of inner dielectric layers comprising Ni or a Ni alloy and existing among a plurality of said dielectric layers; and

[c] external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said ceramic capacitor.

12. A laminated ceramic capacitor according to claim **11**, wherein said external electrodes comprise a sintered layer of conductive metal powder or conductive metal powder and glass frit.

13. A laminated ceramic capacitor having:

[a] a plurality of dielectric layers containing the dielectric ceramic according to claim **2**;

[b] a plurality of inner dielectric layers comprising Ni or a Ni alloy and existing among a plurality of said dielectric layers; and

[c] external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said ceramic capacitor.

14. A laminated ceramic capacitor according to claim **13**, wherein said external electrodes comprise a sintered layer of conductive metal powder or conductive metal powder and glass frit.

19. A laminated ceramic capacitor having:

[a] a plurality of dielectric layers containing the dielectric ceramic according to claim **9**;

[b] a plurality of inner dielectric layers comprising Ni or a Ni alloy and existing among a plurality of said dielectric layers; and

[c] external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said ceramic capacitor.

20. A laminated ceramic capacitor according to claim **19**, wherein said external electrodes comprise a sintered layer of conductive metal powder or conductive metal powder and glass frit.

(JX-4 at 32:67-33:9, 33:51-34:19, 34:48-62.)

U.S. Patent No. 6,014,309.

This Investigation concerns U.S. Patent No. 6,014,309 (the "'309 patent"), entitled "Laminated Ceramic Electronic Parts," which resulted from U.S. Patent Application No. 09/075,668, filed on May 11,1998, and claims priority to (JP) 9-135823, dated May 9, 1997. (*See* JX-2 at 2.) The '309 patent issued on January 11, 2000. (*Id.*) The '309 patent names Yasushi Ueno, Yoshikazu Takagi, Kazuaki Kawabata, and Nagato Omori as the inventors. (*Id.*) The '309 patent was assigned to Murata Manufacturing Co., Ltd. (JX-6.)

The '309 patent discloses a laminated ceramic electronic part in which the thickness of the individual ceramic layers does not exceed 10 microns, the number of internal electrodes is not less than 200, the ratio of thickness of an internal electrode to the thickness of a ceramic layer is 0.10 to 0.40, and the ratio of a volume of the internal electrode to a volume of the ceramic element is 0.10 to 0.30. (JX-2, Abstract.)

The '309 patent has one asserted claim, which is independent. Asserted claim 3 reads as follows:

3. A laminated ceramic electronic part, comprising:

(a) a ceramic element including:

(1) a plurality of overlapping internal electrodes;

(2) a plurality of internal ceramic layers located between respective pairs of said overlapping internal electrodes;

(3) upper and lower ceramic layers located above and below the uppermost and lowermost ones of said overlapping internal electrodes, respectively;

(b) a pair of external electrodes formed on at least one outer surface of said ceramic element, each of said overlapping internal electrodes being electrically coupled to a respective external electrode;

(c) said ceramic element satisfying the requirements:

(1) the thickness of each said internal ceramic layer is 10 μm or less;

(2) the number of said internal electrodes is 200 or more;

(3) the ratio of the average thickness of each said internal electrode to the average thickness of each said internal ceramic layer is 0.10 to 0.40; and

(4) the ratio of the combined volume of said internal electrodes to the combined volume of said ceramic element is 0.10 to 0.30.

(JX-2 at 6:15-37.)

U.S. Patent No. 6,266,229.

This Investigation concerns U.S. Patent No. 6,266,229 (the "'229 patent"), entitled "Multilayer Capacitor," which resulted from U.S. Patent Application No. 09/501,084, filed on February 9, 2000, which is a continuation-in-part of Application No. 09/042,379, filed on March 13, 1998, now U.S. Patent No. 6,072,687. (*See* JX-1 at JX-01.002.) The '229 patent issued on July 24, 2001 and claims priority to (JP) 9-306717, dated November 10, 1997, and (JP) 11-370803, dated December 27, 1999. (*Id.*) The '229 patent names Yasuyuki Naito, Masaaki Taniguchi, Yoichi Kuroda, Takanori Kondo, Michihiro Murata, and Yoshitaka Tanino as the inventors. (*Id.*) The '229 patent was assigned to Murata Manufacturing Co., Ltd. (JX-5.)

The '229 patent discloses a "multi-layer capacitor device" that includes a capacitor body including "first electrode plates and a plurality of second electrode plates." (JX-1 at Abstract.) The '229 patent discloses preferred embodiments of a multi-layer capacitor that is designed to

reduce equivalent series induction ("ESL"). (*Id.* at 2:53-55.) One such embodiment is a multi-layer capacitor **31** that includes a plurality of generally planar dielectric layers **39** with a pair of internal electrodes (**40, 41**) in a "face-to-face relationship with each other with a dielectric material layer **39** interposed therebetween. . . ." (*Id.* at 6:28-54.)

FIG. 1

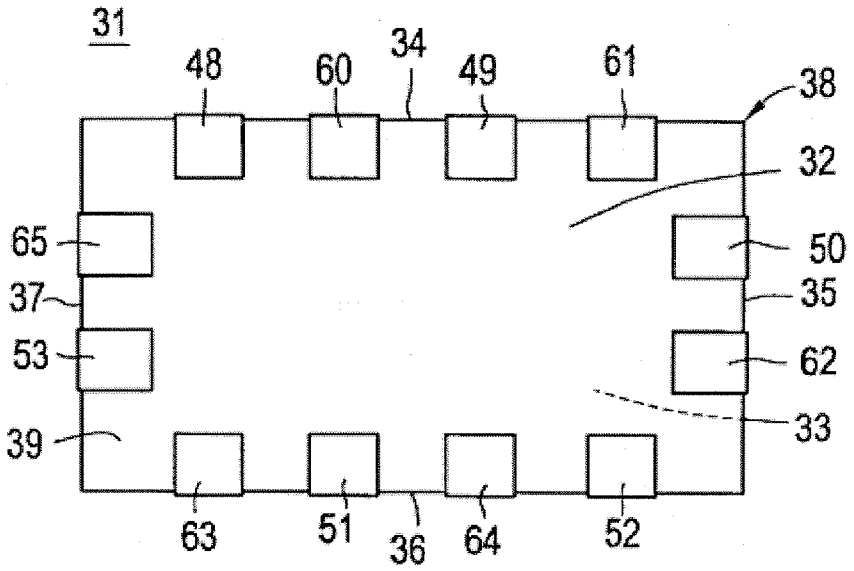


FIG. 2

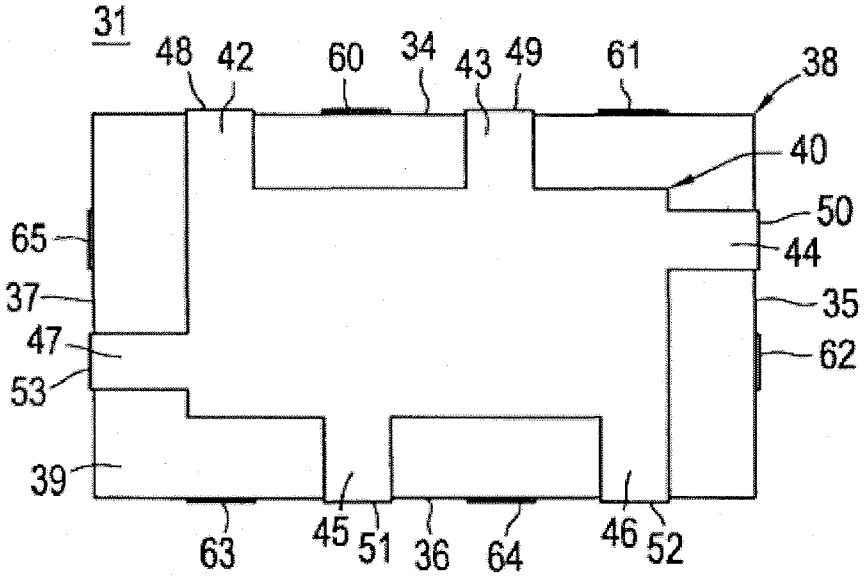
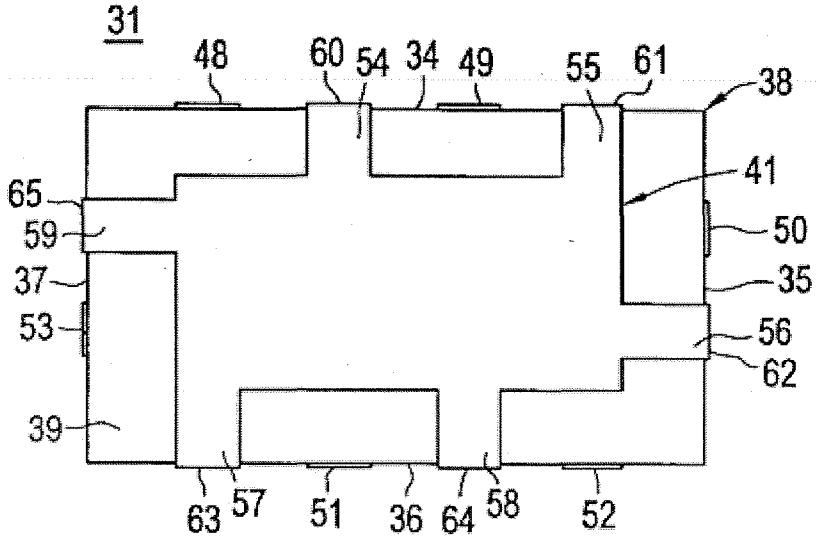


FIG. 3



(*Id.* at Figs. 1-3.)

The '229 patent has sixteen asserted claims, three of which are independent. Asserted claims 1-4, 7, 17, 18, 23, 28-31, 34, and 51-53 read as follows:

1. A multi-layer capacitor device comprising:

[a] a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation;

[b] a dielectric material located between each opposed set of the first and second electrode plates;

[c] the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and

[d] a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein

[e] each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and

[f] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

2. The multi-layer capacitor according to claim **1**, wherein the ratio L/W is equal to about 1.3 or less.

3. The multi-layer capacitor according to claim **1**, wherein the ratio L/W is equal to about 0.4 or greater.

4. The multi-layer capacitor according to claim **1**, wherein the ratio L/W is equal to or less than about 1.3 and greater than or equal to about 0.4.

7. The multi-layer capacitor according to claim **1**, wherein the lengths L of all of the lead electrodes are substantially equal to each other.

17. The multi-layer capacitor device according to claim **1**, wherein each of the first polarity terminals is adjacent to one of the second polarity terminals and each of the second polarity terminals is adjacent to one of the first polarity terminals along each of the opposed side surfaces of the capacitor body.

18. The multi-layer capacitor device according to claim **1**, wherein the electrical terminals extend to portions of the top and bottom surfaces.

23. The multi-layer capacitor device according to claim **1**, wherein each of the pair of opposed side surfaces of the capacitor body includes at least four of the electrical terminals disposed thereon.

28. A multi-layer capacitor device comprising:

[a] a capacitor body including a pair of opposed side surfaces having continuously smooth surfaces and a pair of opposed end surfaces disposed between the pair of opposed side surfaces;

[b] at least four electrical terminals disposed on each of the opposed side surfaces;

[c] the capacitor body also including at least one first electrode plate having a substantially rectangular first main electrode portion with a plurality of first lead structures extending therefrom and at least one second electrode plate situated in opposed and spaced apart relation to the first electrode plate, the second electrode plate having a substantially rectangular second main electrode portion with a plurality of second lead structures extending therefrom, respective ones of the first lead structures being located adjacent respective ones of the second lead structures in an interdigitated arrangement and extending to respective ones of the electrical terminals; dielectric material disposed between each opposing set of first and second electrode plates; wherein

[d] each of the lead terminals of the at least one first electrode plate being disposed opposite to another of the lead terminals of the at least one first electrode plate across the capacitor body and each of the lead terminals of the at least one second electrode plate being disposed opposite to another of the lead terminals of the at least one second electrode plate across the capacitor body; and

[e] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

29. The multi-layer capacitor device according to claim **28**, wherein the ratio L/W is equal to about 1.3 or less.

30. The multi-layer capacitor device according to claim **28**, wherein the ratio L/W is equal to about 0.4 or greater.

31. The multi-layer capacitor device according to claim **28**, wherein the ratio L/W is equal to or less than about 1.3 and greater than or equal to about 0.4.

34. The multi-layer capacitor device according to claim **28**, wherein the lengths L of all of the lead electrodes are substantially equal to each other.

51. A monolithic capacitor comprising:

[a] a capacitor body having two opposed main surfaces and four side surfaces connected between the two main surfaces, said capacitor body including a plurality of dielectric layers extending in the direction in which the two opposed main surfaces extend, and at least one pair of first and second internal electrodes opposed to each other through one of the dielectric layers so as to define a capacitor unit, said capacitor body further including at least two first lead electrodes extending from one of the first internal electrodes to at least two positions on at least one of the side surfaces, and at least one second lead electrode extending from the second internal electrode to a position located between the positions to which the first lead electrodes extend;

[b] first and second external terminal electrodes provided on the side surfaces onto which the first and second lead electrodes extend, and electrically connected to the first and second lead electrodes, respectively; wherein the ratio L/W of the length L to the width W of at least one of the first and second lead electrodes is within the range of about 0.4 to about 3.0

52. A monolithic capacitor according to claim **51**, wherein the ratio L/W is in the range of about 0.4 to about 1.3.

53. A monolithic capacitor according to claim **51**, wherein the first and second lead electrodes extend onto at least two of the side surfaces opposed to each other, respectively.

(JX-1 at 18:2-44, 18:57-59, 19:28-36, 19:53-56, 20:1-41, 20:54-56, 22:1-29.)

E. The Products at Issue.

The products at issue in this Investigation are multi-layer ceramic capacitors ("MLCCs"), including high capacitance MLCCs and low equivalent series induction ("ESL") MLCCs.

Murata accuses Samsung of importing and selling the products accused in this Investigation. (CBr. at 3.) Murata accuses the products identified in CFF 1.417-428 of infringing the '254 patent (the "Accused '254 Products"), the products identified in CFF 1.432 of infringing the '309 patent (the "Accused '309 Products"), and the products identified in CFF 1.433 of infringing the '229 patent (the "Accused '229 Products"). (CBr. at 4.)

The 1,045 Accused '254 Products discussed in CFF 1.417-428 are identified in Attachment C of CX-594C, attached hereto as **Appendix A**. (CFF 1.417-428; CX-594C at Attachment C.)

The products identified in CFF 1.432 (Accused '309 Products) are listed below.

21A225KPFNNN, 21A225KQFNNN, 21A475KAQNNN, 21A475KOQNNJ, 21A475KQQNNJ, 31A106KAHNNN, 31A106KOHNNJ, 31A106KPHNNJ, 31A106MOHNNN, 32A106KAJNNN, 32A106KAULNN, 32A106KLULNN, 32A106KOJNNJ, 32A106KOJNNN, 32A106KPINNN, 32A106MOJNNN, 32A226KAJNNN, 32A226KOJNNJ, 32A226KOJNNN, 32A226KPJNNN, 32A226KQJNNN, 32A226MAJNNN, 32A226MOJNNN, 32A226MPJNNN, 32A226MQJNNN, 21B225KAFNNN, 21B225KOFNFN, 21B225KOFNNN, 21B225KPFNNN, 31B106KAHNNN, 31B106KQHNNN, 31B225KAH4PN, 31B225KAHSFN, 31B225KOH4PN, 31B475KOHNNN, 32B106KAULNN, 32B106KLULNN, 32B106KOJNNN, 32B106KPINNN, 43B226KPJNNN, 31C104JAHNNN, 31F226ZPHNNN, 55F107ZPJNNN, 21X106KAYNNN, 21X475KAQNNN, 21X475KQFNNN, 21X475MAQNNN, 31X106KAHNNN.

(CDX-290C; CX-183C; CX-187C; CX-188C; CX-189C; CX-193C; Murata's Final List of Accused Products at 15-16 (May 26, 2010).)

(CFF 1.432.) The products identified in CFF 1.433 (Accused '229 Products) are listed below.

CL21B104MO5NJN, CL21B474MQ5NJN, CL21Y105MR5NJN, CL21Y225MR5NJN, CL10Y104MR5NJN, CL10Y105MR5NJN, CL10Y155MR5NJN, CL10Y474MR5NJN, CL21B684MO5NJN, CL21B684MQ5NJN, CL10Y225MR5NJN, CL10Z475MS5NJN, CL21A475KQ5NJN.

(Murata's Final List of Accused Products at 15-16 (May 26, 2010).)

(CFF 1.433.) The parties have stipulated that certain products are representative of the Accused '254 Products and Accused '229 Products, but not the Accused '309 Products. (JX-29C at 2-3; Order No. 29.[1])

II. JURISDICTION AND IMPORTATION.

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. *See Certain Steel Rod Treating Apparatus and Components Thereof*, Inv. No. 337-TA-97, Commission Memorandum Opinion, 215 U.S.P.Q. 229, 231 (U.S.I.T.C., 1981). For the reasons discussed below, the Administrative Law Judge finds the Commission has jurisdiction over this Investigation.

Samsung has responded to the Complaint and Notice of Investigation and has fully participated in the Investigation by, among other things, participating in discovery, participating in the hearing, and filing pre-hearing and post-hearing briefs. (Tr. at 125-26; RBr. at 1-151.) Accordingly, the Administrative Law Judge finds that Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc. have submitted to the personal jurisdiction of the Commission and that the Commission has in rem jurisdiction over the

[1] Order No. 29 only allows Sections I.A. through I.D. of the stipulation marked as JX-29C. (*See* Order No. 29.) Section II of JX-29C, which was not agreed to by all parties and refers to products not accused in this Investigation, is not in effect and should be disregarded. (*Id.*)

Accused Products. *Certain Cloisonné Jewelry*, Inv. No. 337-TA-195, Initial Determination at 40-43 (U.S.I.T.C., March, 1985) (unreviewed).

Section 337 declares to be unlawful "[t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles" that infringe a valid and enforceable United States patent if an industry relating to the articles protected by the patent exists or is in the process of being established in the United States. *See* 19 U.S.C. §§ 1337(a)(1)(B)(i) and (a)(2). Pursuant to Section 337, the Commission shall investigate alleged violations of the Section and hear and decide actions involving those alleged violations.

With respect to the '254, '309, and '229 patents, it is undisputed that the importation or sale requirement of Section 337 establishing subject matter jurisdiction as to Samsung has been met. (RBr. at 5; SFF 18-19 (undisputed).) Accordingly, the Administrative Law Judge finds that Samsung sells for importation, imports, or sells after importation into the United States, articles that are accused in this Investigation.

III. CLAIM CONSTRUCTION.

A. Applicable Law.

At this stage, the Investigation concerns three utility patents. (*See* 74 Fed. Reg. 57194 (2009); Order No. 35.)

Any finding of infringement requires a two-step analysis. First, the asserted patent claims must be construed as a matter of law to determine their proper scope.[2] Second, a factual determination must be made whether the properly construed claims read on the accused devices.

[2] Only claim terms in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vanderlande Indus. Nederland BV v. Int'l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004); *Vivid Tech., Inc. v. American Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

See Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996).

Claim construction begins with the language of the claims themselves. Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). In some cases, the ordinary meaning of claim language is readily apparent and claim construction will involve little more than "the application of the widely accepted meaning of commonly understood words." *Id.* at 1314. In other cases, claim terms have a specialized meaning and it is necessary to determine what a person of ordinary skill in the art would have understood disputed claim language to mean by analyzing "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, as well as the meaning of technical terms, and the state of the art." *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

The claims themselves provide substantial guidance as to the meaning of disputed claim language. *Id.* at 1314. "[T]he context in which a term is used in the asserted claim can be highly instructive." *Id.* Likewise, other claims of the patent at issue, regardless of whether they have been asserted against respondents, may show the scope and meaning of disputed claim language. *Id.*

With respect to claim preambles, a preamble may limit a claimed invention if it (i) recites essential structure or steps, or (ii) is "necessary to give life, meaning, and vitality" to the claim. *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (citations omitted). The Federal Circuit has explained that a "claim preamble has the import that the claim as a

whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." *Id.* (quoting *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995)). When used in a patent preamble, the term "comprising" is well understood to mean "including but not limited to," and thus, the claim is open-ended. *CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360 (Fed. Cir. 2007). The patent term "comprising" permits the inclusion of other unrecited steps, elements, or materials in addition to those elements or components specified in the claims. *Id.*

In cases where the meaning of a disputed claim term in the context of the patent's claims remains uncertain, the specification is the "single best guide to the meaning of a disputed term." *Phillips,* 415 F.3d at 1321. Moreover, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* at 1316. As a general rule, however, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323.

The prosecution history may also explain the meaning of claim language, although "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1317. The prosecution history consists of the complete record of the patent examination proceedings before the U.S. Patent and Trademark Office, including cited prior art. *Id.* It may reveal "how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

If the intrinsic evidence is insufficient to establish the clear meaning of a claim, a court may resort[3] to an examination of the extrinsic evidence. *Zodiac Pool Care, Inc. v. Hoffinger Industries, Inc.*, 206 F.3d 1408, 1414 (Fed. Cir. 2000). Extrinsic evidence may shed light on the relevant art, and consists of all evidence external to the patent and the prosecution history, "including expert and inventor testimony, dictionaries, and learned treatises." *Phillips,* 415 F.3d at 1317. In evaluating expert testimony, a court should disregard any expert testimony that is conclusory or "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." *Id.* at 1318. Furthermore, expert testimony is only of assistance if, with respect to the disputed claim language, it identifies what the accepted meaning in the field would be to one skilled in the art. *Symantec Corp. v. Computer Associates International, Inc.*, 522 F.3d 1279, 1290-91 (Fed. Cir. 2008). Testimony that recites how each expert would construe the term should be accorded little or no weight. *Id.* An inventor's subjective understanding of the invention is irrelevant to claim construction. *Howmedica Osteonics Corp. v. Wright Medical Technology, Inc.*, 540 F.3d 1337, 1346-47 (Fed. Cir. 2008). Extrinsic evidence is inherently "less reliable" than intrinsic evidence, and "is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Phillips*, 415 F.3d at 1318-19.

[3] "In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996).

B. '254 patent.

1. Level of Skill in the Art.

Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art. *Phillips*, 415 F.3d at 1312-13.

Murata does not include a description of a person of ordinary skill in the art related to the '254 patent in its opening post-hearing brief (see CBr. at 5-54), but according to the hearing testimony of its expert on the '254 patent, Dr. Ian Burn, such a person would have possessed at least a bachelor's degree in materials science or a related technical discipline and more than three years' experience in the development or manufacture of dielectric powders for use in multilayer capacitors. (Tr. at 376 (Burn).) In its reply brief, Murata takes exception to the description proposed by Samsung. (CRBr. at 9.) Samsung proposes that a person of ordinary skill in the art at the time of the '254 invention would have possessed a doctorate in materials science, chemical engineering, inorganic chemistry, or electrical engineering, or a master's degree in one of those fields plus three or more years' experience in designing and developing dielectric materials for a multilayer ceramic capacitor ("MLCC"). (RBr. at 11.)

Staff believes that the differences between the private parties' positions are not so significant that they would affect the analysis of claim construct or validity. (SBr. at 11.)

The Administrative Law Judge concludes that an individual would have had at least a bachelor's degree or comparable technical training and preparation in materials science or a related technical discipline and at least three years' academic- or work-related experience in research, development, or production of dielectric ceramic materials for multilayer capacitors in order to meet the standard of a person of ordinary skill in the art of the '254 patent.

2. The Disputed Claim Terms of the '254 patent and Their Proper Construction.

Claim 1, an independent claim, reads as follows:

1. A dielectric ceramic comprising

$$(Ba_{1-x}Ca_xO)_mTiO_2+\alpha Re_2O_3+\beta MgO+\gamma MnO$$

in which Re is at least one member selected from the group consisting of Y, Gd, Tb, Dy, Ho, Er and Yb; α, β γ, m and x are molar ratios; $0.001\leq\alpha\leq0.10$; $0.001\leq\beta\leq0.12$; $0.001<\gamma\leq0.12$; $1.000<m\leq1.035$; and $0.005<x\leq0.22$, and

about 0.2 to 5.0 parts by weight of either a first sub-component or a second sub-component or a third sub-component relative to 100 parts by weight of $(Ba_{1-x}Ca_xO)_mTiO_2$, wherein

[a] the $(Ba_{1-x}Ca_xO)_mTiO_2$ contains about 0.02% by weight or less of alkali metal oxides,

[b] the first sub-component is a Li_2O—$(Si, Ti)O_2$—MO oxide in which M is at least one of Al and Zr,

[c] the second sub-component is a SiO_2—TiO_2—XO oxide in which X is at least one selected from the group consisting of Ba, Ca, Sr, Mg, Zn and Mn, and the third sub-component is SiO_2.

(JX-4 at 32:55-33:6.)

a) Claims 1, 2: *"dielectric ceramic"*

Murata contends that "dielectric ceramic" as mentioned in the preamble of claim 1, is understood by persons of ordinary skill in the relevant art to refer to "sintered material that has been densified into ceramic by the sintering process" and is the "final product that is created after firing[.]" (CBr. at 7.) In support of this interpretation, Murata points to the testimony of its expert regarding the '254 patent, Dr. Ian Burn, who said that a person of ordinary skill would understand this term to mean sintered materials. (*Id.* (citing Tr. at 383 (Burn)).) Murata points to claims 11 through 20 that disclose, among other things, external electrodes, which, Murata argues, are attached to the capacitor only after the material for the dielectric ceramic has been

sintered. (*Id.* at 8.) Murata also points to a document authored by some of Samsung's engineers (CX-20C at 00059850), which, Murata argues, discloses that these engineers themselves recognized that external electrodes can only be attached to a capacitor after sintering. (*Id.*) Murata believes that this Samsung document fortifies its contention that "dielectric ceramic" is sintered material. (*Id.*) Thus, argues Murata, the plain language of claims 1 and 2 demonstrates that "dielectric ceramic" means sintered material. (*Id.*)

Murata additionally argues that the '254 patent's specification reveals that "dielectric material" means material that has been sintered, citing the title of the patent itself, "Dielectric Ceramic Composition and Laminated Ceramic Capacitor Using Same" which, Murata says, makes clear that "dielectric ceramic" is material contained in a fully formed capacitor, not pre-sintered slurry, green sheet, or other pre-sintered forms of material. (*Id.* at 8-9.) Murata points to the Abstract, Field of Invention, Summary of Invention, Figures, description of invention, and preferred embodiments included in the patent, all of which, Murata says (without citing any particular portions thereof), support its argument. (*Id.*) Further, according to Murata, Samsung's expert Dr. Dougherty supports Dr. Burn's opinion about how a person of ordinary skill would understand the term "dielectric ceramic," because he acknowledged that the patent's use of the letter "*m*" to identify the adjusted molar ratio of Ba + Ca/Ti pertains to sintered materials, as does the "dielectric ceramic" of claims 1 and 2, in contrast to the use of the letter "*n*" to identify the molar ratio in pre-sintered starting material. (*Id.* at 9.)

Samsung argues that the term "dielectric ceramic" means materials before being sintered.[4] (RBr. at 19.) Samsung notes that the patent's specification recites that, after the

[4] The word "sinter" is defined in one general dictionary: "to cause to become a coherent mass by heating without melting." (Merriam-Webster's Collegiate Dictionary (11th Ed. 2009)). It is defined in another: "a bonded mass of metal particles shaped and partially fused by pressure and heating below the melting point." (Webster's New World

powdered starting materials are weighed for their prescribed molar ratios, "the mixed powder is turned into slurry by adding an organic binder to obtain a green sheet (the dielectric layers 2*a* and 2*b*)." (*Id.* (citing the patent specification, JX-4 at 32:55).) Therefore, Samsung argues, the specification equates "dielectric ceramic layers" with pre-sintered "green sheets." (RBr. at 19.)

Samsung says that evidence at the hearing, including testimony by Murata's general manager of intellectual property, Dr. Yoshino, who said that "green ceramic sheet" refers to a pre-sintered composition, supports this construction. (*Id.* (citing Tr. at 268 (Yoshino)).) Samsung points to testimony previously given in another proceeding by Murata's product development manager, Mr. Kawaguchi, who in connection with a 1999 technical paper he had authored, referred to "ceramic material" as "raw materials" before sintering. (*Id.*)

Staff believes that "dielectric ceramic" refers to "material within a sintered, completed capacitor." (SBr. at 12.) Staff believes that the intrinsic evidence supports this view because "dielectric ceramic" is most commonly applied to materials that have been fired, citing testimony given by Murata's expert Dr. Ian Burn (Tr. at 383 (Burn)). (SBr. at 13.) Staff argues that the specification uses terms such as "slurry" or "ceramic slurry" rather than "dielectric ceramic" when referring to starting materials. (*Id.*) Staff also believes that the inventors drew a distinction between dielectric ceramics and barium calcium titanate starting materials when they commented in the specification that "it was found from scanning electron microscope observation of the grain size in the dielectric ceramics that the grain size was almost equal to the particle size of the barium calcium titanate starting materials in the samples." (*Id.* (citing JX-4 at 9:35-40).)

College Dictionary (4th Ed. 2008)). The parties to this Investigation have not suggested any meaning at variance with these definitions, which are consistent with the language of the '254 patent. (*See* e.g. JX-4 at 7:36-44.)

Claim 1 does not explicitly define "dielectric ceramic." Nor is the term generally recognized, understood, and used by lay persons, according to current general dictionaries.[5] Dr. Burn's testimony that the term is understood by persons of ordinary skill to be sintered material, upon which both Murata and Staff rely, at least in part, for their proposed claim constructions is extrinsic evidence and should be credited only if the intrinsic evidence itself is not adequate for understanding the disputed claim term and even then only if the extrinsic evidence does not contradict the intrinsic evidence. *Phillips*, 415 F. 3d at 1339-40. It is noted that the testimony of Samsung's expert Dr. Dougherty is essentially contradictory of Dr. Burn's testimony on this point. (*See* Tr. at 1795-96 (Dougherty).)

The specification for the '254 patent says, in the section entitled Background of the Invention, that the "invention relates to a dielectric ceramic *composition* and a laminated ceramic *capacitor* using the same...." (JX-4 at 1:8-10 (italics added).) Thus, there are two aspects to the invention: 1) a composition of materials (dielectric ceramic); and 2) a manufacture (*i.e.*, a laminated ceramic capacitor). The composition of materials (dielectric ceramic) is the subject of claims 1 through 10, and the manufacture (dielectric ceramic capacitor) is the subject of claims 11 through 20. (JX-4 at 32:54-34:62.)

The "dielectric ceramic composition" used to make the capacitor, according to independent claim 1, comprises the following principal materials: $Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ (within prescribed ranges of molar ratios) and some additional subcomponents. (JX-4 at 32:55-33:6.) The Summary of the Invention section confirms this formula:

> In one aspect, the present invention provides a laminated ceramic capacitor provided with a plurality of dielectric ceramic layers, inner electrodes formed

[5] There is no mention of it in Merriam-Webster's Collegiate Dictionary (11th Ed. 2009) or in Webster's New World Dictionary (4th Ed. 2008), for example. Based on a review of the current dictionaries, the Administrative Law Judge assumes that the term was also not in 1998 editions.

> between the dielectric ceramic layers and external electrodes being in electrical continuity with the inner electrodes, the dielectric ceramic layer being represented by the following formula:
>
> $$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$$
>
> (Re_2O_3 is at least one or more of the compounds selected from Y_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, H_2O_3, Er_2O_3, and Yb_2O_3, α, β, γ, m and x representing molar ratio in the range of...), and containing about 0.2 to 5.0 parts by weight of either a first sub-component or a second sub-component relative to 100 parts by weight of a principal component containing about 0.02% by weight or less of alkali-metal oxides in $(Ba_{1-x}Ca_xO)_mTiO_2$ as starting material to be used for the dielectric ceramic layer....
>
> The material $(Ba_{1-x}Ca_xO)_mTiO_2$ to be used for the dielectric ceramic layer preferably has a mean particle size of about 0.1 to 0.7 μm.

(JX-4 at 2:11-39.) The phrases "$(Ba_{1-x}Ca_xO)_mTiO_2$ as starting material to be used for the dielectric ceramic layer" and "[t]he material $(Ba_{1-x}Ca_xO)_mTiO_2$ to be used for the dielectric ceramic layer" in the section of the specification just cited describe a composition of materials that have not been sintered, inclusive of $(Ba_{1-x}Ca_xO)_mTiO_2$. The words, "starting material" and "to be used for," signal material preparatory to sintering a dielectric ceramic composition. Elsewhere in the patent's specification is the phrase "$(Ba_{1-x}Ca_xO)_mTiO_2$ as starting material," used in a similar context to the first quotation, but in reference to another aspect of the invention (improving the plating resistance of the capacitor). (*Id.* at 3:22-23.)

The specification's summary of the invention states that "[t]he material '$(Ba_{1-x}Ca_xO)_mTiO_2$' to be used for the dielectric ceramic layer preferably has a mean particle size of about 0.1 to 0.7 μm." (JX-4 at 2:37-39.) The phrase "[t]o be used for" is prescriptive and formulaic, as well as prospective, and the term "particle," as generally used in chemical formulas refers to powder material before sintering. (Tr. at 1794-95 (Dougherty); Tr. at 572 (Burn).) Claim 2 specifically states, by way of limitation, that "the $(Ba_{1-x}Ca_xO)_mTiO_2$ has a mean particle size of about 0.1 to 0.7 μm." (*Id.* at 33:7-9.)

The specification, in its description of the preferred embodiment, also refers to $(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ as starting, rather than sintered, material:

> The laminated ceramic capacitor according to the present invention will now be explained in more detail with reference to the accompanying drawings.
>
> **FIG. 1** is a cross section showing one example of the laminated ceramic capacitor according to the present invention, **FIG. 2** is a plane view showing the dielectric ceramic layer part having the inner electrodes in the laminated ceramic capacitor shown in **FIG. 1** and **FIG. 3** is a disassembled perspective view showing the laminated ceramic part in the laminated ceramic capacitor shown in **FIG. 1**. In the laminated ceramic capacitor **1** according to the present invention as shown in **FIG. 1**, outer electrodes **5**, and first plating layers **6** and second plating layers **7** if necessary, are formed on both ends of a ceramic laminated body **3** obtained by laminating a plurality of dielectric ceramic layers ***2a*** and ***2b*** via inner electrodes **4**.

(JX-4 at 4:13-30.) The last sentence of the second paragraph states that the outer electrodes **5** and first plating layers **6** (and second plating layers **7** if necessary) are formed on both ends of a ceramic laminated body that is obtained by laminating a plurality of dielectric ceramic layers. According to this description, the laminated body is obtained by laminating dielectric ceramic layers, and does not require sintering. Since it is "dielectric ceramic" layers that are laminated, together with electrodes, in the process of constructing the "ceramic laminated body," which occurs before sintering, as we will see shortly, the term "dielectric ceramic" as used in this passage and the previously cited passages from the specification, does not support Murata's and Staff's arguments that a person of ordinary skill in the art would understand $(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$, or any portion, as claimed in claims 1 and 2 of the '254 patent, to mean sintered material.

The portion of the specification just cited continues as follows:

> The dielectric ceramic layers ***2a*** and ***2b*** are composed of a dielectric ceramic composition having as principal components barium calcium titanate $(Ba_{1-x}Ca_xO)_mTi_2$, at least one compound selected from Y_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, and Yb_2O_3, MgO and MnO, and containing as sub-components either a Li_2O—(Si, Ti)O_2—MnO based oxide (MO is at least one of the

> compounds selected from Al_2O_3 and ZrO_2) or a SiO_2—TiO_2—XO based oxide (XO is at least one of the compounds selected from BaO, CaO, SrO, MgO, ZnO and Mno [sic]). The composition described above allows a laminated ceramic capacitor with high reliability and excellent insulating strength to be obtained, wherein the ceramic capacitor can be fired without endowing it with semiconductive properties even by firing in a reducing atmosphere, the temperature characteristics of the electrostatic capacitance satisfy the B-grade characteristics prescribed in the JIS standard and the X7R-grade characteristics prescribed in the EIA standard and the ceramic capacitor has a high insulation resistance at room temperature and at high temperatures.

(JX-4 at 4:31-51.) "The composition described above[,]" which is mentioned in the second sentence of the just-quoted paragraph, refers to "[t]he dielectric ceramic layers **2*a*** and **2*b*** ... composed of a dielectric ceramic composition" mentioned in the first sentence of that paragraph. That "composition," according to the cited section of the specification, can be fired, that is sintered[6], without endowing the composition with semiconductive properties. Furthermore, this paragraph says that the described composition "allows a laminated ceramic capacitor with high reliability and excellent insulating strength to be obtained[.]" The use of the word "allows" in this passage, in conjunction with the words "to be obtained," denotes a prospective transitional relationship between the composing of materials to be used for, and the manufacture of, the laminated ceramic capacitor, in contrast to "[t]he laminated ceramic capacitor *thus obtained*" (JX-4 at 7:51 [emphasis added]) "[a]fter firing" (*id.* at 7:46), as recited elsewhere in the specification. In sum, according to the above quoted section of the specification the dielectric ceramic layers, denominated **2*a*** and **2*b*** in Figures 1, 2, and 3, are a composition, the principal components of which, as therein stated, are pre-sintered. This is owing to the fact that, according to the quoted passage, the stated composition can be fired, even in a reducing atmosphere. This is additional evidence that a person of ordinary skill in the art would understand that the term

[6] Firing is used synonymously for sintering in the language of the patent. (*See*, for example, JX-4 at 7:45-50.)

"$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" as claimed in claims 1 and 2 of the '254 patent constitutes pre-sintered, or starting, materials.

The specification also describes a "method for producing the laminated ceramic capacitor according to the present invention…in the order of its production steps with reference to **FIGS. 1** to **3**." (JX-4 at 5:31-34.) It is noted initially that structures depicted in Figures 1-3 are referred to in the course of describing the method for "producing the laminated ceramic capacitor" and, therefore, references in the specification to items **2*a*** and **2*b***, in designated Figures 1-3, do not in all instances denote a sintered capacitor. The prescribed steps first recite that powdered materials are prepared as starting materials of the dielectric ceramic (*id.* at 5:35-40), and after being weighed for their prescribed composition ratios and mixed, the resulting powder is turned into a slurry by adding a binder "to obtain a green sheet (the dielectric ceramic layers **2*a*** and **2*b***) by molding the slurry into a sheet." (*Id.* at 5:44-48.) Inner electrodes **4** of nickel or nickel alloy "are then formed on one face of the green sheet (the dielectric ceramic layers **2*b***)[.]" (*Id.* at 5:48-52.) "Then, a required number of the green sheets (the dielectric ceramic layers **2*b***) having the inner electrodes…are laminated, which are inserted between the green sheets having no inner electrodes (the dielectric ceramic layers **2*a***) to form a laminated body after pressing. (*Id.* at 5:53-58.) "A ceramic laminated body … is obtained by firing the laminated body at a given temperature in a reducing atmosphere." (*Id.* at 5:58-60.)

As just quoted from the patent specification, what is referred to as "dielectric ceramic layers," is pre-sintered up to the point when it is fired. This is in agreement with the statement elsewhere in the specification that "[t]he dielectric ceramic layers **2*a*** and **2*b*** are composed of a dielectric ceramic composition having as principal components barium calcium titanate ($Ba_{1-x}Ca_xO)_mTiO_2$ …" which "allows a laminated ceramic capacitor with high reliability and excellent

insulating strength to be obtained," (JX-4 at 4:31-43), a statement in contrast to the post-sintering language "thus obtained" and "after firing" referred to elsewhere in the specification. (*See* JX-4 at 7:45-57.)

The specification includes several explanations why the dielectric ceramic compositions taught in the patent are limited (JX-4 at 21:55); among them is the following:

> A MgO content (β) of exceeding about 0.12 as in the sample No. 1006 [Tables 8 and 9] is also not preferable...since the sintering temperature becomes so high that the mean lifetime is extremely shortened. Accordingly, the preferable MgO content (β) is in the range of $0.001 \leq \beta \leq 0.12$.

(JX-4 at 22:47-53.) The adverse effect produced by MgO with molar ratios in excess of 0.12, because that amount or more requires higher temperatures for sintering the composition, is additional evidence that the claimed formula for the composition refers to pre-sintered, or starting, materials. This explains why the molar ratio in claim 1 does not exceed 0.12. (*Id.* at 32:60.)

The specification also includes the following comment:

> It is also not preferable...that the ratio (m) of (Ba, ca [sic])/Ti exceeds about 1.035 as in the sample No. 1011 [Tables 8 and 9] because sintering becomes insufficient to extremely shorten the mean lifetime. Accordingly, the preferable ratio (m) of (Ba, ca [sic])/Ti is in the range of $1.000 \leq m \leq 1.035$.

(*Id.* at 22:67-23:5.) This, likewise, explains why the molar ratio in claim 1 does not exceed 1.035 (*id.* at 32:61) and offers an additional reason for concluding that the $(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ expressed in claim 1 is pre-sintered material.

For these reasons, the Administrative Law Judge concludes that a person of ordinary skill in the art would understand that the term "dielectric ceramic" in the preamble of claim 1 refers to "starting materials."

b) Claims 1, 2: *"$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$"*

The parties, in proposing their respective claim constructions, analyze the term "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" differently. Murata and Staff divide the term as follows: 1) $(Ba_{1-x}Ca_xO)_mTiO_2$; and 2) $\alpha Re_2O_3 + \beta MgO + \gamma MnO$. (CBr. at 6; SBr. at 14-17.) Samsung proposes that the term be construed as an entire unit. (RBr. at 13.)

Murata argues that "$(Ba_{1-x}Ca_xO)_mTiO_2$" is understood by persons of ordinary skill to mean a barium calcium titanate solid solution with the stated composition. (*Id.* at 14.) Murata says that, because this type of structure is complex and non-uniform, it cannot be described in a precise chemical formula. (*Id.*) Murata, therefore, proposes the following construction for the term "$(Ba_{1-x}Ca_xO)_mTiO_2$": "A barium and calcium titanate solid solution having the stated composition." (*Id.*)

Staff suggests that the term "$(Ba_{1-x}Ca_xO)_mTiO_2$" be construed in this manner: "a solid having the stated composition, wherein the ratio of Ba:Ca = 1-x:x; Ba and Ca in a subcomponent cannot contribute to x." (SBr. at 14.)

One problem with Murata's and Staff's proposed bifurcation is it omits the integral plus sign (+) between the divided components. The plus sign after TiO_2 is just as significant as the ones after αRe_2O_3 and βMgO that Murata and Staff include in their respective proposed constructions, yet Murata and Staff do not explain why it is not included in either of their proposed constructions. The omission has consequences or implications, as noted in the next paragraph. The actual term expressed in claim 1 is "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$[,]" representing a unit, the plus signs signifying the addition of what follows it to what precedes it. It also signifies an integral combination of materials, without mention of any disparateness with respect to sintering. For this reason, the Administrative Law Judge concludes

that the term "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" should be construed as a unit and should not bifurcated for purposes of claim construction.

Samsung proposes that the term "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" be construed as follows: "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_2 + \beta MgO + \gamma MnO$ starting materials (i.e., materials before sintering)[.]" (RBr. at 13.) The term "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" directly follows the preamble of claim 1, and constitutes the principal component of the dielectric ceramic (as distinguished from the subcomponents that are elsewhere mentioned in claim 1). (JX-4 at 32:56, 33:1-6.) Samsung argues that the "$\alpha Re_2O_3 + \beta MgO + \gamma MnO$" portion of this term has to mean starting compounds, because none of these stated compounds, in the form stated, is present in the ceramic material after it has been sintered. (*Id.* at 14.) Samsung, for support of this statement, points to the testimony of its expert Dr. Dougherty (Tr. at 1775-76) and to that of Murata's expert Dr. Burn, the latter of whom testified that the dielectric material after sintering could not be in the form Re_2O_3, but would be "a reaction product...of { } { } and the additives" (RBr. at 15 (citing Tr. at 558-59)). (*Id.* at 15.) Samsung also argues that one of Dr. Burn' professional papers teaches that Mn (manganese) "either substitutes for { } { } during sintering to form { } or else is retained in 'a segregated intergranular phase' *i.e.,* in grain boundaries, where it forms compounds with silica and other impurities." (*Id.*) In either case, Samsung argues, "the Mn is present in a form that is *not* MnO[,]" and the Mg substitutes for { }to form "magnesium doped { } { } a compound which is "chemically different" from MgO (magnesium oxide). (*Id.*)

Murata argues that Samsung has ignored the testimony of Drs. Burn and Dougherty, who testified that within the scientific fraternity it is a recognized convention to describe sintered ceramic by including a list of additives as simple oxides, as in the case of the '254 patent, even

when those additives may, in the process of sintering, take on other forms, such as carbonates. (CRBr. at 10.) Murata argues that listing basic oxides is a "standard way" of describing additives that are included in a sintered material, and this makes particular sense when the material is a core-shell structure, because that kind of structure makes it impossible to describe the precise composition of the materials within the shell portion of the core-shell structure. (*Id.* at 10-11.) Murata argues that the metal components of the additives included as starting materials, such as Mg and Mn, will be found in sintered materials in the same amounts as were included in the pre-sintered composition, and, therefore, the listing of simple oxides (such as MnO and MgO) in a composition formula for sintered material is understood by persons of skill in the art to denote the amount of those components in the sintered material. (*Id.* at 11.) Murata further argues that the '254 patent specification explicitly states that the additives to be included in the chemical materials may be both "oxides and carbonates" as well as other types of solutions. (*Id.* (citing JX-4 at 5:35-43).)

Murata says that it is not inconsistent to argue that the term "$\alpha Re_2O_3 + \beta MgO + \gamma MnO$" does not mean that these oxides themselves must be present in the sintered material, while arguing at the same time that compounds that make up $(Ba_{1-x}Ca_xO)_mTiO_2$ have to be present. (*Id.* at 11-12.) Murata says that if there is an inconsistency in this, it is owing to conventions used by persons skilled to describe sintered dielectric materials, and Murata's dichotomous stance is consistent with these conventions. (*Id.* at 12.)

Samsung rejoins that Murata's argument in its post-hearing brief diverges from the position it took before the Hearing, which was that "$\alpha Re_2O_3 + \beta MgO$" has to represent the compositions as stated and is not merely a list of concentrations of atomic elements without any

chemical bonding or formula relationships. (RRBr. at 9.) Murata made the following statement in its Pre-Hearing Brief:

> The '254 patent also explains that calcium occupies the same "site" as barium does by writing a portion of the claim 1 composition as $(Ba_{1-x}Ca_xO)_mTiO_2$. That is, the patent's statement that the barium calcium titanate is chemically represented as $(Ba_{1x}$ [sic] $Ca_xO)_mTiO_2$, '254 patent col. 4 ll. 31-34, indicates that barium and calcium exist at equivalent sites within the material. Thus, the $(Ba_{1-x}Ca_xO)_mTiO_2$ is best described as a solid solution of barium titanate and calcium titanate.

(Murata Pre-Hearing Brief, dated June 25, 2010, at 45.)

Samsung also remarks that, at the Hearing, both Murata's and Samsung's experts testified that, as regards $(Ba_{1-x}Ca_xO)_mTiO_2$, barium titanate forms an "ABO_3" structure in which the "A site" is occupied by titanium and "O" represents oxygen. (*Id.* at 10.) Samsung says that Murata has insisted throughout this Investigation that $(Ba_{1-x}Ca_xO)_mTiO_2$ requires the stated composition, described as a substance in which calcium occupies some of the barium sites in the barium titanate structure, citing language taken directly from Murata's Pre-Hearing Brief; whereas, Murata, in its Post-Hearing Brief, for the first time, argues that the term $(Ba_{1-x}Ca_xO)_mTiO_2$ should be interpreted so as to encompass a substance in which calcium occupies "A sites, B sites, both, or neither. (*Id.*) The Ground Rules prevent a party from making such a change in position by warning that issues that are not included in the pre-hearing brief are "deemed waived." (*See* Order No. 2, Ground Rule 10.1.) Murata may not change its stance now.

The Administrative Law Judge concludes that a person of ordinary skill in the art would find that the term "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" as expressed in claim 1 of the '254 patent means the following: "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ starting materials (*i.e.*, materials before sintering)."

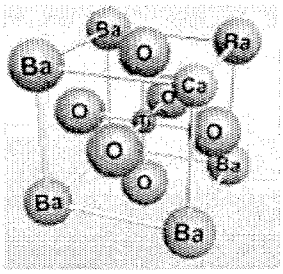
c) Claims 1, 2: *"$(Ba_{1-x}Ca_xO)_mTiO_2$"*

Murata proposes that the term "$(Ba_{1-x}Ca_xO)_mTiO_2$" be construed as follows: "A barium and calcium titanate solid solution having the stated composition." (CBr. at 14.) Samsung proposes a different construction: "$(Ba_{1-x}Ca_xO)_mTiO_2$ represents a perovskite lattice, wherein the ratio of Ba:Ca = 1-x:x; Ba and Ca in a subcomponent cannot contribute to x." (RBr. at 27.) Staff proposes still another construction: "A solid having the stated composition, wherein the ratio of Ba:Ca = 1-x:x; Ba and Ca in subcomponent cannot contribute to x." (SBr. at 14.)

According to Murata, the '254 patent teaches that the barium calcium titanate material ("BCT") in the "dielectric ceramic" mentioned in claims 1 and 2 assumes a complex and non-uniform core-shell structure that cannot be described in a precise chemical formula. (CBr. at 14.) Murata says that a "convention in the industry" is to describe such material using a formula such as in claims 1 and 2, which are sufficient to inform a person of ordinary skill in the art "of the composition of the BCT component of the claimed dielectric ceramic." (*Id.* at 15.) In an effort to provide "English language content and context for understanding the BCT formula" Murata says that it included a "solid solution" which Murata says is an accurate description of the material. (*Id.*)

Samsung argues that the term $(Ba_{1-x}Ca_xO)_mTiO_2$ requires specific chemical bonding stated according to its precise terms. (RBr. at 27.) Samsung quotes from Murata's Pre-Hearing Brief a portion of the same quotation recited above in Section III.B.2.b), as evidence that Murata shared in that statement. (*Id.* at 27-28.) Samsung argues that Murata previously had explained that { } to form BCT [barium calcium titanate] in order to meet the $(Ba_{1-x}Ca_xO)_mTiO_2$ limitation of the claims. (*Id.* at 27-28.)

Samsung also maintains, as part of its analysis of the disputed term, that the chemical formula $(Ba_{1-x}Ca_xO)_mTiO_2$ represents a compound having a perovskite lattice wherein the ratio of Ba to Ca equals the ratio of 1-x to x. Samsung references the testimony of Dr. Dougherty that a person skilled in the art would recognize $(Ba_{1-x}Ca_xO)_mTiO_2$ to be a perovskite structure. (*Id.* at 28.)



(*Id.* (showing perovskite structure).) Samsung says that calcium ions must replace barium ions in the barium calcium titanate crystal structure that constitutes the claimed $(Ba_{1-x}Ca_xO)_mTiO_2$, quoting Murata's Prehearing Brief (at page 45, the words previously quoted above in Section III.B.2.b)) and citing the testimony of Drs. Burn and Dougherty, both of whom said that the formula $(Ba_{1-x}Ca_xO)_mTiO_2$ requires that calcium occupy the barium site in a barium titanate lattice. (*Id.* at 28-30.)

Samsung says Staff and it agree that the ratio of barium to calcium is equal to the ratio of "1-x:x," but for purposes of calculating "x," the calcium that may be included in one of the subcomponents elsewhere mentioned in claim 1 is not a component of $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.* at 29.) Therefore, according to Samsung, { } does not contribute to "x." (*Id.*) This means that { } that might be found in { } does not constitute any part of $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.*)

According to Staff, the specification of the '254 patent is silent about whether the structure of $(Ba_{1-x}Ca_xO)_mTiO_2$ is crystalline or, if so, what are the specific characteristics of that

structure. (SBr. at 15.) Therefore, Staff disagrees with Samsung that a person of ordinary skill in the art would understand the structure at issue to be a perovskite lattice. (*Id.*) But Staff agrees with Samsung that one of skill in the art would understand that barium, calcium, oxygen, and titanium would have to be chemically bonded in order to form a defined structure. (*Id.*) Staff points to Dr. Burn's testimony that a solid solution is uniform throughout but the composition of a core-shell structure is non-uniform. (*Id.* at 15 (citing Tr. at 577-78 (Burn)).) Staff agrees with Samsung that calcium that is not part of the compound barium calcium titanate (such as {

} should not be considered in determining whether the "x" value mentioned in $(Ba_{1-x}Ca_xO)_mTiO_2$ is within the range prescribed in claim 1 (*see* JX-4 at 32:61). (*Id.* at 16.)

The Administrative Law Judge finds that Samsung's proposed construction is too broad because of its inclusion of "perovskite lattice" and a negative limitation. Staff's proposed construction also improperly introduces a negative limitation. Furthermore, Murata's proposed construction adds unnecessary descriptive language with respect to the stated composition.

The Administrative Law Judge concludes that a person of ordinary skill in the art would understand the term $(Ba_{1-x}Ca_xO)_mTiO_2$ to mean the following: "A solid solution having the stated composition."

d) Claim 2: *"mean particle size"*

Murata, in its initial Post-Hearing Brief, does not propose a construction for this term. (*See* CBr. at 5-16.) Samsung proposes that this term be construed as follows: "Mean particle size of the $(Ba_{1-x}Ca_xO)_mTiO_2$ starting material (i.e., material before sintering)." (RBr. at 30.) Staff proposes that the term be construed as follows: "arithmetic average of particle size." (SBr. at 14.) Samsung's proposed construction does not define the term "mean particle size" and adds language that adds restrictions not recited in the claims; therefore it is rejected. Staff's proposed construction is consistent with a general understanding of the term "mean" and is consistent with the specification, which indicates that arithmetic averages were calculated from various particle samples that were examined. (*See, e.g.,* JX-4 at 6:11-16.)

The Administrative Law Judge concludes that the term "mean particle size" means the following: "an arithmetic average of particle sizes."

C. '309 patent.

1. Level of Skill in the Art.

Murata says that a person of ordinary skill in the art relating to the '309 patent would have had at least a bachelor's of science degree in electrical, mechanical or mechanical engineering or in chemistry, materials science, physics or equivalent education and at least two years' work or research experience involving capacitor design, process development, manufacturing or related areas during the early 1990s. (Murata's Pre-Hearing Brief at 119.) Samsung says that a person of ordinary skill in the art would have possessed a bachelor's degree in electrical engineering, material science, ceramic engineering or equivalent engineering degree, and at least two years' experience in designing MLCCs. (RBr. at 82.) Staff says that any

differences between Murata's and Samsung's proposed definitions would not be determinative of any issue in this case. (SBr. at 51.)

The Administrative Law Judge concludes that a person of ordinary skill in the art relating to the '309 patent would have had at least a bachelor's degree in electrical or mechanical engineering, chemistry or materials science or an equivalent education and at least two years' work or academic experience involving capacitor design, process development, or manufacturing or related experience.

2. The Disputed Claim Terms of the '309 patent and Their Proper Construction.

Claim 3, an independent claim, reads as follows:

> **3.** A laminated ceramic electronic part, comprising:
>
> (a) a ceramic element including:
>
> (1) a plurality of overlapping internal electrodes;
>
> (2) a plurality of internal ceramic layers located between respective pairs of said overlapping internal electrodes;
>
> (3) upper and lower ceramic layers located above and below the uppermost and lowermost ones of said overlapping internal electrodes, respectively;
>
> (b) a pair of external electrodes formed on at least one outer surface of said ceramic element, each of said overlapping internal electrodes being electrically coupled to a respective external electrode;
>
> (c) said ceramic element satisfying the requirements:
>
> (1) the thickness of each said internal ceramic layer is 10 μm or less;
>
> (2) the number of said internal electrodes is 200 or more;
>
> (3) the ratio of the average thickness of each said internal electrode to the average thickness of each said internal ceramic layer is 0.10 to 0.40; and
>
> (4) the ratio of the combined volume of said internal electrodes to the combined volume of said ceramic element is 0.10 to 0.30.

(JX-2 at 6:15-37.)

a) Claim 3, *"the thickness of each said internal ceramic layer"*

Murata says that this term does not need to be construed and that the ordinary meaning of the words controls. (CBr. at 57-58.) Samsung says this term should be construed as follows: "The thickness of each said ceramic layer as measured at every location." (RBr. at 83.) Staff proposes this construction: "for each individual internal ceramic layer, the sum of a sufficient number of measurements of the thickness of the said layer divided by said number of measurements." (SBr. at 51-52.)

Samsung argues that the subject term is part of limitation 3(c)(1) of claim 3, which reads, "the thickness of each said internal ceramic layer is 10 μm or less." (RBr. at 83.) Samsung contends that this claim element means that at no location does the layer thickness exceed 10 μm and therefore the thickness of each ceramic layer has to be measured at every location. (*Id.*) Samsung notes that during the prosecution of the patent, Murata amended the claims to require that each ceramic layer have the desired thickness, reflecting Murata's intent to limit the scope of the claimed invention to devices having a plurality of ceramic layers, each of which does not exceed 10 μm at any location. (*Id.*) Samsung says that repeated additions of the word "each" during the course of the prosecution of the patent emphasizes that the thickness value applies to every ceramic layer. (*Id.* at 83-84.) Samsung says the specification confirms that the "thickness of each said internal ceramic layer" requires a determination for every individual ceramic layer, because by amending the specification to make it more restrictive, patentees showed that they considered their invention as claimed in claim 3 of the '309 patent to be limited to a laminated ceramic electronic part in which each of the internal ceramic layers has a thickness that is 10 μm or less. (*Id.* at 84.) Samsung, in response to the testimony of Murata's expert Dr. Ulrich, that Samsung's construction would require an infinite number of measurements, points to the

testimony of its own expert Dr. Randall who said that one could easily determine whether each ceramic layer exceeded 10 μm by using an aperture having a 10 μm wide slot to inspect a portion single ceramic layer. (*Id.* (citing RFF 5.33).)

Staff says that Samsung's construction is impossible to carry out and therefore should not be adopted. (SBr. at 52.) Staff says that Murata's "non-construction" does not address the issue whether a layer whose average thickness is less that 10 μm will meet the limitation. (*Id.*) Staff argues that Staff's proposed construction has the merit of requiring that every ceramic layer must meet the stated thickness limitation in accordance with the literal language of the claim, and that the evidence shows that the ceramic layers are non-uniform in thickness. (*Id.*)

Murata responds that nothing in claim 3 or in the specification of the '309 patent requires a particular measurement method for determining the thickness of the ceramic layers, and that arguments regarding proper measurement techniques are a matter of infringement proof and not claim construction. (CRBr. at 35.) Murata says that Staff's construction is errant because it requires measurements be taken of every layer, which is not required in order for a person of ordinary skill to determine whether every ceramic layer in a given device is thinner than 10μm, and that Staff's use of the word "sufficient" renders its proposed construction ambiguous. (*Id.*)

Samsung argues in its reply brief that claim construction opinions offered by Murata's expert Dr. Ulrich should be rejected because he does not qualify as an expert in MLCCs, in contrast to Samsung's expert Dr. Randall. (RRBr. at 42-43.) Samsung says that it and Staff are in agreement that the word "each" as used in the disputed claim term requires that every ceramic layer have a thickness that is less than 10 μm. (*Id.* at 43.) Samsung rejects Murata's argument that there is nothing in the claims or specification that requires measurements of every layer in

order to satisfy the thickness limitation of the '309 patent, saying the literal language of claim 3 requires that the thickness limitation applies to "each" ceramic layer. (*Id.*)

The Administrative Law Judge notes that none of the parties has proposed a construction for the phrase "internal ceramic layer(s)" as mentioned or referred to in claim 3 and, therefore, concludes that phrase does not require construction. As for the rest of the disputed term, the Administrative Law Judge finds that each of the words would be understood by persons of ordinary skill in the art according to its plain and ordinary meaning. The words "thickness" and "each" are well understood, and as used in the context in which they appear in claim 3, do not denote that something different than their ordinary meanings was intended by the inventors. Therefore, the Administrative Law Judge finds that the quoted term would be have been understood by a person of ordinary skill in the art at the time of the '309 patent invention according to the plain and ordinary meaning of the words used.

As for the proposed constructions offered by Samsung and Staff, the Administrative Law Judge finds that they are not necessary for an understanding of the term and, further, that each is objectionable because it attempts to engraft limitations that go beyond the plain and ordinary meaning of the term at issue.

b) Claim 3, *"the average thickness of each said internal ceramic layer"*

Murata contends that this term does not need to be construed either. (CBr. at 59-61.) Samsung proposes that this term be construed as follows: "The sum of a sufficient number of measurements of the thickness of each said ceramic layer divided by said number of measurements." (RBr. at 84-86.) Staff recommends that this term be construed as follows: "the sum of the thicknesses of each internal ceramic layer divided by the number of layers." (SBr. at 53-54.)

The claim term reads as follows: "the ratio of the average thickness of each said internal electrode to the *average thickness of each said internal ceramic layer* is 0.10 to 0.40[.]" (*Id.* at 6:32-34 (emphasis added).) The "average thickness of each said internal ceramic layer" denotes that the "average" in question pertains to each internal ceramic layer. This does not support Staff's proposed construction, as Staff has proposed that the sum of the thicknesses of all of the internal ceramic layers is to be divided by the number of layers to calculate the average. Staff's method for calculating average thickness does not involve the average thickness of each internal layer as required by the claim but, instead, the average of the total thickness of all of the internal ceramic layers. If each internal ceramic layer is not of uniform thickness, Staff's proposal would yield a result that deviates from the literal language of the claim, because it would simply sum the maximum thickness of each of those layers and divide that sum by the number of layers to obtain a total thickness average. A different result would follow if the internal ceramic layers are not uniform in thickness and, therefore, have lesser average thicknesses than their maximum thickness measurements. Assuming the maximum thickness measured for a given layer is constant throughout, the average thickness would be equal to any point where a measurement is taken, since every point represents the maximum thickness of that layer (as well as the minimum) and there are no deviations from that measurement anywhere else within that layer. However, if the measurements of thickness at different points throughout the internal ceramic layer are not uniform, there will be a combination of maximum, minimum, and intermediate measurements of thickness, the average of which will be less than the individual maximum measurement.

Samsung's proposed construction is defective because of its inclusion of the word "sufficient," which is subjective and renders the construction ambiguous.

Therefore, the Administrative Law Judge concludes that the term "the average thickness of each said internal ceramic layer" would have been understood by a person of ordinary skill in the art at the time of the '309 patent invention to have its plain and ordinary meaning.

c) Claim 3, *"ratio of the average thickness of each said internal electrode to the average thickness of each said internal ceramic layer"*

Murata believes that this term does not need to be construed and that the ordinary meaning controls. (CBr. at 61-62.) Samsung proposes the following construction: "The average thickness of each said internal electrode divided by the average thickness of each said internal ceramic layer." (RBr. at 87-88.) Staff suggests this construction: "the ratio of the average of the thicknesses of the internal electrodes to the average of the thicknesses of the internal ceramic layers." (SBr. at 54.)

Staff's proposed construction is defective because it deviates from the language of the claim which relates average thickness to the individual electrodes and individual ceramic layers, rather than the averages of their aggregations. Samsung's proposed construction, while accurate, does not add more clarity to what is already clearly expressed by the words of the term as written in the claim.

The Administrative Law Judge concludes that the term, "ratio of the average thickness of each said internal electrode to the average thickness of each said internal ceramic layer" is understood by a person of ordinary skill in the art at the time of the '309 patent invention according to its plain and ordinary meaning and requires no construction.

d) Claim 3, *"each"*

Murata denies that this word needs any construction. (CBr. at 62.) Samsung proposes this construction: "every one of two or more considered individually." (RBr. at 88.) Staff agrees with Murata that there is no need to construe the word "each."

The Administrative Law Judge concludes that the word "each" as used in claim 3 of the '309 patent would be understood by a person of ordinary skill in the art at the time of the patent according to its plain and ordinary meaning, which is every one of two or more things considered separately. This corresponds to Samsung's proposed construction.

D. '229 patent.

1. Level of Skill in the Art.

Murata proposes that a person skilled in the art relating to the '229 patent would have had a bachelor's or master's degree in engineering, physics, chemistry, or a related field, and two or three years of practical work in the industry. (CBr. at 57, 91; CFF 5.3 (citing Tr. at 995:9-14 (Ulrich)).) Murata also proposes that such a person would have had "at least a bachelor's degree in electrical, mechanical, chemical engineering, chemistry, material science, physics or an equivalent formal education, and would have had at least two years of work or research experience involving capacitor design, process development, manufacturing or related areas during the early 1990s." (CFF 5.5 (citing Tr. at 1314:10 -1315:7 (Ulrich)).)

Samsung's expert, Dr. Randall, testified that a person of ordinary skill in the art of the '229 patent would have been someone with (i) a bachelor's degree in electrical engineering, material sciences, ceramic engineering, or some equivalent type of engineering degree, and also would have had at least two years of experience in designing multilayer ceramic capacitors; or (ii)

a master's degree in the subject area of multilayer ceramic capacitor design. (ROCFF 4.14 (referring to Tr. at 1608:17-1609:9 (Randall)); RBr. at 118.)

It is Staff's position that the two skill levels proposed by the parties would not be outcome determinative. (SBr. at 78-79.)

The Administrative Law Judge concludes that a person of ordinary skill in the art of the '229 patent would have had either (i) a bachelor's degree in electrical engineering, material sciences, ceramic engineering, or an equivalent area, plus two years of experience in capacitor design, or experience in related areas such as capacitor manufacturing, or (ii) a master's degree with a similar course of study.

Therefore, the Administrative Law Judge finds that the disputed claim terms of the '229 patent are to be construed in this Investigation in accordance with this definition of a person of ordinary skill.

2. The Disputed Claim Terms of the '229 patent and Their Proper Construction.

a) Claim 1: *"first and second electrode plates being interleaved with each other in opposed and spaced apart relation"*

Murata proposes that for the claim language "first and second electrode plates being interleaved with each other in opposed and spaced apart relation," the word "interleaved" should mean "the first and second electrode plates are arranged so that the first electrode plates are positioned between the second electrode plates and second electrode plates are positioned between first electrode plates, except at the top and bottom of the stack," and the phrase "opposed and spaced apart relation" should mean "the first and second electrode plates are positioned next to each other so that each first electrode plate is separated from a second electrode plate by a dielectric layer." (CBr. at 91.) Staff agrees. (SBr. at 79.) Murata and Staff

diverge at Murata's addition that "first electrode plates do not need to be identical and second electrode plates do not need to be identical," as Staff finds that this further proposed construction is improper. (CBr. at 92; SBr. at 79-80.)

Samsung contends that "interleaved with each other in opposed and spaced apart relation" means that the first electrode plates and second electrode plates alternate without any intervening electrode plates. (RBr. at 121.) Samsung further argues that the first and second electrode plates must each be of a single design and a single polarity. (RBr. at 119.)

The disputed language "first and second electrode plates being interleaved with each other in opposed and spaced apart relation" appears in independent claim 1 as follows:

1. A multi-layer capacitor device comprising:

[a] a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation;

[b] a dielectric material located between each opposed set of the first and second electrode plates;

[c] the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and

[d] a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein

[e] each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the

second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and

[f] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

(JX-1 at 18:2-37 (emphasis added).) A person of ordinary skill in the art reading the disputed phrase in the context of claim 1 as a whole would understand that the capacitor device has multiple layers, including top and bottom surfaces, a plurality of opposed first and second electrode plates, and dielectric material. Between the top and bottom surfaces are the alternating first and second electrode plates that are separated from each other by the dielectric material. Because the claim preamble uses the word "comprising," the claim is open ended. *CIAS*, 504 F.3d at 1360. Thus the claim permits the inclusion of other unrecited elements or materials such as additional internal electrode plates. *Id.* The Administrative Law Judge finds that a person of skill in the art would understand the language the "first and second electrode plates being interleaved with each other in opposed and spaced apart relation" to mean "the first and second electrode plates are arranged so that the first electrode plates are positioned between the second electrode plates and second electrode plates are positioned between first electrode plates, except at the top and bottom of the stack, and each first electrode plate is separated from each second electrode plate by a dielectric layer."

The specification is consistent with this finding. The specification explains generally and also with respect to several embodiments that the layering of the first and second internal electrodes with a "respective dielectric layer located therebetween" forms a capacitor unit, and that a multilayer capacitor may have a plurality of capacitor units. (JX-1 at 4:45-48, 6:51-55, 7:37-44, 9:18-24, 12:45-50.) For example, the first preferred embodiment discloses "first and second internal electrodes **40** and **41** . . . in a face-to-face relationship with each other with a

dielectric material layer **39** interposed therebetween, each such pair of internal electrodes forming a respective capacitor unit." (*Id.* at 6:51-55.) In this embodiment the first and second electrode plates face, or oppose, each other and are spaced apart by the dielectric material layer. The specification also describes a third preferred embodiment which, in contrast to the other embodiments, has a third form of internal electrode plate as follows:

> the multi-layer capacitor **81** can be formed by locating the third internal electrode **82**, the first internal electrode **40*b*** and the second internal electrode **41*b***, one above the other with respective dielectric layers being located therebetween. Irrespective of the relative locations of the internal electrodes, the external terminal electrodes are arranged such that each of the third external terminal electrodes **87** through **90** is followed by one of the first external terminal electrodes **48*b*** through **53** and then followed by one of the second external terminal electrodes **60*b*** through **65**. This alternating arrangement is repeated throughout the four side surfaces **34** through **37**. The above-described order of stacking the internal electrodes **82**, **40*b*** and **41*b*** may be changed arbitrarily.

(*Id.* at 10:52-65 (emphasis added.) The internal electrode plates of the third embodiment are also configured to form capacitor units. (*Id.* at 10:67-11:13.) The disclosure of a third form of internal electrode plate shows that patentees contemplated capacitor devices with configurations that included more than just capacitor units with opposed sets of the first and second internal electrode plates, and further supports a finding that claim 1 is open ended. The specification additionally teaches that when both the two electrode and three electrode embodiments were manifested in sample devices, the layering arrangement for these was described in the specification as repeated "stacking" of the two or three kinds of internal electrodes respectively. (*Id.* at 16:54-63.) The Administrative Law Judge finds that a person of skill in the art reading the specification would understand the language the "first and second electrode plates being interleaved with each other in opposed and spaced apart relation" to mean "the first and second electrode plates are arranged so that the first electrode plates are positioned between the second electrode plates and second electrode plates are positioned between first electrode plates, except

at the top and bottom of the stack, and each first electrode plate is separated from each second electrode plate by a dielectric layer."

The file history does not contradict this finding. Indeed, the file history consists of little more than the application, some information disclosure statements with attached copies of prior art, an examiner interview summary, and a notice of allowability that contains the examiner's amendments (none of which are directed to claim 1) and reasons for allowance. (JX-9.) According to the examiner,

> Regarding claims 1-50, the allowability in combination with the other claimed features is because nowhere in the prior art is there a multilayer capacitor device having at least one of the lead structures of the first and second electrode plates that have a [ratio] L/W is equal to about 3 or less.

(*Id.* at MM_000501.) There is no discussion of the claim language the "first and second electrode plates being interleaved with each other in opposed and spaced apart relation." (JX-9.)

Samsung argues that U.S. Patent No. 5,880,925 (the "DuPré patent") supports a determination that first and second electrode plates that are interleaved in opposed and spaced apart relation do not have intervening electrode plates. (RBr. at 122.) Samsung relies in particular on DuPré figures 2 and 5, reproduced below.

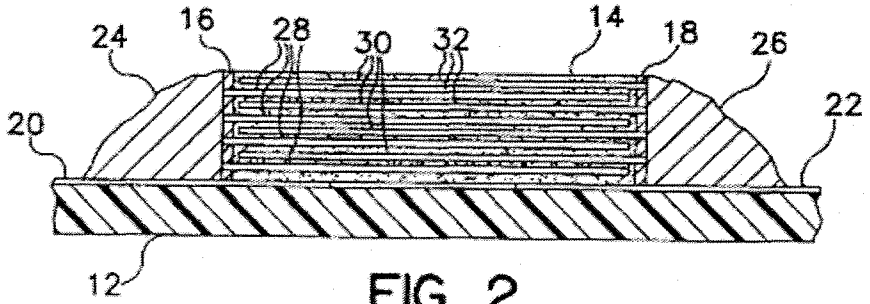


FIG. 2
PRIOR ART

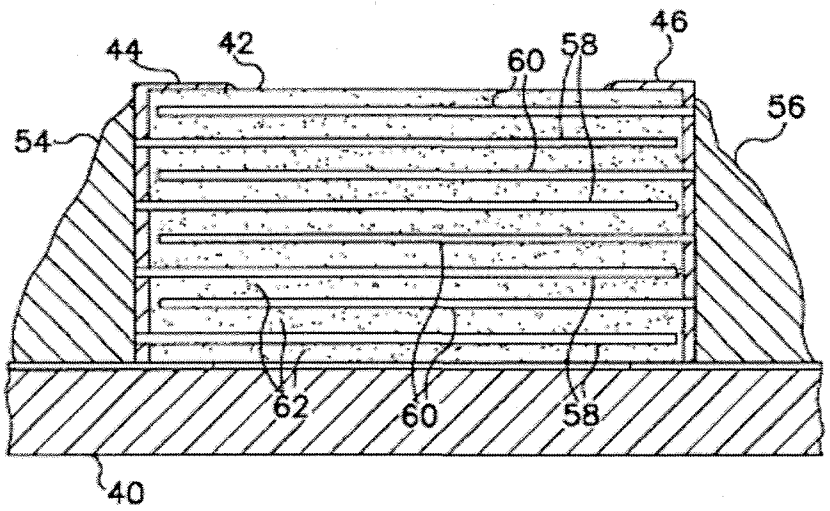


FIG. 5

(JX-9 at MM_000342-43.) Samsung argues that this DuPré reference should be "the primary guide" for claim construction of the '229 patent because Samsung alleges that patentees copied language from the DuPré patent. (*Id.* at 118-119 (citing *V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005)).) According to Samsung, the DuPré patent provides "'particular value as a guide to the proper construction of the term[s], because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning.'" (*Id.* (quoting *Arthur A. Collins, Inc. v. Northern Telecom Ltd.*, 216 F.3d 1042, 1045 (Fed. Cir. 2000)).)

Murata responds that Samsung cannot trump the specification with a reference cited in the file wrapper. (CRBr. at 54-55 (citing *Phillips*, 415 F. 3d at 1315 (specification is the single best guide to claim interpretation).) Murata further notes that even if the DuPré patent should be a guide for the disputed language of claim 1 of the '229 patent, Samsung improperly limits its proposed constructions to DuPré's embodiments. (CRBr. at 56.)

The Administrative Law Judge finds that Samsung has placed undue emphasis on the DuPré patent. The DuPré patent is part of the file history (JX-9 at MM_000341-351) and thus under *Phillips* may provide guidance as to the understanding of one of skill in the art at the time the '229 patent was filed. However, it is also noted that the DuPré patent is not referred to[7] or incorporated by reference in the '229 patent specification or discussed by the examiner during prosecution.[8] (JX-1; JX-9 at MM_000494, MM_000499, MM_000501.) In contrast, patentees specifically discussed Japanese Unexamined Patent Publication No. H2-256216 and reproduced several of its figures in the specification, yet Samsung does not look to this publication for assistance in construing the disputed claim language. (JX-1 at 1:15-19, Figs. 15-17.) Nor does Samsung discuss what one of skill in the art would have understood based on the other prior art references cited in the file history, even though these references also use such language as "interleaved layers" and "interdigitated leads." (*See e.g.*, JX-9 at MM_000237, MM_000278.) While the Administrative Law Judge agrees that the DuPré patent, as part of the file history, may be informative to the issue of claim construction, the Administrative Law Judge declines to use it as "the primary guide" for resolving claim disputes for the '229 patent and declines to remove it from the context of the other prior art references disclosed in the intrinsic record.

A review of the DuPré patent shows that (i) its patentees did not provide any special definition for the overlapping portions of the language disputed in claim 1 of the '229 patent and (ii) it does not support Samsung's argument that first and second electrode plates that are "interleaved . . . in opposed and spaced apart relation" do not have intervening electrode plates.

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[7] *Collins*, 216 F.3d at 1045 ("we adopt the meaning of TST switch that is used in the patents referred to in the written description, which appears to be the meaning given the term by a person skilled in the art.").

[8] *Kumar v. Ovonic Battery Co., Inc.*, 351 F.3d 1364, 1368 (Fed. Cir. 2003) ("In the present case, the Polk patent is not simply cited in the '686 patent as pertinent prior art; nor is there any showing that the Polk patent adopted a special definition at variance with that prevailing in the art. Rather the Polk patent was considered by both the applicant and the examiner to be highly pertinent prior art . . .").

Claim 1 of the DuPré patent refers to a multilayer capacitor device "comprising[,]" among other things, "a plurality of first and second electrode plates interleaved in opposed and spaced apart relation." (JX-9 at MM_000350, 7:54-56.) It is noted that this language is not identical to the disputed phrase of claim 1 of the '229 patent, although it uses similar terminology, and that the claimed device is open ended like claim 1 of the '229 patent. Thus claim 1 of the DuPré patent is broad enough to include other unclaimed electrode plates. Furthermore, there is nothing in the language of claim 1 of the Dupré patent as a whole that would prevent other intervening electrode plates.

A review of the DuPré specification shows that the DuPré patentees did not specially define "first and second electrode plates interleaved in opposed and spaced apart relation" or otherwise limit claim 1 to only first and second electrode plates. (JX-9 at MM_000347, 1:43-49 (repeating the open ended term "comprises"). *See also id.* at 2:17-20, 2:53-3:25, 4:55-64, Fig 2.) Therefore the Administrative Law Judge rejects Samsung's argument (RBr. at 122) that because the embodiments in the DuPré patent only disclose two electrode plate designs, DuPré claim 1 should be understood to exclude other intervening electrode plates. *Phillips*, 415 F.3d at 1323 (embodiments are generally not to be read into the claims as limitations); *Gemstar-TV Guide Intern., Inc. v. International Trade Comm'n*, 383 F.3d 1352, 1368-69 (Fed. Cir. 2004) (finding no basis to import "regular movement" limitation from preferred embodiment into a claim absent an express disavowal of "irregular movement" in the specification). Furthermore, the DuPré figure 5 confirms that one of skill in the art at the time the '229 patent was filed would have understood that in an embodiment with first and second electrode plates "interleaved in opposed and spaced apart relation," the first and second electrode plates are arranged so that the first electrode plates are positioned between the second electrode plates and second electrode plates

are positioned between first electrode plates, and each first electrode plate is separated from each second electrode plate by a dielectric layer. (JX-9 at MM_000343.)

Other prior art references in the file history confirm that this is what one of skill in the art would have understood. For example, U.S. Patent No. 4,706,162 (the "Hernandez" patent) claims a "multilayer capacitive element" with "interleaved layers of conductive material and dielectric material with alternating layers of conductive material being electrically connected and defining first and second groups of conductive layers." (JX-9 at MM_000278, 10:46-55 (emphasis added).) Thus prior art describing dielectric material sandwiched between metal conductors, such as in the Hernandez patent specification, and showing embodiments of the multilayer capacitor with "a series of stacked ceramic layers interleaved with conductive electrodes; with alternating electrodes being electrically connected . . ." were available to persons of skill in the art. (*Id.* at MM_000265, Fig. 13, MM_000273, 5:24-65, MM_000277, 7:52-56.) As another example, U.S Patent No. 4,814,940 claims a capacitor with "a plurality of internal capacitor plates positioned and maintained in spaced relation with dielectric material." (JX-9 at MM_000287, 4:25-29 (emphasis added).) Thus it was known to one of skill in the art that electrode plates in spaced apart relation had dielectric material separating them. It is further noted that Samsung does not cite to, and the Administrative Law Judge does not find, anything in these other disclosed references to support Samsung's argument that one of skill would have understood the language the "first and second electrode plates being interleaved with each other in opposed and spaced apart relation" of claim 1 of the '229 patent to mean there could be no intervening layers.

Turning to the extrinsic evidence, the Administrative Law Judge declines to consider the Oxford English Dictionary Online definition of "interleave" quoted by Murata. (CBr. at 92.)

Murata fails to cite to any admitted exhibit containing such a definition, and the Administrative Law Judge cannot take judicial notice of a definition found in a subscription-only online dictionary. (*See* http://www.oed.com.) Murata also relies on the expert[9] testimony of Professor Ulrich (CBr. at 94; CFF 5.10; Tr. at 1018-20 (Ulrich)), which the Administrative Law Judge also declines to consider. In the cited portions of the transcript, Professor Ulrich does nothing more than set forth his subjective understanding[10] with respect to claim construction. *General Protecht Group, Inc. v. International Trade Comm'n*, 619 F.3d 1303, 1310-11 (Fed. Cir. 2010) (expert's subjective understanding irrelevant).

The Administrative Law Judge rejects Murata's proposed language the "first electrode plates do not need to be identical and second electrode plates do not need to be identical." (CBr. at 92.) There is nothing in the plain language of claim 1 of the '229 patent or in the specification that suggests that the plurality of first electrode plates or the plurality of second electrode plates are varied plates. As Staff and Samsung point out (SBr. at 80; RBr. at 120), if all the first internal electrode plates did not need to be identical to each other and all the second internal electrode plates did not need to be identical to each other, then there would be no need to disclose a third preferred embodiment with a third internal electrode plate. (JX-1 at 9:44-56, 10:52-65, Figs. 8-11.) "If the first and second electrodes did not have a consistent shape, the third electrode would be described as yet another second electrode rather than as a third electrode." (SBr. at 80.) Murata counters that this would lead to an absurd result because "a capacitor with three different plate designs necessarily requires that two of the designs use the

[9] Samsung's litany of objections that Professor Ulrich does not qualify as an expert (*see e.g.,* ROCFF 5.7, 5.8, 5.9 etc.) fail to take the Administrative Law Judge's express finding on this matter into account. (Tr. at 994 ("I think it's sufficient to qualify him to give expert testimony with respect to the two patents that he would be testifying about based upon the reports that he's prepared. Therefore, I'm going to recognize him as an expert with respect to the areas that he will be testifying in this case.").)

[10] Indeed, there is testimony to show that Professor Ulrich's claim construction positions were "given" to him. (Tr. at 1306:2-8.)

same polarity." (CBr. at 94; CFF 5.10.) Murata ignores the language of the specification, however, that explains that—

> [a]lthough the arrangement of the third preferred embodiment is different from that in the first preferred embodiment in that external terminal electrodes having different polarities are not necessarily adjacent to each other in all locations, the directions of the current flows on the internal electrodes **40*b*** and **41*b*** is more diverse than those in the conventional multi-layer capacitor **1** shown in **FIGS. 15** through **17** and the lengths of the current paths are shorter.

(JX-1 at 11:34-41 (emphasis added).) From this passage it can be inferred that patentees understood that having a third type of internal electrode plate with the same polarity as one of the other two types of plates would result in some lead structures (electrically connected to external terminal electrodes) of the same polarity being positioned adjacent to each other. Based on the intrinsic record, the Administrative Law Judge finds that a person of ordinary skill in the art would understand that all the "first electrode plates," as claimed in claim 1 of the '229 patent, have the same design, and that all the "second electrode plates," as claimed in claim 1 of the '229 patent, have the same design.

Claim 28.

Claim 28 of the '229 patent also contains the disputed language, "in opposed and spaced apart relation," found in claim 1. For the reasons discussed above with respect to claim 1, the Administrative Law Judge finds that the claim language "at least one second electrode plate situated in opposed and spaced apart relation to the first electrode plate . . . dielectric material disposed between each opposing set of first and second electrode plates" means that the first and second electrode plates are arranged so that each first electrode plate is separated from each opposing second electrode plate by a dielectric layer. Just as with claim 1, claim 28 is open-ended and permits the inclusion of other unrecited internal electrode plates.

b) Claims 1, 28: *"in an interdigitated arrangement"*

Murata and Staff argue that the disputed language "in an interdigitated arrangement" means "projecting alternately between each other." (CBr. at 95; SBr. at 81.) They further argue that within the context of the '229 patent, "interdigitated leads do not have to be on the same level." (*Id.*)

Samsung argues that "in an interdigitated arrangement" means "with at least two lead structures of each polarity on a single side arranged in an alternating manner." (RBr. at 122.) Samsung does not argue that interdigitated leads have to be on the same level. (*Id.* at 122-124; RRBr. at 59-61.)

None of the parties argues that the disputed language of the two claims should have differing constructions.

The disputed language appears in independent claims 1 and 28 as follows:

1. A multi-layer capacitor device comprising:

[a] a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation;

[b] a dielectric material located between each opposed set of the first and second electrode plates;

[c] the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and

[d] a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective

ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein

[e] each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and

[f] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

28. A multi-layer capacitor device comprising:

[a] a capacitor body including a pair of opposed side surfaces having continuously smooth surfaces and a pair of opposed end surfaces disposed between the pair of opposed side surfaces;

[b] at least four electrical terminals disposed on each of the opposed side surfaces;

[c] the capacitor body also including at least one first electrode plate having a substantially rectangular first main electrode portion with a plurality of first lead structures extending therefrom and at least one second electrode plate situated in opposed and spaced apart relation to the first electrode plate, the second electrode plate having a substantially rectangular second main electrode portion with a plurality of second lead structures extending therefrom, respective ones of the first lead structures being located adjacent respective ones of the second lead structures in an interdigitated arrangement and extending to respective ones of the electrical terminals; dielectric material disposed between each opposing set of first and second electrode plates; wherein

[d] each of the lead terminals of the at least one first electrode plate being disposed opposite to another of the lead terminals of the at least one first electrode plate across the capacitor body and each of the lead terminals of the at least one second electrode plate being disposed opposite to another of the lead terminals of the at least one second electrode plate across the capacitor body; and

[e] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

(JX-1 at 18:2-37, 20:1-34 (emphasis added).) A review of the claim language at issue within the context of claims 1 and 28 shows that the respective lead structure of each first electrode plate is located adjacent to the respective lead structure of each second electrode plate (and extend to the

respective lead terminals) so that all the lead structures for the two types of electrode plates are alternately arranged. The Administrative Law Judge finds that a person of ordinary skill in the art of the '229 patent would understand the claim language "in an interdigitated arrangement" as used in claims 1 and 28 to mean "projecting alternately between each other." The Administrative further finds that as the respective lead structures are located on the first and second plates, the interdigitated arrangement of leads cannot be on the same level within each stack comprising a first internal electrode, dielectric material, and second internal electrode.

The specification supports this finding. Figures 2 and 3 show examples of first and second electrode plates in the first preferred embodiment. Leads **42** through **47** (attached to terminal electrodes **48** through **53** respectively) of the first electrode plate **40** are arranged to alternate with leads **54** through **59** (attached to terminal electrodes **60** through **65** respectively) of the second electrode plate **41**.

FIG. 2

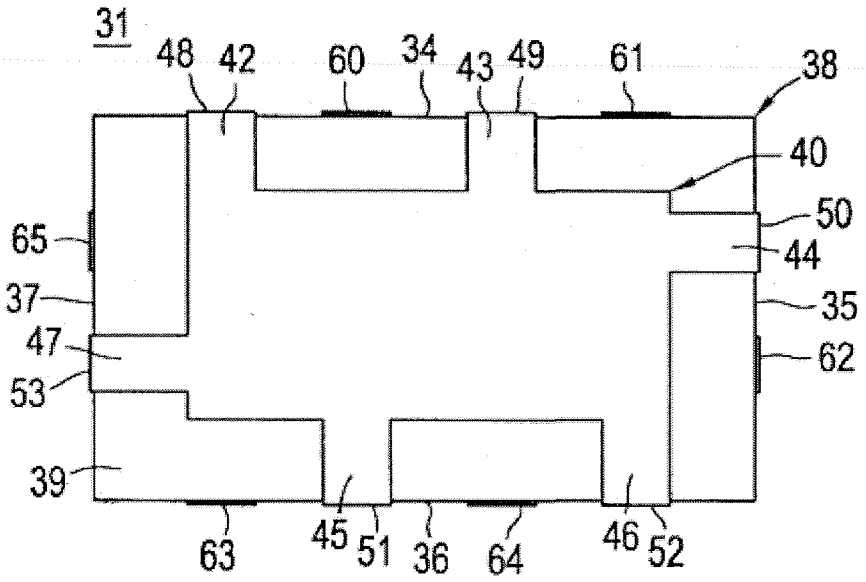
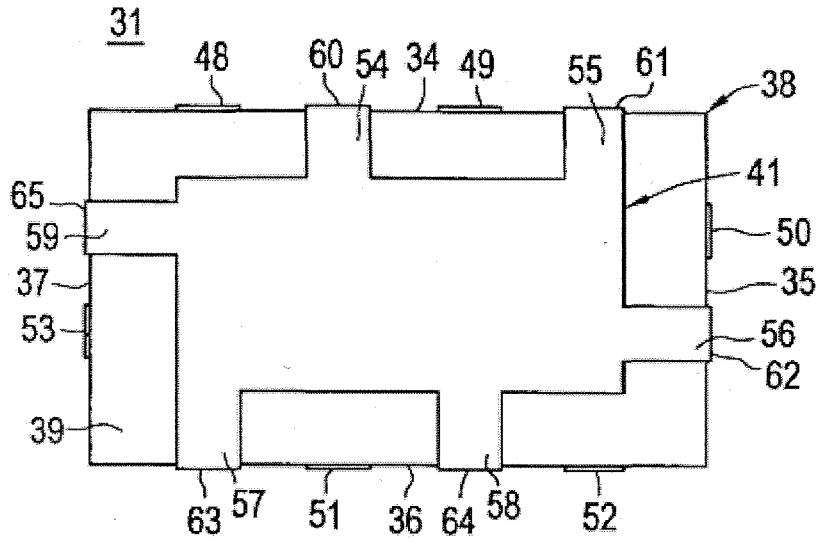
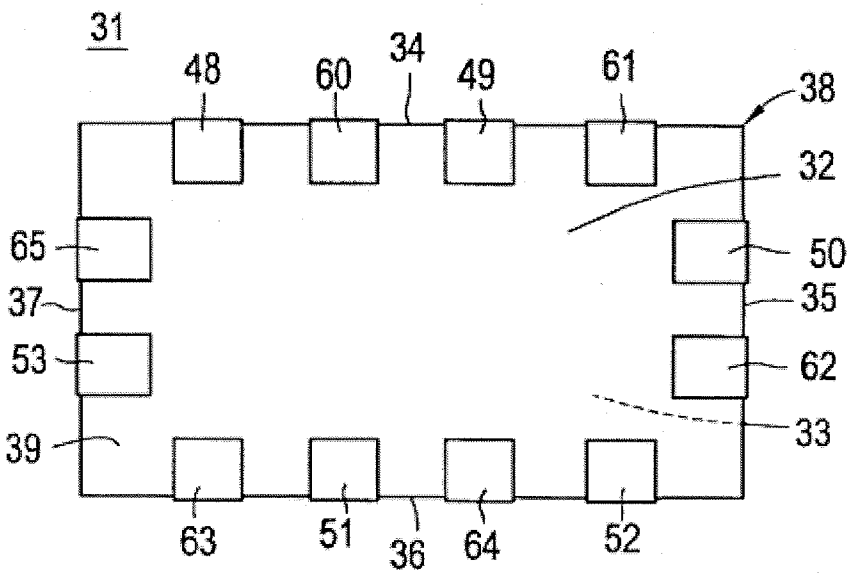


FIG. 3



(JX-1 at Figs. 2, 3.) Figure 1 is a plan view of the first preferred embodiment (shown on opposed principal surface **32**) that shows the interdigitated or alternating arrangement of leads **42** through **47** (reflected in the respective external electrodes **48** through **53**) of the first electrode plate **40** and leads **54** through **59** (reflected in the respective external electrodes **60** through **65**) of the second electrode plate **41**:

FIG. 1



(*Id.* at Fig. 1.) For example, sides **37** and **34** show how leads **47**, **42**, and **43** (reflected in the respective external electrodes **53**, **48**, and **49**) of the first electrode plate **40** project alternately with leads **59**, **54**, and **55** (reflected in the respective external electrodes **65**, **60** and **61**) of the second electrode plate **41**. (*Id.*) This alternating arrangement continues all the way around the two plates. (*Id.*) The specification, without limiting claims 1 and 28, explains with respect to this embodiment that "[t]he external terminal electrodes **48** through **53** are arranged in an interleaved manner such that no two external electrodes which are electrically coupled to the same internal electrode **40** or **41** are adjacent one another. In operation the polarizations of the first and second internal electrodes **40**, **41** are preferably opposite to one another." (*Id.* at 7:32-37.) A person of ordinary skill in the art reviewing the specification would understand "in an interdigitated arrangement" to mean "projecting alternately between each other."

The Administrative Law Judge rejects Samsung's proposed language "with at least two lead structures of each polarity on a single side arranged in an alternating manner" (RBr at 122)

as ambiguous and unsupported by the intrinsic evidence. As an initial matter, the language proposed by Samsung does not make sense when inserted into claims 1 and 28 because "single side" could refer to either a side of an internal electrode plate or to a side of the capacitor device as a whole. Samsung's briefing shows Samsung is referring to internal electrode plate sides, but the proposed language does not reflect this. (RBr. at 124.) Furthermore, does Samsung mean that each internal electrode plate side must have at least two lead structures of a single polarity or that each internal plate must have at least one side that has at least two lead structures of a single polarity? In the former case, Samsung's proposed language would exclude all preferred embodiments, which is rarely if ever[11] correct. (*See e.g.*, JX-1 at Figs. 1-3, 6-7, 9-11, 13-14, 20-21.) In the latter case, there is no language in claims 1 and 28 of the '229 patent that suggests that at least one side of each of the first and second internal electrode plates must have at least two lead structures of each polarity.

Claim 1 of the '229 patent requires the capacitor device to have a plurality (two or more) of electrode terminals on each of the opposed surfaces of the capacitor, but these correspond to lead structures of both the first and second electrode plates. (*Id.* at 18:21-29.) Thus the claim is broad enough that each type of electrode plate could have one lead structure on any given side and when the two plates are stacked, the capacitor on that side would have two electrode terminals corresponding to the alternating lead structures of the first and second internal plates. Claim 28 claims "at least four electrical terminals disposed on each of the opposed side surfaces." (*Id.* at 20:1-34.) This language is ambiguous and could be interpreted to mean that the four terminals be disposed on each side surface (and the side surfaces are opposed) or that the four terminals are disposed among the paired (opposed) side surfaces and thus could be

[11] *MBO Laboratories, Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007).

apportioned e.g., two to an opposed side. Dependent claim 46, which claims that "each of the pair of opposed side surfaces of the capacitor body includes at least four of the electrical terminals disposed thereon," gives rise to the presumption under the doctrine of claim differentiation that claims 28 and 46 have different scope. *SunRace Roots Enterprise Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1302-3 (Fed. Cir. 2003) (doctrine of claim differentiation creates presumption that different claims have a different scope—a presumption that is "especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim"). Samsung does not identify, and the Administrative Law Judge does not find, any suggestion in the intrinsic or extrinsic record that this presumption should not apply. Thus a narrower claim 46 would mean that the four terminals claimed in broader claim 28 are disposed among the paired (opposed) side surfaces and could be apportioned e.g., two to an opposed side. (*Compare* JX-1 at 20:1-34 with *id.* at 21:38-41.) Even if this were not the case, claim 28 does not require that all of these terminals correspond to lead structures on the first and second electrode plates. (*Id.* at 20:1-34.) Claim 28 is open ended, and for the reasons discussed previously in Section III.D.2.a), may contain more types of electrode plates than just first and second internal electrode plates. It is also noted that claim 28 claims a plurality of lead structures without requiring that any particular number be placed on a given side of the first or second electrode plates. (*Id.* at 20:10-30.)

Furthermore, the third embodiment of the '229 patent supports a finding that the disputed language of claims 1 and 28 is broader than Samsung submits. The specification discloses first

and second internal electrode plates **40*b***, **41*b***[12] in the third preferred embodiment that do not have two lead structures on at least one side. (*Id.* at Figs. 10-11.) Samsung does not point to any portion in the specification that suggests that this preferred embodiment should be overlooked, but instead Samsung relies on the DuPré prior art referred to in the file history. As noted above in Section III.D.2.a), Samsung has placed undue weight on the DuPré reference. Although DuPré has some relevance in demonstrating how one of skill in the art would have understood "in an interdigitated arrangement," as claimed in claims 1 and 28 of the '229 patent, this single reference cannot be removed from the context of the '229 patent claims, specification, and file history. Furthermore, the DuPré reference actually contradicts Samsung's argument that "in an interdigitated arrangement" requires at least two lead structures on at least one side. Claim 1 of DuPré specifically claims first and second electrode plates each including a main electrode portion "and at least two spaced apart lead structures extending therefrom. . . ." (JX-9 at MM_000350, 7:61-63.) If Samsung's allegations that patentees had modeled some of the language of claims 1 and 28 of the '229 patent on the DuPré patent's claim language are valid, then patentees were aware of, and could have chosen, the phrase "at least two spaced apart lead structures extending therefrom" for implementation with respect to each of the first and second internal electrode plates claimed in claims 1 and 28 of the '229 patent. It is significant that patentees did not.

The Administrative Law Judge further notes that in other prior art references contained in the file history, the term "interdigitated" has meaning in the art that accords with the language

[12] It is noted that for the third preferred embodiment the specification initially refers to internal electrode **82** as the first internal electrode, **40*b*** as the second internal electrode, and **41*b*** as the third internal electrode. (JX-1 at 9:44-54.) However this appears to be an error: for the remainder of the description of the third embodiment, internal electrode **82** is consistently referred to as the third internal electrode, internal electrode **40*b*** is consistently referred to as the first internal electrode, and internal electrode **41*b*** is consistently referred to as the second internal electrode. (*Id.* at 9:60-11:49.)

proposed by Murata and Staff—not Samsung. For example, the Prymak article teaches with respect to "Interdigitated Leads" that "[t]his is an arrangement of the pins in a larger capacitor such that the adjacent pins are of opposite polarity (Figure 23)." (JX-9 at MM_000237.)

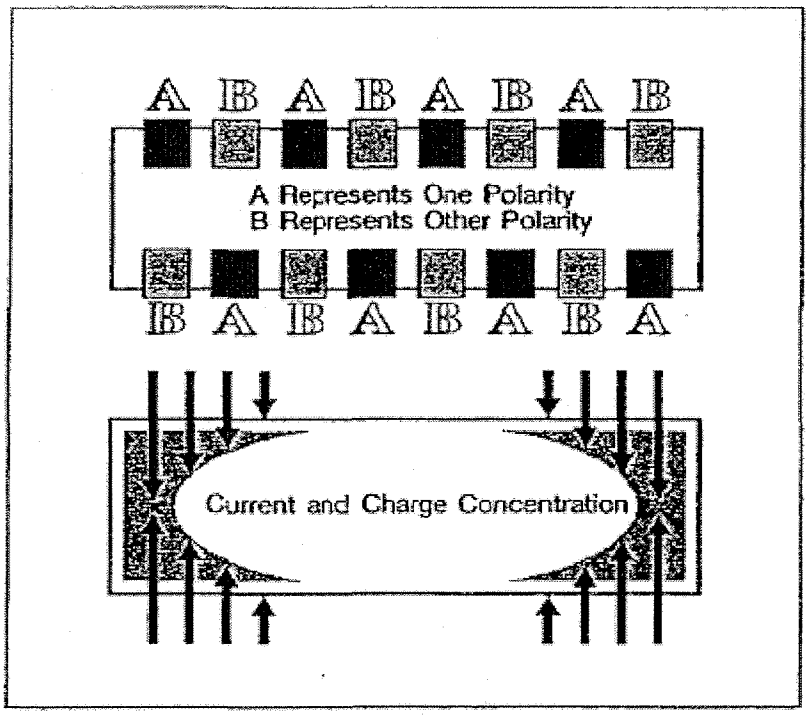


Figure 23. Interdigitated leads.

(*Id.*) Prymak shows that these interdigitated arrangements are not limited to a "side" of a plate but may occur on a circular shaped unit. (*Id.* at MM_000238.)

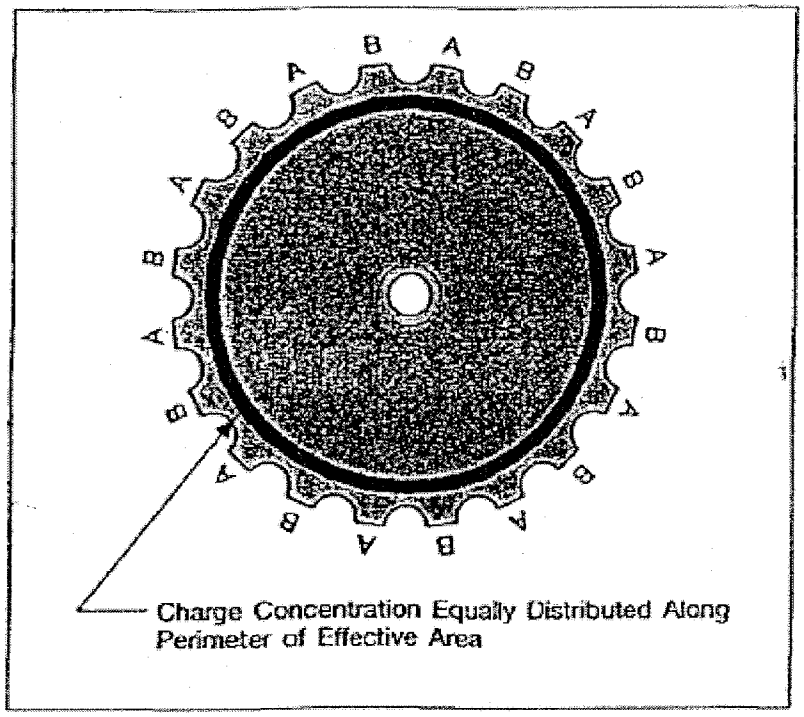


Figure 24. Circular capacitor with interdigitated leads.

(*Id.*) The interdigitated leads in both figures 23 and 24 project alternately between each other, although it should be noted here that these diagrams show significantly more leads than the minimum claimed in claims 1 and 28 of the '229 patent. Therefore they have a different appearance than a capacitor device that has a repeated series of first and second electrode plates with a smaller number of leads on a side pursuant to claims 1 or 28 of the '229 patent. This is because Claims 1 and 28 merely require that each lead from each first internal electrode plate be located adjacent to the respective lead from each second internal electrode plate, projecting alternately between each other; they do not claim an interdigitated arrangement that extends symmetrically along a side of the capacitor device (Figure 23) or around all of it (Figure 24). Accordingly, the Administrative Law Judge finds that a person of ordinary skill in the art of the '229 patent would understand, based on the intrinsic record, that the claim language "in an

interdigitated arrangement" as used in claims 1 and 28 means "projecting alternately between each other."

The extrinsic evidence does not support a different finding. The Administrative Law Judge declines to consider the Oxford English Dictionary Online definition of "interdigitate" quoted by Murata. (CBr. at 95-96.) Murata fails to cite to any admitted exhibit containing such a definition, and the Administrative Law Judge cannot take judicial notice of a definition found in a subscription-only online dictionary. (*See* http://www.oed.com.) Samsung also provides a definition from an online dictionary (RRBr. at 60), not in evidence, although this definition is publicly available. (*See* http://www.merriam-webster.com/dictionary/interdigitate ("to become interlocked like the fingers of folded hands").) It is noted that this definition provided by Samsung is consistent with Murata and Staff's proposed claim language "projecting alternately between each other" and does not support Samsung's proposed language "with at least two lead structures of each polarity on a single side arranged in an alternating manner." The Administrative Law Judge concludes that one of ordinary skill in the art of the '229 patent would understand, based on the intrinsic and extrinsic evidence, that the claim language "in an interdigitated arrangement" as used in claims 1 and 28 means "projecting alternately between each other."

c) Claims 1, 28: *"opposite to"*

Murata and Staff argue that the claim language "opposite to," as it relates to terminals in claims 1 and 28 of the '229 patent, means the terminals are positioned on opposite sides without requiring that they be directly across from each other. (CBr. at 98; SBr. at 94.) Samsung does not dispute this position in the posthearing briefing (RBr. at 119-125; RRBr. at 57-62), and thus any arguments disputing Murata and Staff's proposed construction are deemed waived or

abandoned. (Ground Rule 10.1.) As this claim language is no longer in dispute, no construction is necessary. *Vanderlande*, 366 F.3d at 1323 ("[o]nly claim terms in controversy need to be construed").

d) Claim 51, *"position located between the positions to which the first lead electrodes extend"*

Murata argues that after reconsidering its position, it now agrees with Staff that the claim language "position located between the positions to which the first lead electrodes extend" of claim 51 of the '229 patent should mean "position on the shorter of the two peripheral paths connecting two of the first lead electrodes." (CBr. at 99; SBr. at 84.)

Samsung argues that the disputed language should mean "position on the shorter of the two peripheral paths connecting two of the first lead electrodes, where said first lead electrodes are either on the same side or adjacent sides." (RBr. at 124.)

The parties all agree to the language "position on the shorter of the two peripheral paths connecting two of the first lead electrodes." At issue is whether Samsung's additional proposed limitation, "where said first lead electrodes are either on the same side or adjacent sides," also applies.

As an initial matter, Murata's original proposed claim construction is deemed waived. (Ground Rule 10.1.) The Administrative Law Judge finds, however, that because Murata's new position is duplicative of Staff's there is no prejudice to Samsung. Even if every single new Murata argument relating to this disputed language were to be disregarded, each of these arguments has been timely set forth by Staff. The Administrative Law Judge is unpersuaded by Samsung's argument that Samsung has been precluded from "taking discovery of Murata's infringement contentions under Staff's construction" (RRBr. at 61-62) because Samsung had

adequate knowledge of Staff's proposed construction. Nothing prevented Samsung from requesting discovery from Murata as to its infringement contentions should Staff's proposed construction prevail.

The disputed phrase appears in independent claim 51 as follows:

> **51**. A monolithic capacitor comprising:
>
> [a] a capacitor body having two opposed main surfaces and four side surfaces connected between the two main surfaces, said capacitor body including a plurality of dielectric layers extending in the direction in which the two opposed main surfaces extend, and at least one pair of first and second internal electrodes opposed to each other through one of the dielectric layers so as to define a capacitor unit, said capacitor body further including at least two first lead electrodes extending from one of the first internal electrodes to at least two positions on at least one of the side surfaces, and at least one second lead electrode extending from the second internal electrode to a position located between the positions to which the first lead electrodes extend;
>
> [b] first and second external terminal electrodes provided on the side surfaces onto which the first and second lead electrodes extend, and electrically connected to the first and second lead electrodes, respectively; wherein the ratio L/W of the length L to the width W of at least one of the first and second lead electrodes is within the range of about 0.4 to about 3.0

(JX-1 at 22:1-23 (emphasis added).) There is nothing in the language of claim 51 that suggests that the language "position located between the positions to which the first lead electrodes extend" requires that the first lead electrodes be placed either on the same side or adjacent sides.

A review of the specification and file history shows that there is nothing in these that would signal to one of skill in the art that the first lead electrodes are required to be either on the same side or adjacent sides. The parties agree that all of the preferred embodiments disclosed in the '229 patent specification

> illustrate[] a capacitor where a lead electrode extends from the second electrode plate to a position on the shorter of the peripheral paths connecting two of the first lead electrodes, where said first lead electrodes are either on the same side or adjacent sides. (JX-l at figs. 2-3, 6-7, 9-11,13-14, 16-17 and 20-21[.])

(RFF 6.164 (undisputed).) As Staff points out, however, "claims are not limited to the invention described in the embodiments." (SBr. at 85. *See also Phillips*, 415 F.3d at 1323.) The Administrative Law Judge concludes that a person of ordinary skill in the art would not understand the language of claim 51, "position located between the positions to which the first lead electrodes extend," to have the limitation "where said first lead electrodes are either on the same side or adjacent sides."

e) Claims 7, 34, *"substantially equal to each other"*

Murata argues that "substantially equal to each other" as claimed in claims 7 and 34 of the '229 patent should mean "largely or approximately equal from the viewpoint of one of ordinary skill in the art." (CBr. at 101.) Staff disagrees with Murata's use of the word "approximately" but does not dispute that the claim language at issue should mean "largely equal from the viewpoint of a person of ordinary skill in the art." (SBr. at 86.)

Samsung does not set forth a proposed interpretation of the language "substantially equal to each other" in the posthearing briefing (RBr. at 119-125; RRBr. at 57-62), and thus any arguments disputing Murata and Staff's proposed construction are deemed waived or abandoned. (Ground Rule 10.1.)

It is undisputed that "substantially equal to each other" means at least "largely equal from the viewpoint of a person of ordinary skill in the art." Solely at issue is whether the claim language at issue may also include "approximately."

Claims 7 and 34 read as follows:

> 7. The multi-layer capacitor according to claim **1**, wherein the lengths L of all of the lead electrodes are substantially equal to each other.
>
> **34**. The multi-layer capacitor device according to claim **28**, wherein the lengths L of all of the lead electrodes are substantially equal to each other.

(JX-1 at 18:57-59, 20: 54-56.) The claims do not provide much context for the language "substantially equal to each other" and the specification merely repeats variations of the phrase "the lengths of all of the lead electrodes are preferably substantially equal." (*See e.g.*, JX-1 at 3:66-67, 15:11-13.) Staff argues that as Tables 1 and 2 in the specification have precise measurements of electrode "width," the language "approximately" is not appropriate. (SBr. at 86.) Staff's argument with respect to the *width* of the lead electrodes has no bearing on their *length*, and the lengths in these two tables are measured in tenths, not hundredths of a millimeter. (JX-1 at Tables 1, 2.) Neither party cites to the file history to support their position, and, as noted above in Section III.D.2.a), there is little guidance in the file history with respect to the patentees' or examiner's understanding of the claim language in the '229 patent.

Murata argues that the Federal Circuit has held that "term 'substantial' is a meaningful modifier implying 'approximate,' rather than 'perfect,'" quoting *Playtex Products, Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 907 (Fed. Cir. 2005). (CBr. at 101.) "Substantial" is a term that has consistently been interpreted by the Federal Circuit to mean "largely or approximately." (*See e.g., Liquid Dynamics Corp. v. Vaughan Co., Inc.*, 355 F.3d 1361, 1368 (Fed. Cir. 2004); *Cordis Corp. v. Medtronic Ave, Inc.*, 339 F.3d 1352, 1361 (Fed. Cir. 2003); *Epcon Gas Sys., Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022, 1031 (Fed. Cir. 2002).) There is nothing in the intrinsic record to indicate that "substantially equal to each other" should carry a different meaning. Accordingly, the Administrative Law Judge finds that "substantially equal to each other" as claimed in claims 7 and 34 should mean "largely or approximately equal from the viewpoint of one of ordinary skill in the art."

IV. INFRINGEMENT DETERMINATION

A. Applicable Law

"Determination of infringement is a two-step process which consists of determining the scope of the asserted claim (claim construction) and then comparing the accused product . . . to the claim as construed." *Certain Sucralose, Sweeteners Containing Sucralose, and Related Intermediate Compounds Thereof*, Inv. No. 337-TA-604, Comm'n Op. at 36 (U.S.I.T.C., April 28, 2009) (citing *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1454 (Fed. Cir. 1998) "*Litton*"). An accused device literally infringes a patent claim if it contains each limitation recited in the claim exactly. *Litton*, 140 F.3d at 1454. Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). In a Section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *Enercon GmbH v. Int'l Trade Comm'n,* 151 F.3d 1376, 1384 (Fed. Cir. 1998).

If the accused product does not literally infringe the patent claim, infringement might be found under the doctrine of equivalents. The Supreme Court has described the essential inquiry of the doctrine of equivalents analysis in terms of whether the accused product or process contains elements identical or equivalent to each claimed element of the patented invention. *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40 (1997). Under the doctrine of equivalents, infringement may be found if the accused product or process performs substantially the same function in substantially the same way to obtain substantially the same result. *Valmont Indus., Inc. v. Reinke Mfg. Co.,* 983 F.2d 1039, 1043 (Fed. Cir. 1993).

B. Analysis of the Accused Products with Respect to the '254 patent.

Murata asserts that the Accused '254 Products, identified in Appendix A (*see* Section I.E. above) infringe claims 1, 2, 9, 11-14, and 19-20 of the '254 patent. (CBr. at 19-34.)

1. Claim 1

This claim reads as follows:

1. A dielectric ceramic comprising

$$(Ba_{1-x}Ca_xO)_mTiO_2+\alpha Re_2O_3+\beta MgO+\gamma MnO$$

in which Re is at least one member selected from the group consisting of Y, Gd, Tb, Dy, Ho, Er and Yb; α, β γ, m and x are molar ratios; $0.001\leq\alpha\leq0.10$; $0.001\leq\beta\leq0.12$; $0.001<\gamma\leq0.12$; $1.000<m\leq1.035$; and $0.005<x\leq0.22$, and

about 0.2 to 5.0 parts by weight of either a first sub-component or a second sub-component or a third sub-component relative to 100 parts by weight of $(Ba_{1-x}Ca_xO)_mTiO_2$, wherein

[a] the $(Ba_{1-x}Ca_xO)_mTiO_2$ contains about 0.02% by weight or less of alkali metal oxides,

[b] the first sub-component is a Li_2O—$(Si, Ti)O_2$—MO oxide in which M is at least one of Al and Zr,

[c] the second sub-component is a SiO_2—TiO_2—XO oxide in which X is at least one selected from the group consisting of Ba, Ca, Sr, Mg, Zn and Mn, and the third sub-component is SiO_2.

(JX-4 at 32:55-33:6.)

Murata's Contentions

Murata contends that of the 1,045 Accused '254 Products (*see* Section I.E. above), those accused multilayer ceramic capacitors (singularly or plurally, "MLCC") that contain Samsung's compositions { } (the "Compositions") infringe claim 1. (CBr. at 18.) Murata bases its allegation of infringement principally on the testimony of its expert Dr. Ian Burn, who relied on analytical testing of Evans Analytical Group ("EAG"), an analytical services laboratory. (*Id.* at 19.) Murata believes it is technically possible to

determine whether the accused Samsung Compositions infringe a limitation of claim 1 by means of the raw materials used to make the dielectric materials, because the elements in the raw materials are not created or destroyed during sintering, although they may migrate or form new combinations. (*Id.*) According to Murata, Inductively Coupled Plasma ("ICP") testing of a representative product containing the { } Composition confirmed that the bulk chemical composition of the sintered dielectric ceramic can be determined by referring to the pre-sintered composition. (*Id.*)

More specifically, Murata argues that an infringement determination based on whether the asserted $\alpha Re_2O+\beta MgO+\gamma MnO$ composition is present in the accused Compositions can be made by referring to the starting materials, because the elements therein will be present in the "final dielectric material" in the same molar amounts. (*Id.* at 20.) Based on the starting materials for the Compositions, Dr. Burn concluded that the molar ratios of the rare earth, magnesium and manganese elements in the Compositions meet the limitations of claim 1 of the '254 patent. (*Id.* at 20.)

Murata says that Dr. Burn, using information provided by Samsung, calculated that the final Compositions contain { } that falls within a range of { } and satisfies the limitations for one of the asserted alternative subcomponents { } in claim 1. (*Id.* at 21.) Murata says that business records produced by Samsung about the starting materials it uses to make its capacitors allowed Dr. Burn to make calculations of the amount of alkali metal oxides that can exist in the "sintered dielectric materials," based on the limitations Samsung imposes on its suppliers for alkali metal oxides and other impurities in their raw materials. (*Id.*) Murata says the { } and other raw materials Samsung gets from its suppliers are restricted in their amounts of { } an alkali metal oxide, to a weight percentage below

0.02 %. (*Id.*) Murata notes that Samsung's raw materials specifications do not mention { } or, with few exceptions, { } which are also alkali metals it uses, because Samsung has never experienced contamination when using either of them in its dielectric materials. (*Id.* at 21-22.) Therefore, argues Murata, it can be concluded that Samsung's { } starting materials" contain less than 0.02% alkali metal oxides by weight and therefore meet the alkali metal oxide limitation of claim 1. (*Id.* at 22.)

With respect to the *x* value limitations of claim 1 ($0.005 < x \leq 0.22$ (JX-2 at 32:61)), Murata says its analyses, using several sources for information, show that { } { } material during sintering of Samsung's accused dielectric Compositions in sufficient amounts to satisfy that limitation. (*Id.*) Murata says that Samsung's information about its pre-sintered materials shows there is enough calcium present in the dielectric material as a whole to meet the *x* limitation, assuming { } occurs during sintering. (*Id.*) Murata points to the fact that the Compositions have calcium molar ratios that fall between { } as far as the total dielectric material, which exceeds the 0.005 aspect of the limitation. (*Id.*) Also, a specific ICP analysis of the Samsung { } Composition confirmed an *x* value of { } (*Id.* at 22-23.) Therefore, argues Murata, the question to be addressed regarding the presence of calcium in the Samsung Compositions is whether the { } { } in an amount that is sufficient to satisfy the prescribed "$(Ba_{1-x}Ca_xO)_m$" limitation for a sintered composition. (*Id.*)

Murata notes that Dr. Burn arranged with Evans Analytical Group ("EAG") to perform Transmission Electron Microscope ("TEM") and Energy Dispersive Spectroscopy ("EDX") testing on four representative products containing the Compositions, which enabled him to make

reasonable judgments about the extent of { } { } (*Id.* at 23-24.) Murata says that Dr. Burn tested shells that had measurable thicknesses at various "sites of interest" that were studied, which revealed decreasing concentrations of dopants (additives) the further away the sites were from the boundaries of the grains, as would be expected with diffusion. (*Id.* at 26.) In a case where no dopants were detectable, it was concluded that the shell was too thin to be measured, and no further conclusions were drawn as a result. (*Id.*)

According to Murata, Dr. Burn explained that the data produced by EAG could be, and was, used to estimate the amount of calcium in the samples. The way this was done, says Murata, was by determining the ratio of calcium to titanium from a studied site. (*Id.* at 27.) Murata says that Dr. Burn was confident about the accuracy of the calcium measurements that were reported by EAG because that firm also performed an EDX analysis on dielectric material from a Murata MLCC using dielectric material with a known calcium distribution, the results of which were consistent with the amount of calcium known by Murata to actually be present. (*Id.* at 28-29.) Murata contends that the results of this reference study confirmed that EAG's test equipment was properly calibrated for measuring, to a reasonable degree of certainty, the amount of calcium present in the shell of each of the Samsung Compositions. (*Id.* at 28.) On the basis of the methodology used by EAG, Dr. Burn was able to identify one or more useful sites of interest that gave confirmation that { } and confirmed that sufficient calcium was present in the shells to meet the *x* requirement of the '254 patent. (*Id.*)

Murata says that documents produced by Samsung show that it also performed { } testing on the accused { } Composition and the results of that testing are consistent with Dr.

Burn's analysis. (*Id.* at 28-29.) Murata says that Samsung records and patents show that it uses { } in its { } Compositions and indicate that the calcium that is in the { } is a dopant that will diffuse into the core-shell structure during sintering. (*Id.* at 29.) Murata argues that Samsung's U.S. Patent No. 6,556,422 (the '422 patent") names Ba, (barium) Ca, (calcium) and Si (silicone) as sintering agents and teaches that those elements are diffused into the shells of barium calcium titanate. (*Id.*) Murata says that Drs. Burn and Dougherty agree that Samsung's '422 patent contains statements indicating that the barium, calcium, and silicon of the BCG additive diffuse into the shell of a barium calcium titanate grain. (*Id.* at 30.) Murata also says that Samsung employees who developed the { } Composition authored a professional paper in which they reported that BCG diffuses into barium during sintering, saying that experiments they conducted showed that BCG reacts with { } to form a shell region at a relatively low temperature during the sintering process and that a minimum amount of diffused calcium was necessary to obtain X7R (an industry standard for certain dielectric properties) characteristics in the thin-layer dielectric materials. Murata says this is just as in the '254 patent. (*Id.* at 30.) This disclosure, says Murata, demonstrates that Samsung itself recognizes that { } { }. (*Id.* at 31.) Murata also says this revelation also discredits the testimony of Samsung's expert Dr. Dougherty who testified that if calcium is present in dielectric material in some form other than barium calcium titanate it will not have the distinctive properties that barium calcium titanate is designed to have; that the calcium mentioned in claim 1 has to be placed with the barium or it will not act the same way. (*Id.*) Since Samsung itself says that { } during sintering and since its dielectric materials behave like barium calcium titanate, the only

reasonable conclusion, says Murata, is that the accused Compositions contain barium calcium titanate. (*Id.*)

Murata argues that Dr. Dougherty gave incredible testimony in testifying that no { } { } noting that in that respect he is contradicted by EAG's testing, as well as Samsung's. (*Id.* at 32.) Murata also contends that Dr. Dougherty's criticisms of the EAG testing procedures and the results relied on by Dr. Burn are speculations and are rebutted by the record. (*Id.*) Murata says that EAG's testing of a Murata capacitor with a known amount of calcium and of a Samsung capacitor that did not contain calcium confirmed that EDX's equipment was properly calibrated for calcium and was not just reporting "background noise," as Dr. Dougherty suggested. (*Id.*) Murata says Dr. Dougherty had no answer when he was confronted in cross-examination with published papers of Samsung scientists who said calcium diffuses from BCG into the core-shell during sintering. (*Id.*)

Murata argues that Samsung's infringement of the *m* limitation in claim 1 follows as a necessary consequence of a reading of the compositional information for the accused products provided by Samsung, showing that { } Samsung's { } { } during the sintering stage. (*Id.*) Samsung is known to use a { } { } and that ratio, also known as a stoichiometric[13] ratio, will not decrease during sintering, because no barium or titanium leaves the grains, agues Murata. (*Id.* at 33.) The stoichiometry of Samsung's { } { } { } according to Murata, and Dr. Burn calculated that, based on the composition of Samsung's { }a maximum

[13] Stoichiometry "is the basic chemical concept that tells you how many atoms belong in compound." (Tr. at 27 (technology tutorial).)

possible value of *m* (assuming that all barium and calcium in the dielectric material are part of the $(Ba_{1-x}Ca_xO)_mTiO_2$ in the sintered dielectric) for all of the accused Compositions is well below 1.035. Therefore, argues Murata, Samsung's accused Compositions must be greater than 1.000 and less than 1.035. (*Id.*)

Samsung's Contentions

Samsung argues that, under its proposed construction, "$(Ba_{1-x}Ca_xO)_mTiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$" represents starting materials; therefore, Samsung's accused products do not infringe, because none of the Samsung Compositions use $(Ba_{1-x}Ca_xO)_mTiO_2$, or MgO, or MnO as starting materials. (RBr. at 34.) Samsung notes that while Dr. Burn asserted that Samsung uses MnO and MgO as starting materials, Samsung actually uses { } and these starting materials are dissimilar to those identified by Dr. Burn, as pointed out by Dr. Dougherty and acknowledged by Murata's expert Dr. Glaeser. (*Id.*)

Samsung argues that every embodiment mentioned in the '254 patent "is made using barium calcium titanate starting materials, to which Re_2O_3, MgO, and MnO starting materials are added as powders." (*Id.*) Samsung says that Murata transgresses the scope of the '254 patent by claiming Samsung's accused Compositions of { } correspond to barium calcium titanate because { } { } grains during sintering, thus fulfilling the patent's limitation with respect to $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.* at 35.)

Samsung further says that its accused products do not even infringe under Murata's own claim interpretation (and implicitly, Staff's), because the evidence demonstrates that the { } { } of Samsung's Compositions, as claimed by Murata and, regardless, this { } would

not have formed $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.* at 34-35.) Furthermore, argues Samsung, Murata has not shown that the amount of { } the Samsung Compositions' { } is sufficient to satisfy the *m* and *x* limitations stated in the '254 claims; nor has Murata provided evidence that αRe_2O_3, or MgO, or MnO is present in Samsung's Compositions. (*Id* at 35.)

Samsung notes that Murata has insisted throughout that "'$(Ba_{1-x}Ca_xO)_mTiO_2$' be interpreted as '[a] barium and calcium titanate solid solution having the stated composition." (RRBr. at 16.) Samsung points out that, according to Dr. Burn, a solid solution must have a uniform composition, while the shell of a core-shell structure is not uniform. (RRBr. at 16 (citing Tr. at 328, 396, 400, 404, and 577 (Burn)).) Therefore, says Samsung, claim 1 is limited to $(Ba_{1-x}Ca_xO)_mTiO_2$ being present in the core of the core-shell material. (*Id.*) Moreover, argues Samsung, all of the relevant experts agree that none of the accused Compositions or products has barium calcium titanate in its core, and therefore none of them can infringe the '254 patent, even under Murata's own claim construction. (RRBr. at 16.)

Samsung says that Murata's reliance on Samsung's starting materials for finding infringement is inconsistent with Murata's assertion that $(Ba_{1-x}Ca_xO)_mTiO_2$ in claim 1 refers to post-sintered materials, because it is undisputed that $(Ba_{1-x}Ca_xO)_mTiO_2+\alpha Re_2O_3+\beta MgO+\gamma MnO$ and SiO_2 react at sintering temperatures to ultimately form different compounds, such as various magnesium and manganese silicates ($MgSiO_2$ and $MnSiO_4$). (*Id.* at 17 (citing RFF 4.545-553).) Furthermore, the ICP analyses, relied on by Murata, only show atomic percentages of elements within a composition; they do not indicate whether any of Samsung's Compositions have "the stated compositions" of the asserted claim. Essentially, these analyses only provide the same information that is available from a composition table. (*Id.*) Samsung argues that neither the

starting materials used for the accused Compositions nor Murata's ICP analyses demonstrate that the accused Compositions, after sintering, contain $(Ba_{1-x}Ca_xO)_m TiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ having the "stated compositions," according to Murata's interpretation of claim 1. (*Id.* at 17-18.)

Samsung argues that not only did EAG's tests fail to establish the presence of αRe_2O_3 or βMgO or γMnO in Samsung's sintered products, but Dr. Dougherty's unrebutted testimony established that those compounds would not be present. (*Id.* at 18.) Samsung says that Murata's assertion that it does not have to show that the oxides αRe_2O_3, βMgO, and γMnO are present in Samsung's accused Compositions, because the elements that form these compounds will exist after sintering in the same molar amounts as they are present before sintering, ignores the language of claim 1, which requires the "stated compositions." (*Id.*) This means that the chemical bonding expressed as "$\alpha Re_2O_3 + \beta MgO + \gamma MnO$" has to be shown, a proposition that was espoused by Murata itself in a motion for summary determination. (*Id.*) In addition, says Samsung, Murata has offered no evidence of where the rare earth, magnesium, and manganese are located within the ceramic grains of Samsung's accused Compositions, and, according to Dr. Burn's own academic research, about half of the added manganese would remain in grain boundaries to form compounds with silica and any impurities that were present, while the other half would be incorporated in manganese-doped { .} (*Id.* at 18-19.) Therefore, argues Samsung, Murata's infringement analysis is indifferent, not only to the chemical compound in which manganese is found, but also its location within the ceramic material. (*Id.* at 19.)

With respect to Murata's criticism of Dr. Dougherty's statement that no { } had { } into { } in Samsung's Compositions, Samsung says that this is the same position that Murata and its corporate witness, Mr. Sano, took in their

attempts to distinguish a prior-art patent from the '254 patent, with Mr. Sano declaring on that occasion that not enough { }from the sintering aid used in the prior art patent would enter the grains of the dielectric material during sintering at 1,300 degrees to meet the requirements of the '254 patent. (*Id.*) Thus, argues Samsung, the weight of the evidence demonstrates that { } under the sintering conditions employed by Samsung. (*Id.*)

With respect to Murata's contention that EAG's analytical testing shows that sufficient { } to meet the *x* requirement, Samsung refers to Dr. Dougherty's testimony explaining why EAG detected { } on only one side of the surfaces of the grain boundaries in some of its test sites. (*Id.* at 19-20.) According to Dr. Dougherty, in those instances where calcium was detected by EAG away from surface grain boundaries, the electronic beam was not properly aligned to be parallel to the grain boundary, causing detection of { } within grain boundaries that were lying below the surface of the sample that was being examined.[14] (*Id.* (citing RFF 4.372).) Samsung argues that EAG's technician reported that "[i]n most of the site[s] of interest, the grain boundary might not be parallel to the beam due to the topography of grain....The data in those areas is not representative." (*Id.*) Therefore, Samsung says that Staff and it agree that EAG's data is "inconclusive," and Murata has not overcome Dr. Dougherty's testimony that grain boundary misalignment, rather than { } diffusion, accounts for the results at all of sites of interest where { } was detected in a location that was away from a grain boundary. (*Id.*)

[14] By way of explanation, the surface of a sample can be considered a two-dimensional plane; whereas the sample itself is three-dimensional. Therefore, in a particular instance, a grain boundary may either lie on the surface or below it, visible in one case, and not in the other, depending on the perceptual depth of the instrument being used.

As for Dr. Burn's explanation that, in some of the analyzed sites, the shell around the cores of the { } may have been extremely thin, making it difficult or impossible to obtain measurements of { } or other elements in those portions of the shell, Samsung responds that it is undisputed that the '254 patent defines the "shell" as the portion of grain into which dysprosium has diffused (citing Tr. at 422, 615 (Burn)). (*Id.*) However, "Site of Interest 1" in Exhibit CX-135C demonstrates { } on both sides of the visualized surface grain boundary, because { } was detected in both of two bounded grains, but { } appeared on only one side of their boundary. (*Id.* at 21.) According to Samsung, if the { } in its Compositions actually had diffused, as Murata contends, the diffusion would have been directionally similar and, therefore, EAG's testing would have detected { } on both sides of the surface grain boundary of the sample; but this was not the case. (*Id.*) Thus, argues Samsung, Murata's theory that variation and shell thickness justify its contentions regarding the data derived from the EAG tests is not supported by the evidence. (*Id.*)

Samsung disputes Murata's statements that Samsung's engineers determined that{ } { } material during sintering. (*Id.*) Samsung says that CX-69C does not state any conclusion regarding { } { } and says Murata apparently relied on line-scan data recoded by an EDS instrument which, having been specifically set up to record x-ray emission line energy for dysprosium at 6.5 keV and for { } labeled certain indicia { } whether the instrument detected noise, { } or nothing. (*Id.* (citing CX-69C; RRCFF 3.335-1 to 3.335-3).) Samsung says that the line scan in CX-69C that Murata relies on actually detected background noise in the grain, not { } (citing CX-69C and Tr. at 1892-93 (Dougherty)). (*Id.*) Samsung notes that the purported { } signal{

} { } and says that if the peaks shown in the line scan represented an actual calcium signal, instead of background noise, the signal would fall to zero at the core, where all experts agree no { } would be present. (*Id.*) Furthermore, Samsung says it ran the same line scan as appears in CX-96C on one of its other accused Compositions, { } which was confirmed to be { } free by Murata's EAG testing, and observed a nearly identical background noise pattern, confirming that the signal shown in CX-96C, which Murata attributes to { } is actually background noise. Samsung also argues that Murata misquoted Dr. Dougherty's testimony when it attributed to him a statement about the Samsung EDS data showing { } because he had actually faulted Samsung's engineers for misinterpreting a signal from a { } window" that was actually only background noise. (*Id.* at 22.) As for Murata's suggestion that { } can be inferred from the existence of a core-shell structure in the accused products, Samsung responds that the hearing testimony shows that the core-shell structure is defined by diffusion of rare earth elements, not { } and points to testimony of Dr. Burn who said that a core-shell structure could exist if { } were absent. (*Id.*)

With respect to Murata's argument that Samsung's '422 patent itself evidences that { } of the accused Compositions, Samsung says that the experts all agree that silicates, such as { } cannot diffuse into { } (*id.*, citing RFF 4.22; RRCFF 3.697-1); and furthermore, the accused Compositions are not made with the '254 patent's barium calcium titanate starting materials (BCT), but, instead, with { }. Therefore, even if the '422 patent did show that { } diffuses into barium calcium titanate, which Samsung denies, this does not establish that { } (*Id.* at 22-23.)

Samsung argues that Murata has not proved that the accused Compositions meet the *x* value limitation of claim 1. (*Id.*at 23.) Samsung says that under Murata's claim construction it was required to show that the *x* limitation was satisfied by the accused products, in their sintered forms. (*Id.*) Samsung says that Murata has not demonstrated that any of its accused Compositions contains $(Ba_{1-x}Ca_xO)_mTiO_2$ in the required form or in the specific amounts necessary for the *x* limitation of the claim. Samsung argues that the atomic percentage values shown in the EAG data cannot be relied on to quantify the amount of a given element present in a given sample, because Dr. Burn acknowledged that he is not an expert with regard to the techniques applied by EAG and merely assumed that the results of the EAG analyses could be used to quantify the amount of { } present in the grains because that is what the technician at EAG did. (*Id.* at 24.) However, according to Dr. Dougherty, EDS is ill-suited for measuring "trace" elements (those with very low atomic percentages), such as, in this case, { } in the Samsung Compositions. (*Id.* (citing Tr. at 1933-34 (Dougherty)).) As for Murata's claim that it conducted an EDS analysis of its own Composition to demonstrate the EDS can be used to quantify trace elements, this too, says Samsung, is not supported by the evidence. (*Id.*) The { } levels in Murata's composition range from { }atomic percent, which is { } times greater than the amount of { } reported in Samsung's Composition; and even if the Murata measurements are accurate, they are not relevant for the purpose of deciding whether EDS is suitable for measuring "trace" { } in Samsung's Compositions. (*Id.*)

In addition, the fact that the { } levels shown for Murata's composition "vary from { } atomic percent" demonstrates the degree of imprecision of the atomic percentages recorded by EDS, Samsung points out. (*Id.*) According to Samsung,

> [b]ecause [Murata's analyzed composition] is made using barium calcium titanate starting material, the reported level of calcium should have been uniform

> throughout the grain. (Tr. at 422:4-12 (Burn).) Accordingly, even when measuring elements present in large amounts such as calcium in Murata's [analyzed composition], the reported values have a margin of error of at least several atomic percentage points. This level of inaccuracy is consistent with Dr. Burn's testimony that given the imprecision of the EDS measurements, a calcium value of 0.29 is "essentially the same" as 0.14. (RFF 4.439.)

(*Id.* at 24-25.)

Samsung notes that Murata, in its post-hearing brief, addressed the *x* value in connection with only a single site of interest with respect to only one of Samsung's accused Compositions (Site of Interest 4 re { } and the reported { } values at that site do not indicate that the Composition that was analyzed meets the *x* limitation of claim 1. (*Id.* at 25.) Samsung argues that EAG's detection of { } does not indicate that { } is actually present in the grain or that { } is present in the form of $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.*) Further, it says, given the level of imprecision in the EDS analysis, the reported calcium values are at least as likely to be outside the prescribed range of $0.005 < x \leq 0.22$ of the patent as within it. (*Id.*) The largest value EDS reported for calcium at Site of Interest 4 was { }at Line Spectrum 2, and, therefore Samsung argues, if 0.29 is "essentially the same" as 0.14, as Dr. Burn acknowledged, then { } is essentially the same as { } (*Id.*) Using Murata's method of approximating *x* (the ratio of calcium to titanium), the *x* value for that line spectrum is equal to { } which Samsung argues is outside the prescribed range, and because the remaining { } values at that site are lower than { } their *x* values, using the same method of calculation, are even farther outside the prescribed range of claim 1. (*Id.*)

Samsung says that, although Murata has acknowledged that the EAG data is not accurate enough to calculate the *m* value specified in the '254 patent, Murata has given no explanation why the EAG analytical data should, nevertheless, be acceptable for determining if trace

elements of calcium are present in amounts that are sufficient to satisfy the *x* limitation. (*Id.*) Absent some principled basis showing that any of the EAG data can be relied on, Samsung says that data should not be accepted. (*Id.* at 25-26.) Samsung says that Dr. Burn's estimates of *x* values, based on the EAG analytical data, assume that all of the { } that purportedly was detected in the Samsung Compositions had { } in order to form $(Ba_{1-x}Ca_xO)_mTiO_2$, (that is, barium calcium titanate in which calcium occupies the same site as barium); however, notes Samsung, Dr. Burn also acknowledged that if the detected { } had substituted for { } the resulting structure would be different than the $(Ba_{1-x}Ca_xO)_mTiO_2$ taught in the '254 patent. (*Id.* at 26, citing RFF 4.225.) Therefore, argues Samsung, Murata's evidence does not show where the { } reported in the EAG analyses is located in the { } of Samsung's accused Compositions and does not prove infringement. (*Id.*)

As for Dr. Burn's calculations of *x* values in the accused products, based on the total amount of { }in Samsung's starting materials, Samsung argues that those calculations erroneously assume that all of the added calcium is incorporated into $(Ba_{1-x}Ca_xO)_mTiO_2$, since Dr. Burn also agrees that a significant amount of the { }is confined to the { } where it does not contribute to the formulation of $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.*)

Samsung also disputes that the evidence shows that its accused Compositions meet the *m* value limitation of claim 1. (*Id.* at 27.) First, Samsung says that Dr. Burn wrongly posits that the *m* value of a sintered composition is different from the *m* value in the precursor material. Samsung says that the specification for the '254 patent makes clear that adjustment of the ratio of barium and calcium to titanate (Ba+Ca/Ti; *see* JX-4 at 6:47-48), occurs when barium calcium

titanate starting materials are mixed with oxide powders and subcomponents, and that is before these materials are formed into a slurry, spread to become green sheets, printed with inner electrodes, and then sintered. (*Id.* (citing Tr. at 1782, 2000-01 (Dougherty)).) Samsung argues that Dr. Burn was inconsistent with his own position when he calculated *m* values for the accused Compositions based solely on the { } and that he then erroneously concluded that all of the { } { } thereby forming $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.*) Samsung notes that Murata's other expert, Dr. Glaeser, disagreed with Dr. Burn's method for calculating *m* by using { } because it is known that some of the { } and not form $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.*)

Samsung additionally argues, with regard to Murata's *m* calculations for the accused Compositions (based solely on the starting materials used to make them) that the EAG data shows that the *m* values in these Compositions fall outside the range claimed in the '254 patent, a fact that Samsung says Murata recognized by remarking that EAG's test results "are not sufficiently precise and, thus, are not generally used to determine a quantitative measure of the stoichiometry of dielectric materials, which is the *m* value in Claim 1 of the '254 patent[,]" (*id.*, citing Tr. at 565-66 (Burn)). Samsung adds that Murata failed to address testimony of Dr. Dougherty, who said that EAG's analyses were more accurate in measuring the *m* values in the accused products (which are, primarily, ratios of { } because of the presence of { } which is only present in "trace" amounts. (*Id.*) Thus, argues Samsung, Murata has inconsistently selected EAG data that Murata considers supportive of its position and has ignored other data which it does not find supportive. (*Id.* at 27-28.)

As to Murata's argument that the *m* values in the Samsung Compositions were not less than 1.000 or greater than 1.035, Samsung says this argument rests on Murata's false conclusion that { } leaves the grains during sintering. (*Id.*) Samsung says Murata's conclusion is discredited by EAG data that indicates that large amounts of { } were present in the { } of Samsung's Compositions, despite the fact that Samsung does not use { } (*Id.*) According to Samsung, this finding indicates that either { } or both diffused out of the grains into the grain boundaries during the process of sintering or, alternatively, that the electron beam of the EAG instrument was not properly aligned with the grain boundaries, leading to false conclusions as to where these elements were actually located in relation to the grain boundaries. (*Id.*) If { } or both, diffuse out of the grains and into the grain boundaries during sintering, Samsung argues that the *m* values will consequently change and, as a result, could end up being less than 1.000 or greater than 1.035. (*Id.*)

Moreover, according to Samsung, Murata's assertion that *m* present at a particular location in Samsung's tested samples cannot exceed the *m* value for the overall composition, based on the starting materials, is not justified, because Murata, with respect to the domestic industry element of its Complaint, has asserted that the concentrations of calcium measured at a particular location can exceed the overall concentration of calcium in a composition. (*Id.* at 28-29 (citing Murata's Pre-Hearing Brief at 44 (CFF 3:686)).) Samsung says that since it is undisputed that the "shells" inherent in the accused Compositions are not uniform, at some locations within these Compositions the *m* values are higher than the value of the overall calculation based on the ratios of the starting materials. (*Id.* at 29.) Therefore, according to

Samsung, Murata's assertion that *m* in Samsung's sintered products must be less than 1.035 is not consistent with the evidence. (*Id.*)

Samsung takes issue with Murata's argument that infringement can be inferred from the fact that the accused Compositions achieve X7R characteristics for thin-layer dielectric materials, which could not happen unless calcium was present in the shell of a core-shell structure. (*Id.* at 29-30.) According to Samsung,

> The prior art '473 Patent describes a thin layer dielectric material with X7R characteristics, but Murata's [witness] Mr. Sano insisted that calcium does not diffuse into barium titanate in the composition of the '473 Patent. (RX-390 at col. 3, lines 12-23, col. 4, lines 49-51 ("even when the dielectric layers in the monolithic ceramic capacitor are thinned, the reliability of the capacitor is not lowered"); RFF 4.311-327.) If Murata were correct that calcium must diffuse into barium titanate in order to achieve X7R characteristics in thin layers, then the '473 Patent would necessarily anticipate the '254 Patent. (RFF 4.310-322.)

(*Id.*)

Staff's contentions

Staff says that, although it and Samsung construe the term $(Ba_{1-x}Ca_xO)_mTiO_2$ differently, they agree that barium, calcium, oxygen, and titanium must be chemically bound together and not merely mixed together, and that all parties agree that the dielectric ceramic forms a core-shell structure when sintered. (SBr. at 20.) Staff says that in core-shell structures, the shell composition is varied and non-uniform; therefore, the precise composition of the shell cannot be known, because it contains a multiplicity of compounds formed from the interaction of the core material with additives. (*Id.*) In addition, according to Staff, it is difficult for a uniformity of distribution of additives to occur around { } (Samsung's starting material), because the additives do not reach the core, which is composed of precursor starting material. (*Id.*) Therefore, says Staff, if the starting material is { } the core is pure { }

{ } and if, instead, the starting material is barium calcium titanate, then the core is pure barium calcium titanate. (*Id.*)

Staff disagrees with Murata's contention that the presence of { } within the grain boundary, even if it is not shown to be present in the core, demonstrates infringement of the '254 patent, because claim 1 of the patent is directed to a composition with barium calcium titanate in the core of the grains. (*Id.*) Compositions produced from { } starting materials, instead of barium calcium titanate, are chemically different from each other and appear very different in STEM-EADS analysis, which shows that the composition of Murata's XEC product made with barium calcium titanate starting material is not the same as Samsung's { } Composition made with { } starting materials. (*Id.* at 20-21.) The former shows a high level of calcium in the core of the grain and the latter an absence. (*Id.*) Staff says that a composition with barium calcium titanate in the cores of its grains behaves differently and has different properties than material with only { } in its cores and some { } in the shells. (*Id.* (citing CX-140C at SEMCO00975572).) Staff reasons as follows:

> Claim 1 states that the $(Ba_{1-x}Ca_xO)_mTiO_2$ cannot contain more than about 0.02% by weight of alkali metal oxides, but also allows the ceramic to have about 0.2 to 5.0 parts by weight of a subcomponent containing Li2O – an alkali metal oxide. JX-4; SFF 51. This suggests that in the compositions claimed in the '254 patent the elements in subcomponents are not fully incorporated into the grains of the ceramic material. If they were, it would make no sense to limit the alkali metal oxides in the barium calcium titanate while then requiring a larger amount to be added.

(*Id.* at 23.)

Consequently, Staff argues that, for there to be a finding of infringement, the evidence has to show that barium calcium titanate exists at the core of the grains of the accused Compositions, but it does not. (*Id.* at 23-24.)

Regarding the accused Samsung { } Composition, Staff contends that Dr. Burn acknowledged that the EAG analysis was inconclusive as to whether the Composition follows the '254 patent. (*Id.* at 24 (citing Tr. at 405 (Burn)).) Staff notes also, that Dr. Burn acknowledged that EAG's analyses failed to show any { } in the grains, much less the required amount of barium calcium titanate. (*Id.* at 25.) Staff points out that with respect to EAG's analyses of Samsung's accused { } Composition, of four sites examined in which { } was detected, two showed { } one showed { } and another showed { } { } { } (*Id.* at 25-26.) Staff points to the contrast between the results of the EAG analyses of the Samsung's Composition with that of Murata's XEC composition, which showed high levels of calcium throughout, not just in the boundaries and the presence of calcium at each site. (*Id.* at 26.) Thus, contends Staff, the evidence does not show that { } { } of the sintered { } Composition. Staff believes that the EAG testing is not sufficient to demonstrate that { } at all, much less that it penetrates the grains in the quantities specified by the '254 patent. (*Id.*)

With respect to whether the *m* and other ratios asserted in the '254 patent are satisfied by the accused { } Samsung Composition, Staff concludes that Dr. Burn's calculations made from ICP analyses merely mimics what is reflected in a composition table because it only describes how many atoms of each element are present, not how they are bonded. (*Id.*) Furthermore, argues Staff, even if Dr. Burn's calculations of molar ratios were accurate, infringement would not thereby be established, because Murata submitted no evidence to demonstrate the identity of the calcium, manganese, and magnesium-containing compounds in the shell. (*Id.* at 27.) Staff points to the fact that, under Murata's interpretation of claim 1, the

range of values specified for manganese oxide and magnesium oxide have to be present in the sintered ceramic material, as well as barium calcium titanate, and not simply calcium. (*Id.*) The starting materials for { } contain { } and { } so there is no MnO or MgO present in the sintered dielectric ceramic, argues Staff. (*Id.*) The post-sintering compounds containing calcium, manganese, and magnesium in the accused { } are entirely unknown, says Staff, and it has not been determined whether Mn and Mg are combined in MnO, Mn_3O_4, MgO, $MgCO_3$, or any one of the myriad of compounds that could be created from the elements within the shell. (*Id.*) No evidence shows that the calcium that was detected by EAG exists in the form of barium calcium titanate; therefore, even if Dr. Burn's calculations are accurate, the evidence is still insufficient to show that the required amounts of barium calcium titanate, MnO, or MgO are present in the grains either pre- or post-sintering, argues Staff. (*Id.*) Furthermore, Dr. Burn's calculations of molar ratios are based on the assumption that all starting materials are fully incorporated into the grains in order to satisfy the molar ratios prescribed in the '254 patent; however, Staff argues that this assumption is not valid, because even Dr. Burn acknowledges that significant portions of the ingredients remain in the grain boundaries in the analyzed Compositions. (*Id.* at 28.) Staff concludes that the evidence does not show that Samsung's { } Composition contains $(Ba_{1-x}Ca_xO)_mTiO_2$. (*Id.*)

With respect to the accused Samsung Composition { } Staff notes that the EAG analytical tests revealed the presence of { } in { } of the samples tested but { } (*Id.*) Staff points out that Dr. Burn's calculations of calcium in the accused Composition assume, once again, that all of the { } Samsung in the process of producing { } enters the grain; however, a portion is likely to remain in the grain boundary. (*Id.* at 28-29.) Also, says Staff, the evidence shows that Samsung

uses a sintering temperature of { }and Dr. Burn had admitted that if Samsung's Compositions were sintered at 1,250° C, they might not meet the claims of the '254 patent. (*Id.* at 29.) Staff further points out that Murata was only able to calculate a molar ratio of manganese oxide concentration in the accused Composition { } while claim 1 in fact requires that the concentration be greater than that. (*Id.*) Staff disputes Murata's argument that under the doctrine of equivalents, { } is substantially the same as "greater than 0.001," because that would render the words "greater than" superfluous. (*Id.*) Furthermore, as in the case of the { } Composition, Staff argues that the evidence shows that a portion of the { } such as manganese, remains { } making the amount of manganese { } significantly smaller than { } (*Id.*) Staff also repeats its prior argument that the compounds MnO and MgO are required, rather than the { } used by Samsung, and the lack of evidence with respect to whether Mn and MgO are present in Samsung's post-sintered materials. (*Id.*) Thus, Staff does not believe that Murata has provided sufficient evidence for a finding that the accused { } Composition infringes the '254 patent. (*Id.* at 30.)

With respect to the accused Samsung Composition { } Staff believes that, based on the results of the EAG analytical testing of the representative CL21B106KQQNFNB product with this Composition that the data does not show that { } of the grains of this material at all, much less that it did so in the amount required by the patent. (*Id.*) Again, as with the { } Composition, Staff does not believe that the molar ratio of manganese oxide present in the accused { } has been shown to be greater than 0.001 as specified in claim 1, or that any manganese is present at all. (*Id.*) Furthermore, Staff says the evidence shows that not all of the manganese that is present in the material will enter the grain;

the amount which does has to be less than 0.001. (*Id.*) Also, argues Staff, the starting materials for the { } Composition contains { } and not MnO and MgCO, and whether MnO and MgO are present in the materials after sintering is not known. Therefore, argues Staff, Murata has not carried its burden of proof that the accused { } Composition infringes the '254 patent.

As regards the accused { } Composition, Staff, for similar reasons given in the case of the previously discussed accused Compositions, believes that the evidence put forth by Murata does not establish that this Composition has calcium in the cores of its grains (*id.* at 31) and says that there were flaws in the testing method of the material. (*Id.*) Staff notes that the technician who performed the analyses, Ms. Ju, acknowledged that in most of the sites of interest the grain boundaries may not have been parallel to the beam, and therefore, the data pertaining thereto was not representative. (*Id.*) In those instances, Ms. Ju reported that the smallest distance of { } should be used as a measurement of { } and in that case, Staff notes that the subject { } a distance of only { } a bare amount. (*Id.* at 32.) In addition, says Staff, the starting materials for { } include { } and not MnO and MgO as mentioned in the '254 patent. (*Id.*). Even though { } are all shown to be present in the accused Compositions, there is no evidence showing that barium calcium titanate is present. Therefore, Staff does not believe the evidence adduced by Murata is sufficient to prove that the { } Composition infringes the '254 patent. (*Id.*)

Findings of the Administrative Law Judge

The Administrative Law Judge has concluded, as discussed above, that the term $(Ba_{1-x}Ca_xO)_m TiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ represents starting materials that have not been sintered.

See Section III.B.2 above. Inasmuch as all of the accused Compositions use { ,} and not barium calcium titanate, as starting materials, none of them satisfies the starting material limitation of claim 1 of the '254 patent and, therefore, none of them infringes that patent. There are additional reasons, as follows, why the evidence in this Investigation does not demonstrate that any of the accused products using the Compositions infringe the '254 patent, either under the claim construction adopted or under the claim construction proposed by Murata or Staff.

Murata's evidence of infringement relies on analytical testing performed by EAG and conclusions drawn by Dr. Burn from the results of that testing. In order to establish a basis for reliability of the data upon which Dr. Burn opined, it was necessary for Murata to show that the analytical testing performed by EAG was scientifically accurate. However, the evidence does not demonstrate that. Dr. Dougherty testified that, in order for the data derived from the STEM analysis performed by EAG to be accurate, the electronic beam would need to be parallel with the grain boundary. (Tr. at 1837-40 (Dougherty).) He explained why the results of the EAG analyses with respect to the presence of { } in the accused products are not reliable. (Tr. at 1840, 1895 (Dougherty).) The technician who did the analyses for EAG acknowledges that in most of the sites of interest the grain boundaries may not have been parallel to the beam, and therefore, the data pertaining thereto was not representative. (CX-146C.022.) No one from EAG testified at the Hearing to provide more specific information regarding the accuracy or reliability of the pertinent data to explain or contradict Ms Ju's acknowledgement. Dr. Burn did not perform the testing himself, nor has he professed to be technologically competent to opine upon the reliability of Ms Ju's methods for producing the data on which he relied. Given the testimony of Dr. Dougherty pointing to discrepancies, peculiarities, and irregularities in the data and Ms Ju's acknowledgement that in most of the sites of interest, the data obtained is not

representative, as well as the lack of any explanatory verification from EAG, there is insufficient foundation to rely on the EAG data and consequently any of Dr. Burn's opinions that are based upon it. Therefore, the Administrative Law Judge finds that the evidence is insufficient to demonstrate that any of the accused Compositions satisfies the $(Ba_{1-x}Ca_xO)_mTiO_2$ limitation, even if the limitation were to apply to sintered materials, instead of starting materials.

As for Dr. Burn's calculations of *x* values in the accused Compositions, based on the total amount of { } in Samsung's starting materials, these calculations assume that all of the { } is incorporated into $(Ba_{1-x}Ca_xO)_mTiO_2$ in contrast to Dr. Burn's acknowledgement that a significant amount of the { } is confined to the grain boundaries where it does not contribute to the formulation of $(Ba_{1-x}Ca_xO)_mTiO_2$. (Tr. at 514 (Burn).) Murata's evidence does not provide a sufficient scientific basis for Dr. Burn's conclusions regarding his calculations of the *x* values in the accused Compositions to demonstrate that they satisfy the *m* limitation of claim 1.

The Administrative Law Judge agrees with Samsung's argument that Murata's reliance on Samsung's starting materials for finding infringement is inconsistent with its assertion that $(Ba_{1-x}Ca_xO)_mTiO_2$ in claim 1 refers to post-sintered materials, and with Samsung's conclusion that $(Ba_{1-x}Ca_xO)_m TiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ and SiO_2 react at sintering temperatures to ultimately form different compounds, such as various magnesium and manganese silicates ($MgSiO_2$ and $MnSiO_4$). (RFF 4.545-553.) The ICP analyses, relied on by Murata, only indicate atomic percentages of elements within a composition; they do not constitute evidence that any of Samsung's Compositions have "the stated compositions" of the asserted claim. Neither the starting materials used by Samsung, nor Murata's ICP analyses, demonstrates that the accused

Compositions, after sintering, contain $(Ba_{1-x}Ca_xO)_m TiO_2 + \alpha Re_2O_3 + \beta MgO + \gamma MnO$ having the "stated compositions," according to Murata's proposed interpretation of claim 1.

In addition, the evidence offered by Murata is not sufficient to show the presence of MgO or MnO in the accused products. Samsung uses { } (CX-63C; Tr. at 508-09 (Burn)), which are not the same compounds. (*Id.*) { } have different molecular weights, different reactions, and different melting points than MnO, according to Dr. Dougherty. (Tr. at 1799-1800 (Dougherty).) Also, Samsung uses { } not MgO as specified in the '254 patent, and the evidence does not establish that MgO is present either. (*Id.*) Dr. Burn's theoretical conclusions are no substitute for empirical evidence, especially in the face of countervailing or alternative opinions or hypotheses of Dr. Dougherty.

With respect to the *m* value limitation of the '254 patent, Murata relies on Samsung's starting compositions for part of its infringement determination and assumes that the { } Samsung adds as a { } diffuses into the { } grains of the starting material in such a manner that the sintered composition satisfies the range of the *m*-value limitation of the '254 patent, even though the EAG analyses indicate that the *m* values determined from compositions of the Accused '254 Products had not met that limitation. (Tr. at 1880-81 (Dougherty).) Murata's hypothesis for calculating the *m* values of the accused products, using Samsung's starting materials in its calculations, assumes that none of the { } starting material leaves the grains during sintering (CBr. at 32-33), but this is not shown by the data from the EAG analyses. Instead these analyses show significant amounts of { } { } present in the { } of the accused Compositions. (CX-133C; CX-134C; CX-135C; CX-146C; CX-147C; CX-163C.) Therefore, Murata's evidence with respect to infringement of the *m*-value limitation of claim 1 by the Accused '254 Products is found to be

insufficient. Again, Murata relies principally on theoretical assumptions and predictions, not proven facts.

Samsung argues that insofar as its Compositions { } and { } are accused of infringing the '254 patent, these Compositions have never been commercialized and Murata has not offered any proof that they have been. (RBr. at 61.) Furthermore, argues Samsung, Murata offered no evidence that these Compositions are used in any of Samsung's sintered dielectric materials. (*Id.*) Samsung notes that Murata's expert witness regarding the '254 patent, Dr. Ian Burn, did not provide any conclusions whether { } { } in making these Compositions or about their sintered compositions. (*Id.*) According to Samsung, these Compositions do not conform to the '254 patent's stated composition, considered as starting materials, and no evidence was offered by Murata that they do so as sintered material either. (*Id.*) Murata has not offered convincing evidence to the contrary.

Samsung also points out that its { } CX-63C, includes { } compositions that are the subject of this Investigation but only four of them have been accused { } Samsung notes that with respect to the { } other compositions listed in CX-63C, Dr. Dougherty testified they do not and cannot practice the claims of the '254 patent. (*Id.* at 62, citing Tr. at 1797 (Doughterty).) Therefore, argues Samsung, the Investigation should be terminated as to these { } compositions. Murata has not offered convincing evidence to the contrary.

The Administrative Law Judge finds that the evidence produced by Murata does not demonstrate that any of the Accused '254 Products infringe the '254 patent.

2. Claim 2

This claim reads as follows:

> **2**. A dielectric ceramic according to claim **1**, wherein the $(Ba_{1-x}Ca_xO)_mTiO_2$ has a mean particle size of about 0.1 to 0.7 μm.

(JX-4 at 33:7-9.) Murata notes that in { } Samsung performed { } on a capacitor made with the { } composition and found that the average grain (particle) size was { } nanometers, which Murata says is well within the claimed range of claim 2. (CBr. at 33.) In addition, says Murata, EAG obtained a low-magnification scaled picture of each of the samples of the products it tested, allowing Dr. Burn to confirm that the average particle size limitation of claim 2 was met by the accused { } compositions. (*Id.*)

Neither Samsung nor Staff separately disputes the particle size element of claim 2 but, rather, both rest their respective contentions of non-infringement by the accused products on the fact that claim 2 depends from claim 1 and, for the reasons put forth by them with respect to claim 1, argue that the accused products do not infringe claim 2.

The Administrative Law Judge concludes, based on the testimony of Dr. Burn, that the accused products do satisfy the particle size limitation of claim 2, but do not infringe because they do not meet the limitations of claim 1, from which claim 2 depends.

3. Claim 9

This claim reads as follows:

> **9**. A dielectric ceramic according to claim **1** in which the third sub-component is present.

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[15] By way of reminder, this acronym means { }

(JX-4 at 33:51-52.) Murata asserts that the accused products meet the additional limitations of this claim based on the testimony of Dr. Burn that he used verified composition information furnished by Samsung of materials it uses in making the accused products to determine that those products contain { } in amounts of { } and { } percent, respectively, by weight, which constitutes enough { } to satisfy claim 9. (CBr. at 21, 34.)

Neither Samsung nor Staff separately disputes this limitation of claim 9, but, as in the case of claim 2, they both maintain that the accused products do not infringe claim 9 because it depends from claim 1.

The Administrative Law Judge concludes that the accused products do not infringe claim 9 for the same reasons given for why they do not infringe claim 1.

4. Claims 11-14 and 19-20.

Murata argues that claims 11-14 and 19-20 are also infringed by the accused products, saying that the additional limitations of those claims are satisfied. (CBr. at 34.)

Once again, neither Samsung nor Staff disputes the additional limitations of claims 11-14 and 19-20 solely, but they reject Murata's allegations of infringement by the accused products, because each of these additional claims depends from claim 1 which, they maintain, is not infringed.

The Administrative Law Judge finds that because the accused products do not infringe independent claim 1, they do not infringe dependent claims 11-14 and 19-20.

C. Analysis of the Accused Products with Respect to the '309 patent.

Claim 3 of the '309 patent reads as follows:

3. A laminated ceramic electronic part, comprising:

(a) a ceramic element including:

(1) a plurality of overlapping internal electrodes;

(2) a plurality of internal ceramic layers located between respective pairs of said overlapping internal electrodes;

(3) upper and lower ceramic layers located above and below the uppermost and lowermost ones of said overlapping internal electrodes, respectively;

(b) a pair of external electrodes formed on at least one outer surface of said ceramic element, each of said overlapping internal electrodes being electrically coupled to a respective external electrode;

(c) said ceramic element satisfying the requirements:

(1) the thickness of each said internal ceramic layer is 10 μm or less;

(2) the number of said internal electrodes is 200 or more;

(3) the ratio of the average thickness of each said internal electrode to the average thickness of each said internal ceramic layer is 0.10 to 0.40; and

(4) the ratio of the combined volume of said internal electrodes to the combined volume of said ceramic element is 0.10 to 0.30.

(JX-2 at 6:15-37.)

Murata argues that all of the Accused '309 Products (*see* Section I.E, above) satisfy elements (a) and (b) of claim 3 of the '309 patent. (CBr. at 63.) Samsung does not specifically contest Murata with respect to those elements of claim 3. (RBr. at 89-96.) Staff notes in its post-hearing brief that the dispute with respect to infringement of the '309 patent by the Accused '309 Products centers on whether the requirements of element (c) are met. (SBr. at 56.)

Murata bases its evidence of infringement, principally, on the testimony of Dr. Ulrich, who, in turn, relied on calculations he performed, using design and manufacturing information supplied by Samsung, and analyses performed by Micron Analytical Services ("Micron") on samples of the Accused '309 Products. (CBr. at 63-64; Tr. at 1178 (Ulrich).) Dr. Ulrich found this information sufficient for him to arrive at the conclusion that the Accused '309 Products satisfy element (c) of claim 3 of the '309 patent. (CBr. at 63.) By combining information in

Samsung's { } and { } Dr. Ulrich created a spreadsheet of data. (CBr. at 64; CX-183C.) As explained by Dr. Ulrich, these sources disclose starting dimensions of materials used in manufacturing ceramic layers and electrodes. (CBr. at 64.) From this information, Murata says that Dr. Ulrich was able to determine the amount of shrinkage these materials undergo as a result of being sintered according to Samsung's manufacturing process and to determine the resulting lengths, widths, and thicknesses of various individual and combined components of the Accused '309 Products. (*Id.* at 64-67.) Dr. Ulrich recorded the results of his various calculations in Exhibit CX-183C, which reports that all of the accused MLCCs mentioned therein have ceramic layers that are less than 10 μm thick and have more than 200 inner electrode layers. (CBr. at 67.) Also, according to Murata, Dr. Ulrich's calculations show that the thickness ratios of the internal electrodes to the internal ceramic layers and their volume ratio fall within the ranges of claim 3 of the '309 patent. (*Id.*)

Murata contends that the accuracy of Dr. Ulrich's calculations is confirmed by the analyses performed by Micron using scanning electron microscopy ("SEM") on samples of the Accused '309 Products, disclosing that the sampled items had over 200 electrode layers, ceramic dielectric layers of less than 10 μm, thickness ratios between{ } and{ } and volume ratios between{ } and{ } (*Id.* at 67-69.) Murata notes that Dr. Ulrich's conclusions were challenged by Samsung's expert Dr. Randall only with respect to Dr. Ulrich's method for calculating shrinkage and the sufficiency of the number of measurements used by Micron in its analyses. (*Id.* at 69.) Furthermore, argues Murata, Dr. Randall did not himself recalculate Dr. Ulrich's shrinkage calculations, presumably, because Dr. Randall's method for determining shrinkage would likewise have shown that the Accused '309 Products satisfied claim element (c) of claim 3 and says that his criticism of Micron's analyses unreasonably requires more than

40,000 separate examinations and measurements of ceramic layers and electrodes. (*Id.*) For these reasons, Murata believes its evidence is preponderantly sufficient to establish infringement. (*Id.*)

Samsung contests the adequacy of the Micron analyses, noting that out of hundreds of samples of MLCCs supplied by Samsung, Micron only examined ten and concluded that only five of them infringed. (RBr. at 89.) Samsung argues that Murata presented no evidence showing that the tested products are representative of other MLCCs, and that Micron did not properly measure the physical characteristics of the products to show that they met the limitations of claim 3. (*Id.*)

Samsung contends that, with respect to the requirement that the internal ceramic layers be less than 10 μm (*see* JX-2 at 6:27-29), Dr. Ulrich relied on a Micron analysis that studied a limited number of products and did not measure the thickness of every internal ceramic layer but, instead, only a few. (*Id.*) Samsung argues that measurements taken at nine regions from a cross-section of one of its products are inadequate to support Dr. Ulrich's conclusions. (*Id.*) Samsung notes the fact that within the nine sampled regions Micron performed thickness measurements of only two ceramic layers and two electrodes at five places. (*Id.* at 90.) This amounts to only 18 out of more than 150 possible layers of the sampled item that were measured by Micron, notes Samsung, and this fails to prove that each and every one of the ceramic layers of the tested products satisfied the first numerical requirement of claim 3(c). (*Id.* at 90-91.)

Samsung challenges Dr. Ulrich's conclusion that Micron's sample size was statistically valid, and points out that Dr. Ulrich failed to offer any evidence to support his conclusion that Micron's analyses of the three cross-sectioned samples were an acceptable proxy for measuring every ceramic layer as required by claim 3. (*Id.* at 91.) Samsung points to the fact that Dr.

Ulrich did not know what criteria Micron used for selecting the areas of the sample products it examined; nor could he say whether those areas of study had been selected randomly, and to the extent they were not, Samsung says they cannot be considered reliable representations. (*Id.*)

Samsung says that the nine areas selected by Micron for its measurements were infinitesimally small in relation to the cross-sectional area of the MLCC and, likewise, the five thickness measurements in relation to total lengths of the layers. (*Id.*) There was no evidence provided by Dr. Ulrich that the five measurements constituted a representative sample of the entire ceramic layer thickness, argues Samsung. (*Id.*)

Samsung further faults Micron's analyses, and Dr. Ulrich's use of them, because there is no way of correlating the measurements obtained in any of the nine regions with any other regions in order to arrive at a determination that the data is statistically significant. (*Id.*) Therefore, argues Samsung, Murata failed to prove that the thickness of each ceramic layer is less than 10 μm, as required by claim 3. (*Id.* at 91-92.)

Samsung also contends that Dr. Ulrich failed to offer any testimony as to the number of layers of internal electrodes in accused product CL31B106NNN; nor could he locate the required information in any records he said he had relied on for his opinions. (*Id.* at 92.)

Samsung asserts that Murata did not measure the average thickness of each internal electrode and did not compare the average thickness of any one internal electrode to the average thickness of any one ceramic layer; and when asked to make such a determination, using an average of the five ceramic layer thickness measurements and five electrode layer thickness measurements from the Micron test data for accused product CL31B106NNN, Dr. Ulrich arrived at a ratio of { } which is outside the range of claim 3 (*see* JX-4 at 6:33-34). (*Id.*)

Samsung argues that Dr. Ulrich's methodology for calculating post-sintered measurements of the Accused '309 Products was insufficient because it relied on { } and { } that do not accurately depict the dimensions of ceramic and electrode layers in the accused products themselves. (*Id.* at 93.) Samsung says that the thicknesses of all ceramic and electrode layers will vary with respect to one another, especially after sintering, and precision is a requirement to satisfy claim 3 of the '309 patent. (*Id.*) Therefore, argues Samsung, it was necessary for Murata to evaluate actual products rather than rely on Dr. Ulrich's predictions of measurements arrived at from dimensions included in Samsung's { } and { } (*Id.*)

Samsung says that Murata failed to present any evidence that Samsung's { } and { } are sufficient to demonstrate that the actual products made from them satisfy the limitations of the asserted claim, and that Murata offered no justification for why it did not attempt to evaluate a greater number of the physical samples it received from Samsung. (*Id.*) Additionally, Samsung notes that Dr. Ulrich based his shrinkage calculations on erroneous information—using post- instead of pre-stacking and pressing data as the starting point and incorrectly using "size-code" thickness (which includes the addition of the external electrode that has a significant tolerance factor of its own) to represent total thickness after sintering. (*Id.* at 94-95.) Hence, Dr. Ulrich uniformly underestimates the amount of shrinkage which causes his results for ceramic layer thicknesses to be too high, and as a result, the thickness ratios of some of Samsung's accused products would actually fall outside the range of claim 3, using information from the { } and specifications. (*Id.* at 95-96.)

For the foregoing reasons, Samsung says Dr. Ulrich's theoretical analyses of the Accused '309 Products are unreliable and should be given no weight. (*Id.* at 97.)

Staff says that Dr. Ulrich's calculated predictions of what the post-sintered dimensions for the Accused '309 Products would be (based on Samsung's { } employs inconsistent methodologies that rely on false assumptions and are not correlated with any actual measurements. (SBr. at 56.) As an example, Staff notes that Dr. Ulrich assumed that shrinkage would be similar for both the length and width measurements of the Accused '309 Products; whereas their shrinkages are dissimilar. (*Id.* at 56-57.) Staff says Dr. Ulrich used different methods for computing shrinkages for the Accused '309 Products and Murata's products. (*Id.* at 57.) Staff points out that Dr. Ulrich, in making calculations for estimating post-sintered dimensions, in some instances used "constants of proportionality" derived from Samsung documents and in other instances used information from Micron's analyses. (*Id.*) Staff says that Dr. Ulrich admitted that when he compiled data he relied on for his calculations, he was unsure of certain referenced sources but, nevertheless, did not believe his confusion produced any significant errors in his work product. (*Id.*)

Staff argues that the accuracy of Dr. Ulrich's predictions respecting what would be the post-sintered dimensions of the Accused '309 Products, based on the pre-sintered dimensions obtained from the { } was questionable in light of the Micron analyses showing "significant" differences (usually greater than three percent) in every measured value. (*Id.* at 57-60.) Staff says that, because of the extremely limited number of products tested by Micron from a small sample size, it is difficult to validate Dr. Ulrich's calculated projections, and Staff does not believe that Dr. Ulrich's independent calculations of post-sintered dimensions of Samsung's designs, specifications, and patterns constitute reliable evidence for demonstrating infringement. (*Id.* at 60.)

Staff maintains that, in order to determine the ratio of the average thickness of each internal electrode to each internal ceramic layer according to claim 3, its thickness must be measured or reliably inferred; however, Micron's measurements themselves show that the thicknesses of layers can vary significantly within a single product and among different samples. (*Id.* at 60-61.) Staff notes that Micron's measurements were not taken from across the breadth of the measured layers and says Murata made no attempt to determine the average thickness for any single electrode. (*Id.* at 61.) Given the large variation in Micron's measurements, the evidence does not show that a reliable inference about each layer could be made from the small sample size, according to Staff. (*Id.*) In support, Staff points to the testimony of Dr. Randall, who said that the Micron testing is flawed because of insufficient data points and sample etched areas used for taking its measurements. (*Id.*)

Murata responds to Samsung's criticisms of Dr. Ulrich's method of predicting post-sintered dimensions by use of a shrinkage factor with the argument that Murata's criticisms do not impugn the reliability of Dr. Ulrich's conclusions. (CRBr. at 38.) Since Dr. Ulrich's predictive determinations were that the Accused '309 Products' ceramic layers would turn out to be less than 10 μm after sintering, the fact that his shrinkage calculation may have overstated the actual thicknesses simply confirms that the ceramic layers are less than ten microns and, therefore, meet the limitation of (c)(1) of claim 3. (*Id.*) Murata points to the fact that Dr. Ulrich acknowledged that there could be a margin of error implicit in his estimates, but that margin would not be large enough to invalidate his conclusion that the claim limitation was satisfied by the accused products. (*Id.* at 39.) Murata argues that Dr. Ulrich's use of size code dimensions instead of "post-tumbling" thickness adds a total of { } at most, to the thickness of the product, which results in a variance of only { } percent to the MLCC, not enough to affect his

infringement conclusion. (*Id.*) Murata also says that even if Samsung were correct in its assertion that Dr. Ulrich's calculations might underestimate the thickness ratios by as much as { } percent, that would not be enough to exclude the Accused '309 Products from infringing claim 3. (*Id.*)

As for Staff's criticisms, Murata argues that Staff confuses the shrinkage ratios applicable to lead electrodes of concern to the '229 patent with shrinkage ratios of concern in the case of the '309 patent, ignores the fact that all experts agree that there are variations in shrinkage rates among different manufacturers and manufacturing processes, fails to recognize that it is irrelevant if the { } refers to ceramic layers or inner electrodes, because there is always one more of the latter, and the table shows that the accused MLCCs have { } anyway. (*Id.*)

Murata argues that Micron has a 40 year history of being a reliable scientific laboratory and performed accurate and reliable testing of the accused MLCCs in accordance with industry standards. (*Id.* at 40.) According to Murata, Micron did not have to measure each ceramic layer in order to demonstrate that it is less than 10 μm, since 270 measurements, comprising 90 from each sample for product CL31B106KAHNNN, showed very consistent ceramic layer thicknesses averaging { } with a standard deviation of { } which is only { } percent of the average. (*Id.*) Murata points to the fact that none of the 270 thickness measurements performed by Micron came anywhere close to 10 μm and, therefore, there is no basis to challenge Murata's proof that element (c)(1) is met. (*Id.*)

With respect to claim element (c)(2), Murata counters Samsung and Staff by arguing that Micron's reports establish that the tested products had { } electrodes and were consistent with Samsung's { } that reflect that the relevant

product { } layers, and therefore infringement of this element was also proved by Murata's evidence. (*Id.* at 41.)

Regarding the thickness ratio element (c)(3), Murata argues that Samsung's based its noninfringement argument on an erroneous claim construction that would have required Micron to perform 210,000 ratio calculations of the CL31B106KAHNNN product and a similarly high number of calculations for other Accused '309 Products. Murata argues that Micron took 90 inner electrode and ceramic layer thickness measurements for each of the three samples it examined and compared those averages to determine a single thickness ratio as required by claim 3. (*Id.*) The close results obtained by Micron from this procedure confirm the accuracy and reasonableness of the analysis, says Murata. (*Id.*)

With respect to the volume ratio element (c)(4), Murata notes that Samsung has not challenged Murata's evidence on this point and argues that Murata's evidence was sufficient to establish infringement. (*Id.*)

The Administrative Law Judge concludes Murata's evidence in the form of Dr. Ulrich's calculations was sufficient to establish that the Accused '309 Products meet elements (c)(1) and (c)(2) of claim 3. The ceramic layers were { } to be less than { } (CX-183C) and Dr. Ulrich's calculations based on Samsung's { } were in the range of { } well below the ten micron limitation of element (c)(1). Even a { } percent error in his shrinkage calculation would not overcome the fact that the Accused '309 Products incorporate ceramic layers, all of which are less than 10 μm. The same conclusion applies to element (c)(2): { } { } (CX-183C at 1-2; Tr. at 1213-14 (Ulrich).)

It is with respect to the thickness ratio element (c)(3) that Murata's evidence is found wanting. That element recites, "the ratio of the average thickness of each said internal electrode to the average thickness of each said internal ceramic layer is 0.10 to 0.40[.]" (JX-2 at 6:32-34.) The ceramic layers are three dimensional; therefore, a determination of the average thickness of each layer must take into account both the length and the width of that layer. Dr. Ulrich's testimony does not disclose that he did that, or if he did, how he went about doing it so as to satisfy that the Accused '309 Products fulfill this limitation. His calculations alone do not demonstrate that there is a uniform thickness throughout the length and width of any layer, which there is not according to Micron's analyses showing variations in thicknesses for both electrodes and ceramic layers across a single plane of each of the cross sectioned samples. (CX-187C.010-015.) However, given the fact that the width of each ceramic and electrode layer encompasses considerably more than a two-dimensional surface represented by a cross-sectional slice, Dr. Ulrich's calculations of the ratios of average thickness of each internal electrode to the average thickness of each internal ceramic layer based on the measurements made by Micron from the three samples mentioned in its report are not sufficient to support a conclusion that the Accused '309 Products meet the thickness ratio limitation.

On this point, Samsung's and Staff's criticisms are valid. There is no evidence of the criteria by which Micron selected the areas it chose for taking its measurements, and, therefore, it cannot be concluded that they were randomly selected so as to yield statistically valid data. The scanned areas displayed in Micron's report indicate a magnification factor of 2,500, which leads to the conclusion that what is depicted is minutely small in comparison to the overall size of the sampled product, and that the measured sites are smaller still. Without further explanation, a fact finder is left to conjecture as to whether Micron's measurements are fair representations of the

average thicknesses (across the length and width) of each of the inner ceramic layers and electrodes. Dr. Ulrich's expert qualifications do not justify his statistical conclusions. This is especially true given the fact that he acknowledged that he did not direct Micron in the method by which it chose the areas to take its measurements or where to take those measurements. (Tr. at 1182-83 (Ulrich).) Absent sufficient evidence demonstrating that Micron took measurements of a sufficient number of randomly selected areas of the Accused '309 Products, not just with respect to the two dimensions disclosed in lateral cross-sections examined by Micron, but with respect to the third dimension as well, it cannot be reasonably concluded that the Accused '309 Products satisfy element (c)(3) of claim 3.

This conclusion does not mean that unreasonable demands are being placed on Murata, such as having to perform 210,000 measurements, in order to prove infringement of the thickness ratio element of claim 3. There may be statistical or other methods for demonstrating, according to a preponderance of the evidence, that an accused product does satisfy this element of claim 3 without having to calculate the ratio of the thickness of each electrode to the thickness of each ceramic layer, but such evidence has not been set forth here. The claim is what it is, no matter how challenging the effort needed to establish that an accused product meets all of the claim's limitations. For these reasons, the Administrative Law Judge concludes that the Accused '309 Products have not been shown to infringe element (c)(3) of claim 3 of the '309 patent.

D. Analysis of the Accused Products with Respect to the '229 patent.

Murata asserts that all of the Accused '229 Products infringe asserted claims 1-4, 7, 18, 23, 28-31, 34 and 51-53 of the '229 patent. (CBr. at 102.) The parties have stipulated that Samsung's CL10Y104MR5NJN product (the "CL10") is representative of all Accused '229 Products. (JX-29C at 2.) The CL10 was evaluated to determine whether it met the limitations of

the asserted claims of the '229 patent. Specifically, the { } { } used to manufacture the CL10 were evaluated to show the make-up of the internal layers of the CL10. (CBr. at 102; CX-32C; CX-150C; CX-153C; CX-165C; CX-195C; CX-233C; CX-235C; CX-236C; CX-262; CX-312C; Tr. at 1034-1069 (Ulrich).) In addition, Micron performed a destructive analysis of sample parts for Murata, including preparation of cross sections of the CL10 and measurement of the length and width of its lead electrodes. (CX-153C.)

1. Claim 1

This claim reads as follows:

1. A multi-layer capacitor device comprising:

[a] a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation;

[b] a dielectric material located between each opposed set of the first and second electrode plates;

[c] the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and

[d] a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein

[e] each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the

[16] The CL10 has electrodes corresponding to { } (ROSFF 258.1. *See also* CX-165C.)

second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and

[f] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

(JX-1 at 18:2-37.)

a) **Element "a",** *a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation*; and

Element "b", *a dielectric material located between each opposed set of the first and second electrode plates*

The Administrative Law Judge found above in Section III.D.2.a), that the language "first and second electrode plates being interleaved with each other in opposed and spaced apart relation" means "the first and second electrode plates are arranged so that the first electrode plates are positioned between the second electrode plates and second electrode plates are positioned between first electrode plates, except at the top and bottom of the stack, and each first electrode plate is separated from each second electrode plate by a dielectric layer." The Administrative Law Judge further found that claim 1 is open ended and permits the inclusion of other unrecited elements or materials such as additional internal electrode plates. The Administrative Law Judge further found that a person of ordinary skill in the art would understand that all the "first electrode plates," as claimed in claim 1 of the '229 patent, have the same design, and that all the "second electrode plates," as claimed in claim 1 of the '229 patent, have the same design.

Murata and Staff argue that the CL10 meets all the limitations of elements 'a' and 'b' of claim 1. (CBR. at 103-104; SBr. at 88-90.) Samsung relied on its proposed claim constructions to argue that the first and second internal electrode plates are not interleaved in opposed and spaced apart relation on the basis that the CL10 has intervening internal electrode plates and { } first and second internal electrode plates. (RBr. at 128-29.)

The CL10 is an { } (CFF 5.49 (undisputed).) It has { } types of internal electrode plates, designated { } with a { } configuration so that the arrangement of the internal electrode plates repeats within the capacitor device as { } { } etc. (ROCFF 5.76-2; CX-195C; Tr. at 1416-17 (Youn); Tr. at 1667:7-18 (Randall); Complaint, Ex. 15; RBr. at 126.)

(CX-150C at 1-3. *See also* RFF 6.178 (undisputed in material part).) Samsung included diagrams in its brief, reproduced below, to demonstrate the stacking of the electrode plate layers in the CL10, although these are labeled as internal electrode plates { } instead of { } { }

(RBr. at 126-27 (showing "partial electrode stack" in the CL10 because the capacitor device has many more than { } layers of internal electrode plates: the pattern of { } internal electrode plates, each spaced apart by dielectric layers, is repeated until the target capacitance is reached).) Each of the plate patterns has a main internal electrode portion and { } lead structures extending therefrom. (CX-150C at 1-3; ROSFF 248.) Within the repeating multilayer arrangement of internal electrode plates noted above, first and second electrode plates { } are placed so that each first electrode plate is separated from each second electrode plate by at least a dielectric layer.

(RBr. at 131 (border added).) Claim 1 is broad enough that other plates, such as additional electrode plates of any of the types { } may also separate the first and second electrode plates A and B. (*See* Section III.D.2.a), above.) Furthermore, in the CL10 the first electrode

plates { } are positioned between the second electrode plates { } and second electrode plates { } are positioned between first electrode plates { } It does not matter that there are intervening plates of the same type any more than there are intervening plates of types{ } { } For these reasons, Samsung's arguments that the first and second internal electrode plates are not interleaved in opposed and spaced apart relation are rejected.

The Administrative Law Judge finds that the evidence shows that the CL10 has "a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation" such that all the limitations of element 'a' of claim 1 of the '229 patent are met. (CX-32C; CX-262C at 55; CX-150C; CX-153C; CX-165C; CX-195C; Tr. at 1034-1051, 1108:23-1109:1 (Ulrich); RFF 6.174-6.175 (undisputed); RFF 6.176; CORFF 6.176.) The Administrative Law Judge further finds that the evidence shows that a dielectric material is located between each opposed set of the first and second electrode plates such that element 'b' of claim 1 of the '229 patent is met. (*Id.*)

b) **Element "c,"** *the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes*

[17] Murata argues that plates { } are first electrode plates and{ }are second electrode plates. (*See e.g.*, CBr. at 103-105.) While there is no requirement that plates A and B be designated the first and second electrode plates as claimed in claim 1 in the '229 patent { }, plates { } { } are different plates and thus cannot all be first electrode plates at once. As discussed in Section III.D.2.a), above, the first electrode plates must be identical to the first electrode plates, and the second electrode plates must be identical with the second electrode plates. However, this does not affect the outcome here with respect to infringement of claim 1. The Administrative Law Judge will designate plate A as the first internal electrode plate and plate B as the second internal electrode plate by way of example.

plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and

The Administrative Law Judge found above in Section III.D.2.b) above, that a person of ordinary skill in the art of the '229 patent would understand the claim language "in an interdigitated arrangement" as used in claim 1 to mean "projecting alternately between each other." The Administrative further found that as the respective lead structures are located on the first and second plates, the interdigitated arrangement of leads cannot be on the same level within each stack comprising a first internal electrode, dielectric material, and second internal electrode. (Section III.D.2.b).)

Murata and Staff argue that the CL10 meets all the limitations of element 'c' of claim 1 of the '229 patent. (CBR. at 105; SBr. at 90-92.) Samsung argues, based on its proposed claim construction, that the first and second electrode plates of the CL10 do not have two lead structures of the same polarity extending to one side of the capacitor body. (RBr. at 131.) Samsung's proposed claim construction position was rejected as noted above. The claims do not require at least two lead structures of each polarity on a single side, and therefore Samsung's arguments with respect to this element are unsupported.

As noted above, each of the plate patterns A and B has a main internal electrode portion and { } lead structures extending therefrom. (CX-150C at 1-3; ROSFF 248; RFF 6.182 (undisputed by Staff); CORFF 6.182.) Respective lead structures of the first electrode plates are located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement because they project alternately between each other.

(RBr. at 127 (detail view, border added).)

(CX-150C at 1.) Taken in isolation, respective lead structures { } of the first electrode plate A are located adjacent respective lead structures { } of the second electrode plate B in an interdigitated arrangement. (*Id.*) This is sufficient to meet the limitations of element 'c' of claim

1. Because the claim is open ended,[18] intervening layers of { .} or other internal electrode plate layers { .} do not change the alternating arrangement of the lead structures of electrode plates A and B on the CL10. The evidence shows that the CL10 has "the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement" such that element 'c' of claim 1 of the '229 patent is met. (CX-150C; CX-153C; CX-165C; CX-195C; Tr. at 1051-52, 1108:23-1109:1 (Ulrich).)

> c) **Element "d,"** *a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein*

Murata and Staff argue, and Samsung does not dispute, that this claim element is met by the CL10. (CBr. at 105; SBr. at 93-94; RBr. at 125-131.)

The evidence shows that the CL10 has { } electrical terminals,{ } on each side. (CX-262 at 55; ROSFF 253; RFF 6.174 (undisputed).) Each of the plate patterns has a main internal electrode portion and { } lead structures extending therefrom. (CX-150C at 1-3; ROSFF 248; CFF 5.79 (undisputed).)

[18] *See* discussion at Sections III.D.2.a) and b) above.

(CX-150C at 1.) The first internal electrode plate A has lead structures { } of a first polarity and the second internal electrode plate B has lead structures { } of a different polarity. (SFF 260 (undisputed by Samsung); COSFF 260; SFF 262-263 (undisputed); CFF 5.173-75 (undisputed); CX-150C at 1; CX-656C at 171-72; Tr. at 1654:15-1655:5 (Randall); Tr. at 1052-1056 (Ulrich).) The terminals are located so that they electrically connect to lead electrodes { } { } and they have a polarity that corresponds to the respective leads. (*Id.*) Thus at least two electrical terminals (a plurality) are located at the opposed side surfaces of the capacitor body and correspond with lead structures { } of the first electrode plates, as well as lead

structures { } of the second electrode plates. (*Id.*) As a result, the paired terminals and lead structures define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body. (*Id.*) Accordingly, the Administrative Law Judge finds that the CL10 meets all the limitations of element 'd' of claim 1 of the '229 patent.

> d) **Element "e,"** *each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and*

Murata and Staff argue, and Samsung does not dispute, that this claim element is met by the CL10. (CBr. at 105-106; SBr. at 94-95; RBr. at 125-131.) The Administrative Law Judge finds that for the CL10 product, each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body such that element 'e' of claim 1 of the '229 patent is met. (SFF 260 (undisputed by Samsung); COSFF 260; SFF 262-263 (undisputed); SFF 273 (undisputed); CFF 5.173-75 (undisputed); CX-150C at 1; CX-157C; CX-656C at 171-72; Tr. at 1654:15-1655:5 (Randall); Tr. at 1052-1057 (Ulrich).)

> e) **Element "f,"** *at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less*

Murata and Staff argue, and Samsung does not dispute, that element 'f' of claim 1 is met by the CL10. (CBr. at 106; SBr. at 95; RBr. at 125-131.) The pre-sintering L/W ratio for the lead structures on the electrode plates for the CL10 is { } because the lead structures have a { } (CX-626C at 26-29; Tr. at 1059 (Ulrich); SFF 268 (undisputed

by Murata); ROSFF 268.1.) Sintering causes shrinkage of the electrodes and lead structures, so the post-sintering length and width of the lead electrodes were measured by Micron, Inc. (CX-153C.) This post-sintering L/W ratio was estimated to be approximately { } (*Id.*; SFF 270 (undisputed by Murata); ROSFF 270.1; Tr. at 1059-1069 (Ulrich).) The Administrative Law Judge finds that for the CL10 capacitor device, "at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less" such that element 'f' of claim 1 of the '229 patent is met.

f) **Conclusion.**

The representative CL10 product meets all the limitations of, and thus infringes, claim 1 of the '229 patent. The Administrative Law Judge therefore finds that all of the Accused '229 Products infringe claim 1 of the '229 patent.

2. Claims 2-4, 7, 17-18, and 23.

Inasmuch as each claim limitation must be present in an accused device in order for infringement to be found, an accused product cannot infringe a dependent claim if it does not practice every limitation of the independent claim from which it depends. *See Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352, 1359 (Fed. Cir. 2007); *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40 (1997). Furthermore, the Federal Circuit has explained:

> One may infringe an independent claim and not infringe a claim dependent on that claim. The reverse is not true. One who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim.

Wahpeton Canvas Co., Inc. v. Frontier, Inc., 870 F.2d 1546, 1552 n.9 (Fed.Cir.1989) (citing *Teledyne McCormick Selph v. United States*, 558 F.2d 1000, 1004 (Ct .Cl. 1977)).

As noted above, the CL10 capacitor device has been found to literally infringe independent claim 1 of the '229 patent. Therefore, the Administrative Law Judge must now determine whether the CL10 capacitor device that infringes independent claim 1 infringes asserted dependent claims 2-4, 7, 17-18, and 23 as well.

Murata and Staff argue that the CL10 also infringes the asserted claims that are dependent on claim 1. (CBR. at 107-108; SBr. at 96-99.) Samsung's arguments with respect to asserted claims 2-4, 7, 17-18, and 23 rely on claim 1 of the '229 patent. Samsung does not dispute that if the CL10 meets the limitations of claim 1, all the limitations of the asserted dependent claims are also met. (RBr. at 125-131.) Claims 2-4, 7, 17-18, and 23 read as follows:

> **2**. The multi-layer capacitor according to claim **1**, wherein the ratio L/W is equal to about 1.3 or less.
>
> **3**. The multi-layer capacitor according to claim **1**, wherein the ratio L/W is equal to about 0.4 or greater.
>
> **4**. The multi-layer capacitor according to claim **1**, wherein the ratio L/W is equal to or less than about 1.3 and greater than or equal to about 0.4.
>
> **7**. The multi-layer capacitor according to claim **1**, wherein the lengths L of all of the lead electrodes are substantially equal to each other.
>
> **17**. The multi-layer capacitor device according to claim **1**, wherein each of the first polarity terminals is adjacent to one of the second polarity terminals and each of the second polarity terminals is adjacent to one of the first polarity terminals along each of the opposed side surfaces of the capacitor body.
>
> **18**. The multi-layer capacitor device according to claim **1**, wherein the electrical terminals extend to portions of the top and bottom surfaces.
>
> **23**. The multi-layer capacitor device according to claim **1**, wherein each of the pair of opposed side surfaces of the capacitor body includes at least four of the electrical terminals disposed thereon.

(JX-1 at 18:38-44, 18:57-59, 19:28-36, 19:53-56.) The Administrative Law Judge finds that the evidence shows that the CL10 has a ratio L/W equal to about 1.3 or less such that claim 2 is met.

(CX-153C; CX-626C at 26-29; Tr. at 1059-1070 (Ulrich); SFF 268 (undisputed by Murata); ROSFF 268.1; SFF 270 (undisputed by Murata); ROSFF 270.1.) The Administrative Law Judge finds that the evidence shows that the CL10 has a ratio L/W equal to about 0.4 or greater such that the limitation of claim 3 is met. (*Id.*) The Administrative Law Judge finds that the evidence shows that the CL10 has a ratio L/W that is equal to or less than about 1.3 and greater than or equal to about 0.4 such that the limitations of claim 4 are met. (*Id.*) The evidence further shows that the CL10 is a multi-layer capacitor according to claim 1, wherein the lengths L of all of the lead electrodes are substantially equal to each other, and therefore the limitations of claim 7 are met. (CX-153C; CX-626C at 26-29; Tr. at 1059, 1070-71 (Ulrich); SFF 268 (undisputed by Murata); ROSFF 268.1.) In addition, the limitations of claim 17 of the '229 patent are met because each of the first polarity terminals of the CL10 multi-layer capacitor device is adjacent to one of the second polarity terminals and each of the second polarity terminals is adjacent to one of the first polarity terminals along each of the opposed side surfaces of the capacitor body. (SFF 260 (undisputed by Samsung); COSFF 260; SFF 262-263 (undisputed); SFF 273 (undisputed); CFF 5.173-75 (undisputed); CX-150C at 1; CX-157C; CX-656C at 171-72; Tr. at 1654:15-1655:5 (Randall); Tr. at 1052-1057, 1071-72 (Ulrich).) The electrical terminals of the CL10 multi-layer capacitor device extend to portions of the top and bottom surfaces such that the limitations of claim 18 are met. (CX-150; CX-262 at 55; SFF 262 (undisputed); Tr. at 1072-1074 (Ulrich).) Finally, each of the pair of opposed side surfaces of the capacitor body of the CL10 multi-layer capacitor device includes at least four of the electrical terminals disposed thereon such that the limitations of claim 23 of the '229 patent are met. (*Id.*)

3. Claims 28-31, 34.

Murata and Staff argue that the CL10 also infringes asserted independent claim 28 and dependent claims 29-31 and 34. (CBR. at 108-110; SBr. at 99-106.) Samsung does not dispute that the CL10 meets the limitations of claims 28-31 and 34. (RBr. at 125-131.) It is noted that Samsung's noninfringement arguments with respect to claim 1 of the '229 patent (RBr. at 125-131) pertain to claim 28 because the two claims contain similar limitations. However, for the reasons discussed above with respect to claim 1, these arguments are rejected. (*See* Section IV.D.1 above.)

Claims 28-31 and 34 read as follows:

28. A multi-layer capacitor device comprising:

[a] a capacitor body including a pair of opposed side surfaces having continuously smooth surfaces and a pair of opposed end surfaces disposed between the pair of opposed side surfaces;

[b] at least four electrical terminals disposed on each of the opposed side surfaces;

[c] the capacitor body also including at least one first electrode plate having a substantially rectangular first main electrode portion with a plurality of first lead structures extending therefrom and at least one second electrode plate situated in opposed and spaced apart relation to the first electrode plate, the second electrode plate having a substantially rectangular second main electrode portion with a plurality of second lead structures extending therefrom, respective ones of the first lead structures being located adjacent respective ones of the second lead structures in an interdigitated arrangement and extending to respective ones of the electrical terminals; dielectric material disposed between each opposing set of first and second electrode plates; wherein

[d] each of the lead terminals of the at least one first electrode plate being disposed opposite to another of the lead terminals of the at least one first electrode plate across the capacitor body and each of the lead terminals of the at least one second electrode plate being disposed opposite to another of the lead terminals of the at least one second electrode plate across the capacitor body; and

[e] at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less.

29. The multi-layer capacitor device according to claim **28**, wherein the ratio L/W is equal to about 1.3 or less.

30. The multi-layer capacitor device according to claim **28**, wherein the ratio L/W is equal to about 0.4 or greater.

31. The multi-layer capacitor device according to claim **28**, wherein the ratio L/W is equal to or less than about 1.3 and greater than or equal to about 0.4.

34. The multi-layer capacitor device according to claim **28**, wherein the lengths L of all of the lead electrodes are substantially equal to each other.

(JX-1 at 20:1-41, 20:54-56.) With respect to claim 28 of the '229 patent, the Administrative Law Judge finds that the CL10 is a multi-layer capacitor device comprising (i) a capacitor body including a pair of opposed side surfaces having continuously smooth surfaces and a pair of opposed end surfaces disposed between the pair of opposed side surfaces; (ii) at least four electrical terminals disposed on each of the opposed side surfaces; (iii) the capacitor body also including at least one first electrode plate having a substantially rectangular first main electrode portion with a plurality of first lead structures extending therefrom and at least one second electrode plate situated in opposed and spaced apart relation to the first electrode plate, the second electrode plate having a substantially rectangular second main electrode portion with a plurality of second lead structures extending therefrom, respective ones of the first lead structures being located adjacent respective ones of the second lead structures in an interdigitated arrangement and extending to respective ones of the electrical terminals; (iv) dielectric material disposed between each opposing set of first and second electrode plates; (v) wherein each of the lead terminals of the at least one first electrode plate being disposed opposite to another of the lead terminals of the at least one first electrode plate across the capacitor body and each of the lead terminals of the at least one second electrode plate being disposed opposite to another of the lead terminals of the at least one second electrode plate across the capacitor body; and (vi) at

least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less. (CX-32C; CX-150C at 1-3; CX-153C; CX-165C; CX-157C; CX-195C; CX-262C at 55; CX-656C at 171-72; CX-626C at 26-29; CFF 5.79 (undisputed); CFF 5.173-75 (undisputed); RFF 6.174-6.175 (undisputed); RFF 6.176; CORFF 6.176; RFF 6.178 (undisputed in material part); RFF 6.182 (undisputed by Staff); CORFF 6.182; ROCFF 5.76-2; ROSFF 248; ROSFF 253; SFF 260 (undisputed by Samsung); COSFF 260; SFF 262-263 (undisputed); SFF 268 (undisputed by Murata); ROSFF 268.1; SFF 270 (undisputed by Murata); ROSFF 270.1; SFF 273 (undisputed); Tr. at 1416-17 (Youn); Tr. at 1654:15-1655:5, 1667:7-18 (Randall); Tr. at 1034-1057, 1059-1069, 1077-1083, 1108:23-1109:1, 1112:22-1113:12, 1113:14-15 (starting at "I find..."[19]) (Ulrich); Complaint, Ex. 15.) The Administrative Law Judge further finds that the CL10 multi-layer capacitor device has a ratio L/W equal to about 1.3 or less such that the limitation of claim 29 is met. (*Id.* *See*, in particular, CX-153C; CX-626C at 26-29; Tr. at 1059-1070, 1082 (Ulrich); SFF 268 (undisputed by Murata); ROSFF 268.1; SFF 270 (undisputed by Murata); ROSFF 270.1.) The Administrative Law Judge further finds that the CL10 multi-layer capacitor device has a ratio L/W equal to about 0.4 or greater such that the limitation of claim 30 is met. (*Id.*) The Administrative Law Judge further finds that the CL10 multi-layer capacitor device has a ratio L/W equal to or less than about 1.3 and greater than or equal to about 0.4 such that the limitations of claim 31 of the '229 patent are met. (*Id.*) In addition, the CL10 is multi-layer capacitor device, wherein the lengths L of all of the lead electrodes are substantially equal to each other, such that the limitations of claim 34 are met. (CX-153C; CX-626C at 26-29; Tr. at 1059, 1070-83 (Ulrich); SFF 268 (undisputed by Murata); ROSFF 268.1.)

[19] (*See* Order No. 56.)

4. Claims 51-53.

The Administrative Law Judge found in Section III.D.2.d) above, that the language "position located between the positions to which the first lead electrodes extend" of claim 51 of the '229 patent should mean "position on the shorter of the two peripheral paths connecting two of the first lead electrodes." The Administrative Law Judge further found that claim 51 does not require that the first lead electrodes be positioned either on the same side or adjacent sides. (*See* Section III.D.2.d) above.)

Murata and Staff argue that the CL10 meets all the limitations of claims 51-53. (CBr. at 110-112; SBr. at 106-109.) Samsung argues that the CL10 internal electrode plates do not have two lead electrodes extending to at least two positions on the same side or adjacent sides of the capacitor body. (RBr. at 132.) Samsung's argument relies on a claim construction position that was rejected and thus is unsupported. (*See* Section III.D.2.d) above.) Samsung does not dispute that if the CL10 meets the limitations of claim 51, the limitations of dependent claims 52-53 are also met. (RBr. at 132.)

Claims 51-53 read as follows:

51. A monolithic capacitor comprising:

[a] a capacitor body having two opposed main surfaces and four side surfaces connected between the two main surfaces, said capacitor body including a plurality of dielectric layers extending in the direction in which the two opposed main surfaces extend, and at least one pair of first and second internal electrodes opposed to each other through one of the dielectric layers so as to define a capacitor unit, said capacitor body further including at least two first lead electrodes extending from one of the first internal electrodes to at least two positions on at least one of the side surfaces, and at least one second lead electrode extending from the second internal electrode to a position located between the positions to which the first lead electrodes extend;

[b] first and second external terminal electrodes provided on the side surfaces onto which the first and second lead electrodes extend, and electrically connected to the first and second lead electrodes, respectively; wherein

the ratio L/W of the length L to the width W of at least one of the first and second lead electrodes is within the range of about 0.4 to about 3.0

52. A monolithic capacitor according to claim **51**, wherein the ratio L/W is in the range of about 0.4 to about 1.3.

53. A monolithic capacitor according to claim **51**, wherein the first and second lead electrodes extend onto at least two of the side surfaces opposed to each other, respectively.

(JX-1 at 22:1-29.) The Administrative Law Judge finds that the CL10 meets the limitations of claim 51 of the '229 patent because it is a monolithic capacitor comprising: (i) a capacitor body having two opposed main surfaces and four side surfaces connected between the two main surfaces; (ii) said capacitor body including a plurality of dielectric layers extending in the direction in which the two opposed main surfaces extend, and at least one pair of first and second internal electrodes opposed to each other through one of the dielectric layers so as to define a capacitor unit; (iii) said capacitor body further including at least two first lead electrodes extending from one of the first internal electrodes to at least two positions on at least one of the side surfaces, and at least one second lead electrode extending from the second internal electrode to a position located between the positions to which the first lead electrodes extend; (iv) first and second external terminal electrodes provided on the side surfaces onto which the first and second lead electrodes extend, and electrically connected to the first and second lead electrodes, respectively; (v) wherein the ratio L/W of the length L to the width W of at least one of the first and second lead electrodes is within the range of about 0.4 to about 3.0. (CX-32C; CX-150C at 1-3; CX-153C; CX-157C; CX-165C; CX-195C; CX-262C at 55; CX-626C at 26-29; CX-656C at 171-72; CFF 5.79 (undisputed); CFF 5.173-75 (undisputed); RFF 6.174 (undisputed); RFF 6.176; CORFF 6.176; RFF 6.178 (undisputed in material part); RFF 6.182 (undisputed by Staff); CORFF 6.182; ROCFF 5.76-2; ROSFF 248; ROSFF 253; SFF 260 (undisputed by Samsung);

COSFF 260; SFF 262-263 (undisputed); SFF 268 (undisputed by Murata); ROSFF 268.1; SFF 270 (undisputed by Murata); ROSFF 270.1; SFF 273 (undisputed); Tr. at 1416-17 (Youn); Tr. at 1034-1047, 1049-1069, 1083-1094, 1116:2-13 (Ulrich); Complaint, Ex. 15.) The Administrative Law Judge further finds that the CL10 is a monolithic capacitor according to claim 51, wherein the ratio L/W is in the range of about 0.4 to about 1.3, such that claim 52 is met. (*Id.*) The CL10 is also a monolithic capacitor according to claim 51, wherein the first and second lead electrodes extend onto at least two of the side surfaces opposed to each other, respectively, such that the limitations of claim 53 of the '229 patent are met. (*Id.*; RFF 6.185.)

5. Conclusion.

As discussed above in this Section IV.D., the Administrative Law Judge finds that the CL10, and thus the Accused '229 Products, meet all of the limitations of asserted claims 1-4, 7, 17, 18, 23, 28-31, 34, and 51-53 of the '229 patent. Accordingly, the Administrative Law Judge finds that Samsung has infringed claims 1-4, 7, 17, 18, 23, 28-31, 34, and 51-53 of the '229 patent.

V. VALIDITY

A. Background

One cannot be held liable for practicing an invalid patent claim. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). However, patent claims are presumed valid. 35 U.S.C. § 282. A respondent that has raised patent invalidity as an affirmative defense must overcome the presumption by "clear and convincing" evidence of invalidity. *Checkpoint Systems, Inc. v. United States Int'l Trade Comm'n*, 54 F.3d 756, 761 (Fed.

Cir. 1995). Further, as stated by the Federal Circuit in *Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.*:

> when a party alleges that a claim is invalid based on *the very same references* that were before the examiner when the claim was allowed, that party assumes the following additional burden:
>
> > When no prior art other than that which was considered by the PTO examiner is relied on by the attacker, he has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job, which includes one or more examiners who are assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents.

Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co., 204 F.3d 1360, 1367 (Fed. Cir. 2000) (emphasis added) (quoting *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) "*American Hoist*").

B. Anticipation.

A determination that a patent is invalid as being anticipated under 35 U.S.C. § 102 requires a finding, based upon clear and convincing evidence, that each and every limitation is found either expressly or inherently in a single prior art reference. *See Celeritas Techs. Inc. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). Anticipation is a question of fact, including whether a limitation, or element, is inherent in the prior art. *In re Gleave*, 560 F.3d 1331, 1334-35 (Fed. Cir. 2009). The limitations must be arranged or combined the same way as in the claimed invention, although an identity of terminology is not required. *Id.* at 1334 ("the reference need not satisfy an *ipsissimis verbis* test"); MPEP § 2131.

In addition, the prior art reference's disclosure must enable one of ordinary skill in the art to practice the claimed invention "without undue experimentation."[20] *Gleave,* 560 F.3d at 1334-35. A prior art reference that allegedly anticipates the claims of a patent is presumed enabled; however, a patentee may present evidence of nonenablement to overcome this presumption. *Impax Labs., Inc. v. Aventis Pharmaceuticals Inc.*, 468 F.3d 1366, 1382 (Fed. Cir. 2006). "[W]hether a prior art reference is enabling is a question of law based upon underlying factual findings." *Gleave,* 560 F.3d at 1335.

1. '254 patent.

a) U.S. Patent No. 5,742,473.

Samsung, in its post-hearing reply brief, but not in its post-hearing opening brief, argues that if Murata's infringement theory is adopted, the '254 patent is anticipated by U.S. Patent No. 5,742,473 entitled Monolithic Ceramic Capacitor ("the '473 patent") which was filed on December 20, 1996 and issued on April 21, 1998. (RX-390.) According to Samsung, if the '254 patent's claims are construed the same for validity as Murata argues they should be for infringement, the '254 patent is plainly anticipated by the '473 patent. (RRBr. at 32.) According to Samsung, Dr. Dougherty determined that the '473 patent describes each limitation of claim 1 and explicitly describes the alkali metal oxide limitation as well. (*Id.*) Samsung notes that the '473 patent provides that "the dielectric ceramic layers each are made of a material comprising barium titanate having a content of alkali mental oxide impurities of about 0.02% by weight or less." (*Id.* (citing RX-390 at 3:33-36, Table 1).)

As for what Samsung believes to be the remaining limitation $(Ba_{1-x}Ca_xO)_mTiO_2$ in which $0.005 < x \leq 0.22$, Samsung says that Murata alleges that Samsung's pre-sintered composition

[20] This is not to be confused with the standards for enablement to support issuance of a patent claim under 35 U.S.C. § 112. *Gleave,* 560 F.3d at 1334.

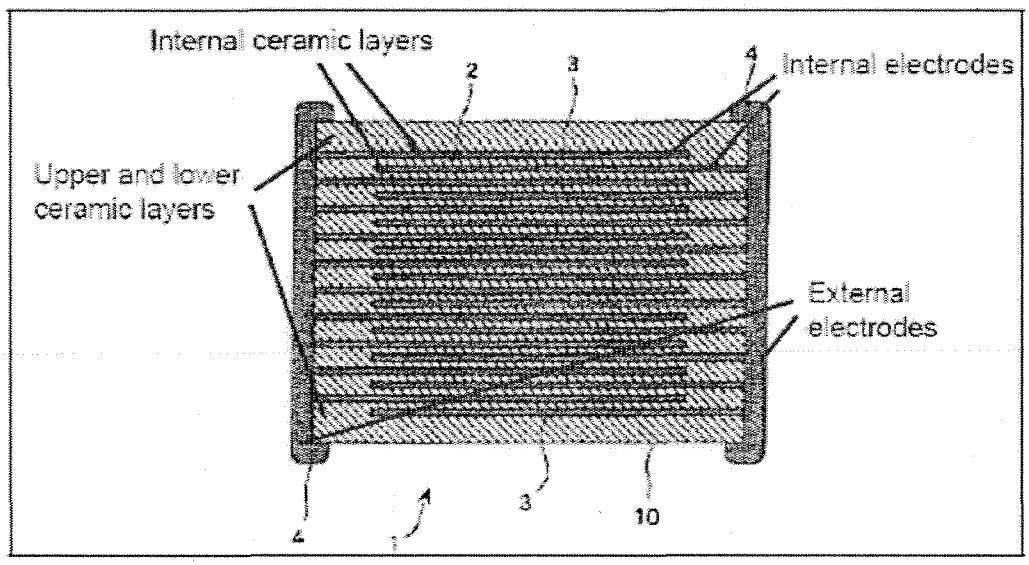
information shows that enough { } is present in the dielectric material as a whole to meet the *x* limitation if diffusion of { } occurs during sintering. (*Id.* at 32 (citing CBr. at 22).) Samsung notes that Murata contends that it is reasonable to expect a sufficient amount of { } in Samsung's compositions would diffuse into the { } grains during sintering of the { } material to meet the "$0.005 < x \leq 0.22$" limitation of claim 1. (*Id.* at 32-33.) Similarly then, says Samsung, the same holds true for the '473 patent, because, like Samsung's Accused '254 Products, the '473 patent uses { } { } which sinters at almost the identical temperatures. (*Id.* at 33.) Thus, Samsung's expert Dr. Dougherty determined that the "$(Ba_{1-x}Ca_xO)_mTiO_2$ in which $0.005 < x \leq 0.22$" limitation is also met by the '473 patent, applying Murata's own criteria. (*Id.*) Samsung says that Murata cannot take the position that the same { } { }will lead to calcium diffusion in the case of Samsung's products but not for the '473 patent. (*Id.* (citing CBr. at 45-46).)

The Administrative Law Judge notes that Samsung failed to argue invalidity based on anticipation of by the '473 patent in its opening post-hearing brief and therefore waived this defense under Ground Rule 10.1. Additionally, Samsung's defense of anticipation is based on Murata's proposed claim construction, which has been rejected, and therefore Samsung's argument fails for that reason, too. Finally, Samsung has not demonstrated that the '473 patent satisfies all of the limitations of claim 1 of the '254 patent in addition to the limitations specifically discussed in its reply post-hearing brief, and for that reason as well Samsung does not demonstrate by clear and convincing evidence that the '254 patent is anticipated by the '473 patent.

2. '309 patent.

a) Nakano Application.

Samsung alleges that the '309 patent is anticipated by Japanese Patent Application No. H06-342736 ("Nakano"), published on December 13, 1994, over two years before the alleged priority date of the asserted patent. Samsung points out that Nakano was not considered by patent examiner during the prosecution of the '309 patent. (RBr. at 105.) According to Samsung, Nakano discloses the identical arrangement of ceramic layers and electrodes as the '309 patent. (*Id.*) Figure 1 of Nakano, shown below, depicts a capacitor with a plurality of internal ceramic layers interspersed with overlapping internal electrodes, vertically capped at opposite ends with ceramic layers, and laterally bracketed by a pair of external electrodes. (*Id.*)



(RBr. at 106 (showing figure from RX-121 as labeled by Samsung).)

Samsung believes that Nakano discloses all of the information needed for the '309 patent's quantitative limitations. (*Id.* at 106.) First, it discloses a dielectric green sheet layer having a thickness of 0.5 to 10 μm. (*Id.*) Second, it discloses 200 or more internal electrodes. (*Id.*) Third, it discloses a range for the ratio of the thickness of the internal electrode to the

thickness of the ceramic layer of 0.01 to 10, which, Samsung says, covers the '309 patent's entire claimed range of 0.10 to 0.40. (*Id.*) Fourth, it discloses a range for the total volume of the internal electrodes to the volume of the ceramic element of 0.03 to 0.33, which, Samsung says, covers the '309 patent's entire claimed range of 0.10 to 0.30. (*Id.*) Therefore, Nakano discloses each of the limitations of claim 3 of the '309 patent under all of the claim constructions proposed by the parties in this Investigation, Samsung says, or else renders obvious claim 3.[21] (*Id.*)

Staff agrees with Samsung that Nakano discloses elements (a), (b), and (c)(1) and (2) of claim 3 of the '309 patent. (SBr. at 65-66.) However, Staff disagrees that elements (c)(3) and (4) are disclosed in Nakano. (*Id.* at 66.) Staff says that Nakano discloses electrode layers with a thickness of 0.5 to 5 μm and dielectric layers with thicknesses of 30 μm or less, particularly 0.2 to 5 μm, making it possible to pick values within these ranges that meet the claimed ratios. (*Id.*) However, Staff concludes that because Nakano does not teach that the ratios claimed in element (c)(3) and (4) are particularly desirable or point to specific values that meet those ratios, it does not inherently disclose these elements. (*Id.*)

Murata responds that a thickness ratio of 0.01 to 10 (a ratio of 1 to 1,000) cannot be considered to anticipate the much smaller thickness ratio of 0.10 to 0.40 (a ratio of 1 to 4) in element (c)(3). (CRBr. at 44 (citing *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991 (Fed. Cir. 2006)).) Murata argues that Samsung, in making this claim, failed to make any attempt to show that a person of ordinary skill in the art would necessarily create an MLCC that meets all of the

[21] Samsung posits that claim 3 of the '309 patent merely recites professed optimum numerical ranges for the dimensions of standard MLCCs, which are the result of routine experimentation in fabricating samples with varying dimensions and testing them to see which succeeded or failed. (*Id.*) Therefore, Samsung argues, claim 3 is obvious in light of Nakano, which discloses an identical physical structure and all of the information needed by a person of ordinary skill in the art to derive the respective numerical ranges of claim 3. (*Id.*) Because Nakano discloses what Samsung describes as a relatively wide range of possible thicknesses for its green sheets (0.5 to 50 μm), which Dr. Randall calculated corresponds to a thickness ratio that ranges from 0.01 to 10, this encompasses the '309 ratio of 0.10 to 0.40 in element (c)(3) of claim 3. (*Id.* at 107.) Samsung contends therefore that a claimed numerical range such as in element (c)(3) is obvious where the range disclosed by prior art overlaps or encompasses it. (*Id.*)

limitations of claim 3 by virtue of Nakano. (*Id.* at 44-45.)[22] Because Nakano mentions such a wide range of potential coverage of internal electrodes with respect to dielectric green sheets (from 10 to 90 percent) there is not enough disclosure in Nakano to teach the benefits produced by the much narrower range of ratios taught by the '309 patent. (*Id.*)

The Administrative Law Judge concludes that Nakano does not anticipate the '309 patent because it does not disclose the limitations specified in elements (c)(3) and (4). The disclosures in Nakano are far too broad to lead one of ordinary skill in the art to conclude that there are any benefits to be derived by narrowing the range of ratios to those specified in claim 3 of the '309 patent.

3. '229 patent.

a) Applicant Admitted Prior Art.

Samsung contends that all of the asserted claims of the '229 patent are anticipated by the applicant admitted prior art ("AAPA") disclosed in the '229 patent. (RBr. at 136.) Murata and Staff argue that the AAPA does not disclose the L/W ratio required by the asserted claims. (CBr. at 119-120; SBr. at 114.)

As an initial matter, Samsung has a heightened burden with respect to the AAPA because Samsung is relying entirely on material disclosed to the examiner. *Ultra-Tex*, 204 F.3d at 1367. Some deference is due to the examiner, who is presumed to have properly issued a valid patent based on his expertise in interpreting the references and familiarity with the level of skill in the art. (*Id.*)

[22] Murata also disputes Samsung's argument regarding any obviousness inherent in Nakano as concerns the '309 patent by pointing to the fact that Nakano does not disclose a thickness or a volume ratio or how they would relate to each other so as to achieve reliability benefits as described in the '309 patent. (*Id.*)

It is also significant that Samsung's arguments (RBr. at 136; RFF 6.473-582) rely on how the prior art, specifically Japanese Unexamined Patent Publication No. H2-256216 (the "H2 application"), is depicted in the '229 patent. (*See* JX-1 at 114-2:49.) This presents some difficulty as to what is considered the single alleged anticipatory reference pursuant to Section 102. Surely Samsung is not attempting to argue that the '229 patent specification itself is this anticipatory reference. If Samsung means the H2 application, it is unclear why Samsung indirectly approaches this reference through the '229 patent specification. Samsung fails to mention that the H2 application is included in the file history (JX-9 at MM_000367), possibly because the figures therein do not precisely match the drawings disclosed in figures 15 through 17 of the '229 patent.

FIG. 15
PRIOR ART

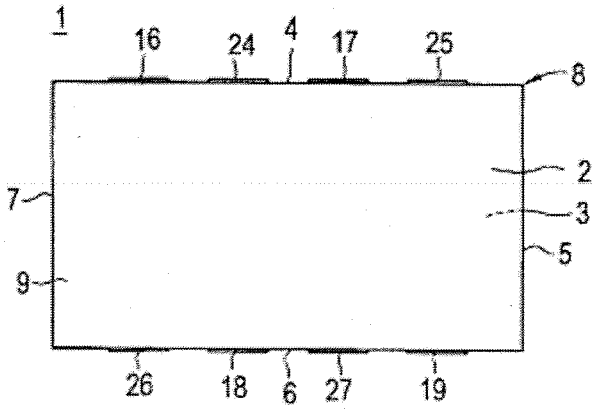


FIG. 16
PRIOR ART

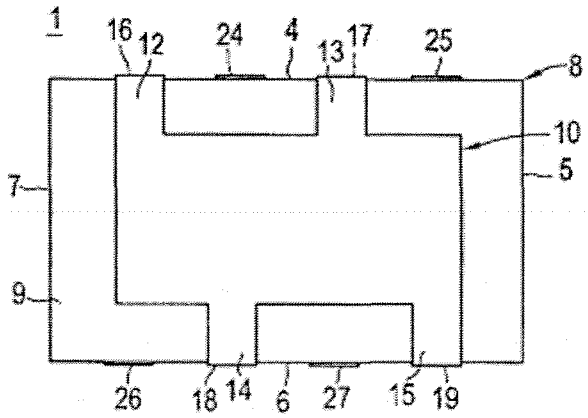
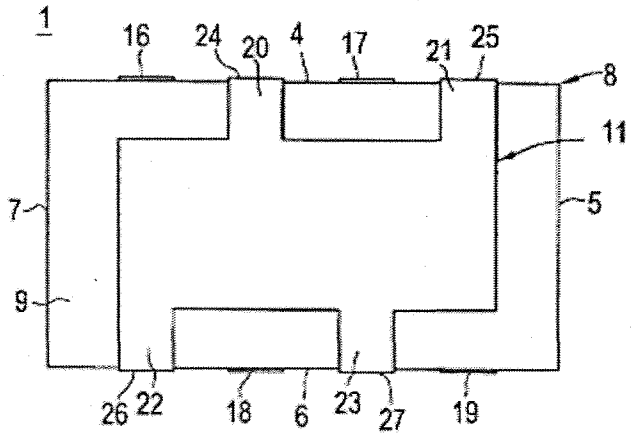
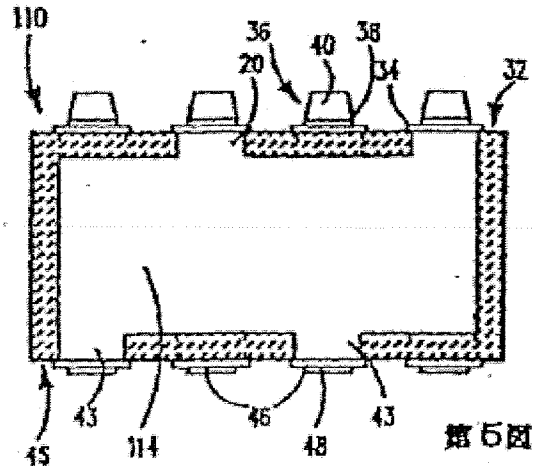


FIG. 17
PRIOR ART

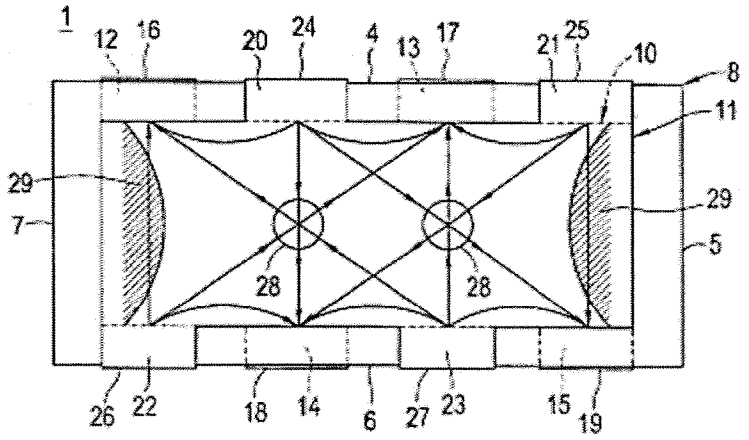


(JX-1 at Figs. 15-17; *id.* at 1:14-2:49.) In particular, the lead structures of the Japanese Unexamined Patent Publication No. H2-256216 (the "H2 application") have a different, wider shape than that shown in figures 15-17 of the '229 patent.



(JX-9 at MM_000376.) For example, figure 17 of the '229 patent appears to be a representation of figure 5 of the H2 application, but the shape of lead electrodes in both figures is not accurately reproduced. Instead, figure 17 provides a general understanding of prior art figure 5 while maintaining the style of the other figures in the '229 patent. In addition, figure 18 appears to have been constructed entirely by patentees based on their analysis of the prior art. (*Id.*)

FIG. 18
PRIOR ART



(*Id.* at Fig. 18.) There is no such drawing shown in the H2 application. It is apparent that the '229 patentees have added something to the description and drawings of the H2 application that is not contained within the four corners of that reference. Whether these additions are the '229 patentees' own work or whether they are derivations from other unnamed prior art references is unclear from the descriptions in the '229 patent specification. However, it is clear that Samsung has not met its burden of showing by clear and convincing evidence that the AAPA, as disclosed in the '229 patent rather than in the H2 application, meets the requirements of a single prior art reference pursuant to Section 102. *Celeritas*, 150 F.3d at 1361.

In the same vein, one of skill in the art would understand that the figures in both the '229 patent and H2 application are not necessarily drawn to scale. It is a general rule that figures in a patent are not drawn to any particular scale unless the patent specifically states that they are. *Go Medical Industries Pty., Ltd. v. Inmed Corp.*, 471 F.3d 1264, 1271 (Fed. Cir. 2006) "[P]atent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.") (quoting *Hockerson-Halberstadt, Inc. v. Avia Group. Int'l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000)). Samsung does

not point to, and the Administrative Law Judge does not find, language in the '229 patent mentioning that any figures are drawn to scale. (JX-1.) Staff argues that the fact that figures are not drawn to scale does not mean that they are meaningless (SBr. at 116), however, as the parties have failed to examine the figures actually disclosed in the prior art, as opposed to what patentees have translated, the Administrative Law Judge finds this argument carries no weight.

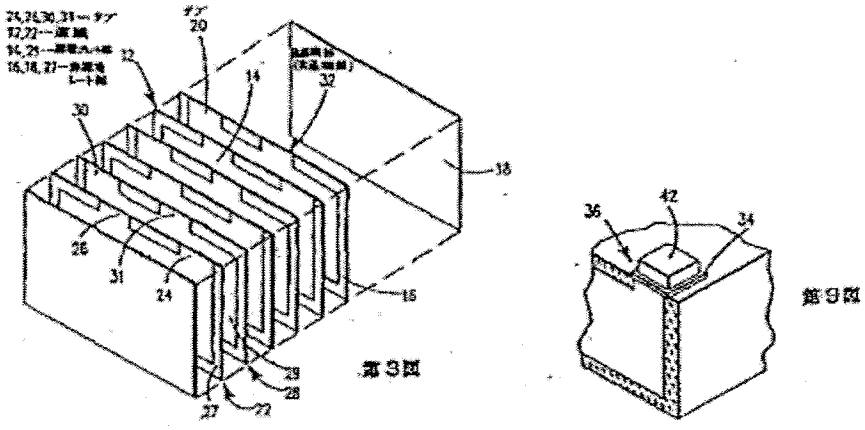
Accordingly, the Administrative Law Judge finds that Samsung has failed to demonstrate by clear and convincing evidence that the AAPA anticipates any claims of the '229 patent.

b) U.S. Patent No. 4,831,494.

Samsung contends that the asserted claims of the '229 patent are anticipated by U.S. Patent No. 4,831,494 (the "Arnold" reference), dated May 16, 1989. (RBr. at 135-36.) Murata argues that Arnold is not an anticipatory reference because (i) it does not have external terminals that extend to the capacitor side surfaces, and (ii) it does not disclose the L/W ratio required in all the asserted claims of the '229 patent. (CBr. at 120-21.) Staff agrees that the Arnold reference is not anticipatory, pointing out that "in Arnold, the electrode plates are oriented vertically" so that the external terminals are on the top and bottom surfaces of the capacitor. (SBr. at 121-22.)

Just as with the AAPA, Samsung has a heightened burden with respect to the Arnold reference because Samsung is relying entirely on material disclosed (JX-9 at MM_000294) to the examiner during prosecution. *Ultra-Tex*, 204 F.3d at 1367. Samsung submits that not only were patentees aware of the Arnold patent, they discussed its "Japanese counterpart," the H2 application, in the '229 patent specification. (RBr. at 135; RFF 6.363.) However, Samsung's statement, which notably is not supported by the testimony of its expert, that "[t]he inventors of the '229 patent understood that Arnold describe[s] a side terminated capacitor" (RFF 6.363), is

less than credible. As discussed above with respect to the AAPA, the '229 patentees took some liberties with their depictions and descriptions of the prior art. The H2 application does not show a capacitor with terminals on the side surfaces.



(JX-9 at MM_00375-76 (Figs. 3, 9).) Therefore the Administrative Law Judge rejects Samsung's attempts to tie the H2 application to the Arnold reference through the dubious conduit of the AAPA.

Turning to the remainder of the Arnold reference, Samsung's briefing is somewhat confusing as it jumbles all of the asserted patent claims into a discussion of "the capacitor claimed in the '229 patent." (RBr. at 135-36.) Samsung's expert, Dr. Randall, is equally cursory in his analysis of whether the asserted claims are anticipated by Arnold. (Tr. at 1639-1641 (Randall).) Dr. Randall did not expressly testify that the Arnold reference shows a capacitor with terminals on the side surfaces, instead blurring all the asserted patent claims into a quick summary of various limitations:

> Arnold shows that there are first and second electrode plates that are interleaved. It shows interdigitated leads. It shows that the leads are substantially equal in dimension or length. They're disposed opposite each other. The tabs are between each other. And they have an L over W ratio or aspect ratio of 3 or less. They also have an L over W of between [0].4 and 1.3.

(*Id.*) Thus there is some doubt whether Samsung has met its initial burden of showing by clear and convincing evidence that the Arnold patent discloses even those limitations of asserted claims 1-4, 7, 17-18, 23, 28-31, 34, and 51-53 of the '229 patent that are not disputed by Murata and Staff. However, this issue need not be reached, as it is apparent that Arnold does not disclose a capacitor with terminals on the side surfaces.

Claim 1, and consequently dependent claims 2-4, 7, 17-18, and 23, of the '229 patent require "a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body. . . ." (JX-1 at 18:21-22.) Claim 28, and consequently dependent claims 29-31 and 34, of the '229 patent require "at least four electrical terminals disposed on each of the opposed side surfaces . . . ." (*Id.* at 20:7-8.) Claim 51, and consequently dependent claims 52-53, of the '229 patent require "first and second external terminal electrodes provided on the side surfaces onto which the first and second lead electrodes extend. . . ." (*Id.* at 22:17-19.)

Samsung's evidence on this issue is as follows:

> [Claim 1] RFF 6.379 Arnold discloses a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body. (Tr. at 1626:22-25, 1640:1-11, 1641:12-19 (Randall); RX-959 at 7:50-8:4, figs. 4, 4A)
>
> [Claim 28] RFF 6.423 Arnold discloses a capacitor body wherein at least four electrical terminals disposed on each of the opposed side surfaces. (Tr. at 1640:1-11 (Randall); RX-959 at 5:7-20, figs. 4-4A)
>
> [Claim 51] RFF 6.463 Arnold discloses a capacitor body wherein first and second external terminal electrodes are provided on the side surfaces onto which the first and second lead electrodes extend, and electrically connected to the first and second lead electrodes, respectively. (RX-959 at 1:39-40, figs. 1, 3, 4, 4A, and 6; 6:1-5; 7:55- 8:4)

(RFF 6.379; RFF 6.423; RFF 6.463.) Taking each piece of evidence in turn, it is clear that the cited evidence does not support Samsung's proposed finding that the claim limitations of claims 1, 28, and 51 are met. Looking at the citations to Dr. Randall's testimony,

22 It talks -- it shows also the Arnold patent, which is
23 the basis -- the Japanese version of this is the basis
24 for the prior art in '229, which also has a tabbed and
25 interdigitated structure.

* * *

1 Q Let's turn to RDX-157, which, again, looks
2 at figure 4 from the Arnold patent. And does it
3 satisfy all of the limitations of the asserted claims?
4 A Yes, it does.
5 Q Can you walk us through that, please?
6 A It has interleaved first and second plates
7 in opposed and spaced apart relation. It has
8 interdigitated lead electrodes. The leads are
9 substantially equal to each other in dimension. And
10 the lead for the second plates is between the leads on
11 the first plates. And it has external terminals.

* * *

12 A Arnold shows that there are first and second
13 electrode plates that are interleaved. It shows
14 interdigitated leads. It shows that the leads are
15 substantially equal in dimension or length. They're
16 disposed opposite each other. The tabs are between
17 each other. And they have an L over W ratio or aspect
18 ratio of 3 or less. They also have an L over W of
19 between [0].4 and 1.3.

(Tr. at 1626:22-25, 1640:1-11, 1641:12-19 (Randall), there are no opinions to show the electrical terminals in Arnold are disposed on the side surfaces. Indeed, Dr. Randall sidesteps this issue by testifying that there are "external terminals." Samsung's citations to the Arnold reference are equally unavailing:

Each row of tabs is connected one to the other by a
shorting bar or electrode. Final connection of the ca- 40

* * *

Referring now to the Figures in more detail and particularly referring to FIGS. 1 to 3 there is shown a multilayer capacitor, generally indicated by **10**, according to the invention. The multilayer capacitor **10** comprises a plurality of laminae **12** wherein each of the laminae comprises a conductive plate portion **14** and a non-conductive sheet portion **16**. At each end of the multilayer capacitor **10** there is at least one non-conductive sheet portion **18** which does not contain a conductive plate portion. There may, of course, be more than one non-conductive sheet portion **18**, if desired. The conductive plate portion **14** has at least one tab **20** projecting to at least one surface edge **32** of the conductive plate portion **14** and lamina **12**. An important feature of

* * *

The multilayer capacitor **10** further comprises islands of metallurgy **34** joining selective groups of tabs **20** in each row such that each of the islands **34** covers a portion of each row of tabs. It is preferred that the islands **34** cover only a portion of each and every row of tabs.

* * *

islands of metallurgy **34**. However, capacitor **110** further comprises at least one tab **43** projecting to an opposite edge **45** of each of the conductive plate portions **114**. The capacitor **110** further comprises islands of metallurgy **46** which join selected groups of opposed tabs **43**.

FIG. **4A** is a modification of capacitor **110** shown in FIG. **4**. Capacitor **120** of FIG. **4A** also further comprises at least one tab **43** projecting to an opposite edge **45** of each of the conductive plate portions **122**. Capacitor **120**, however, is configured such that each edge **32**, **45** of the conductive plate portion **122** has at least one tab which represents a mirror image of the opposed edge **45**, **32** of the conductive plate portion **122**. That is,

tabs **43** represent a mirror image of tabs **20**. With respect to the islands of metallurgy, the islands of metallurgy **34**, **46** on opposed sides of the capacitor **110** join mirror-image selected groups of tabs.

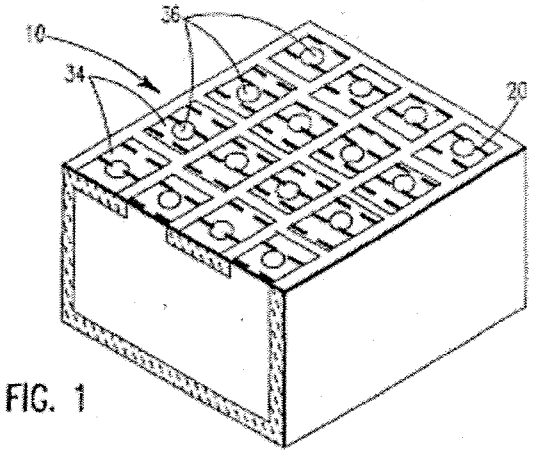


FIG. 1

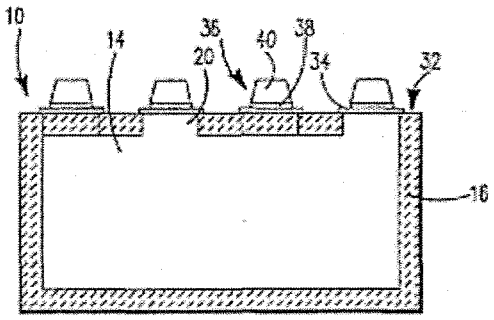


FIG. 3

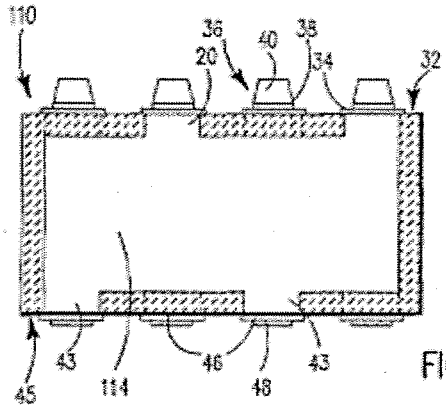


FIG. 4

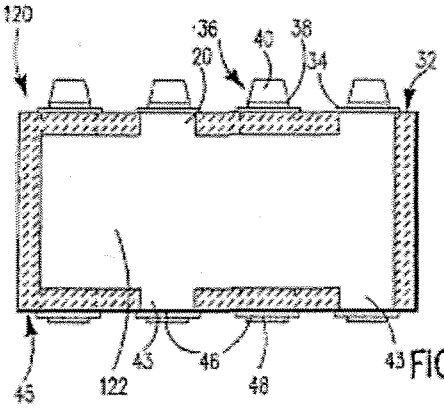


FIG. 4A

FIG. 5

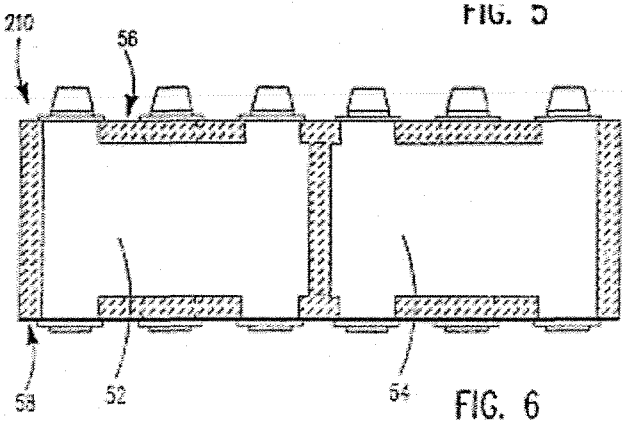


FIG. 6

(RX-959 at 1:39-40, 5:7-20, 6:1-5; 7:55- 8:4, Figs. 1, 3, 4, 4A, 6.) While the selected passage in the Arnold specification refers to "islands of metallurgy **34, 36** on opposed sides of the capacitor **110**[,]" a review of the figure referred to in that passage (4A) shows that this reference does not

disclose electrical terminals disposed on the side surfaces. (*Id.* at 8:2-4.) Just as in the H2 application, Arnold shows these terminals on the top and bottom surfaces.

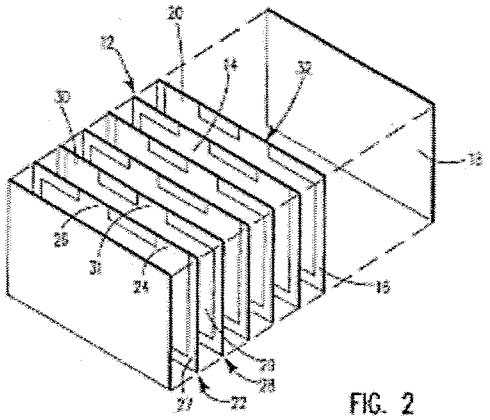


FIG. 2

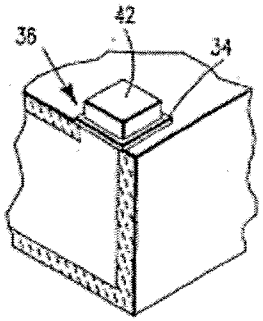


FIG. 7

(*Id.* at Figs. 2, 7.) Additionally, as there is no suggestion that the figures in the Arnold reference are drawn to scale, the L/W ratio limitation of the asserted claims is not met. The Administrative Law Judge concludes that Samsung has failed to show by clear and convincing evidence that the Arnold reference anticipates any of the asserted '229 patent claims.

c) Galvagni Reference.

Samsung contends that claims 51-52 and 55-56 of the '229 patent are anticipated by an article by John Galvagni, So Many Electrons, So Little Time" (the "Galvagni" reference), published in 1994. (RBr. at 137.) As claims 55-56 of the '229 patent are not asserted claims, Samsung's arguments with respect to these will be disregarded. Murata argues that the Galvagni reference[23] does not disclose the L/W ratios claimed in the asserted claims and also does not disclose terminals on the capacitor side surfaces. (CBr. at 121-122.) Staff argues that the Galvagni reference does not anticipate any of the asserted claims because it fails to disclose terminals on the opposed side surfaces. (SBr. at 122-23.)

[23] Murata combines its arguments with respect to the Galvani reference with another article authored by John Galvagni, however Samsung makes no mention of this second reference in its post-hearing brief and thus has abandoned it. (Ground Rule 10.1.)

Just as with the Arnold prior art reference, the Administrative Law Judge questions whether Samsung has presented clear and convincing evidence to show that those elements of claims 51 and 52 that are not disputed by Murata and Staff are actually present in the Galvagni reference. Once again, as Galvagni does not disclose "first and second external terminal electrodes provided on the side surfaces onto which the first and second lead electrodes extend. . . ." as required by claims 51 and 52 of the '229 patent (JX-1 at 22:17-19), this question of whether Samsung has met its burden with respect to the other elements need not be reached. Dr. Randall testified that the lead structures in the device in the Galvagni reference terminate to one side only and that the electrode leads are in a "face-down orientation" pointing towards the circuit board. (Tr. at 1642:11-15, 1643:11-18 (Randall).)

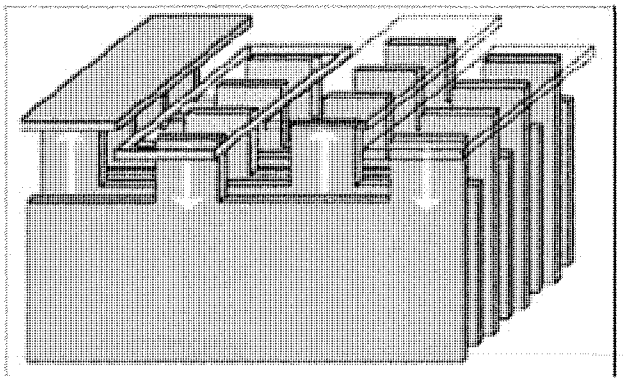


Figure 2 of RX-872 (Color Added)

(Figure from RFF 6.600 (RX-872 is a duplicate of RX-620).) Mr. Galvagni, the article's author, testified that the electrode tabs are pointing "up" and are located at the "top of the device." (Tr. at 1478:5-9 (Galvagni).) Thus the terminals that connect to these would be located on the top, not the side of the disclosed capacitor. Furthermore, Mr. Galvagni admitted that the drawings in the article are not to scale (Tr. at 1470:22-24 (Galvagni)), and therefore Samsung has not demonstrated by clear and convincing evidence that the L/W ratio limitation of each of the asserted claims has been met. Accordingly, the Administrative Law Judge concludes that

Samsung has failed to demonstrate by clear and convincing evidence that the Galvagni reference anticipates claims 51 and 52 of the '229 patent.

d) U.S. Patent No. 5,880,925.

Samsung contends that the '229 patent is anticipated by U.S. Patent No. 5,880,925 (the "DuPré" patent). (RBr. at 123.) Murata argues that DuPré does not disclose the L/W ratios required by all of the asserted patent claims. (CBr. at 123-24.) Staff agrees. (SBr. at 120.)

Just as with the Arnold prior art, Samsung has a heightened burden with respect to the DuPré reference because Samsung is relying entirely on material disclosed (JX-9 at MM_000341) to the examiner during prosecution. *Ultra-Tex*, 204 F.3d at 1367.

Samsung relies on the testimony of Dr. Randall to show that DuPré discloses the L/W ratios claimed in the asserted claims. (RBr. at 123.) However, Dr. Randall based this opinion on measurements he made of the DuPré patent figures, even though he admitted these were not drawn to scale. (Tr. at 1634 (Randall).) The Administrative Law Judge finds that Samsung has failed to show by clear and convincing evidence that DuPré discloses the claimed L/W ratios of the asserted claims. *Go Medical*, 471 F.3d at 1271.

e) U.S. Patent No. 5,430,605 and deNeuf Product.

Samsung no longer contends that the '229 patent is anticipated by U.S. Patent No. 5,430,605 and the deNeuf Product, alleged to be prior art to the '229 patent. (*See* RBr. at 132-137.) Samsung is deemed to have abandoned its Section 102 allegations with respect to these references. (Ground Rule 10.1.)

C. Obviousness.

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. 35 U.S.C. § 103(a). 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." *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed. Cir. 1997) (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966) ("*Graham*")).

After claim construction, "[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." *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1354 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17). The existence of secondary considerations of non-obviousness does not control the obviousness determination: a court must consider "the totality of the evidence" before reaching a decision on obviousness. *Richardson-Vicks*, 122 F.3d at 1483.

The Supreme Court recently clarified the obviousness inquiry in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 389 (2007) ("*KSR*"). The Supreme Court said:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson's-Black Rock* are illustrative–a court must ask whether the improvement is more

> than the predictable use of prior art elements according to their established functions.
>
> Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.
>
> * * *
>
> The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

KSR, 550 U.S. at 417-19.

The Federal Circuit has since held that when a patent challenger contends that a patent is invalid for obviousness based on a combination of several prior art references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007) (citations omitted).

> The TSM[24] test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence--teachings, suggestions (a tellingly broad term), or motivations (an equally broad term)--that arise before the time of invention as

[24] TSM means teaching, suggestion, motivation.

> the statute requires. As *KSR* requires, those teachings, suggestions, or motivations need not always be written references but may be found within the knowledge and creativity of ordinarily skilled artisans.

Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc., 520 F.3d 1358, 1365 (Fed. Cir. 2008).

1. '254 patent.

a) Japanese Patent Publication H8-31232.

Samsung asserts that the '254 patent is invalid as obvious by reason of Japanese Patent Application Publication No. H8-31232 ("the '232 publication"). (RBr. at 62.) Additionally, says Samsung, the '254 patent is rendered obvious by the '232 Publication in light of U.S. Patent No. 5,742,473 ("the '473 patent") because it explicitly limits alkali metal oxides in barium titanate to about 0.02 percent by weight, or less. (*Id.* at 63.) Samsung argues that the '473 patent describes a composition that is made from barium titanate that has a mean particle size in the range prescribed in claim 2 of the '254 patent. (*Id.*) If one applies Murata's proposed claim construction, which Samsung says disregards any chemical bonding of the individual components, the '473 patent would be found to describe a composition containing all of the chemical elements in the molar amounts specified by the '254 patent. (*Id.*)

Samsung claims that the '232 publication describes both barium titanate and barium calcium titanate ceramic compositions that accept internal nickel electrodes and can be sintered in a reducing atmosphere. (*Id.* at 64.) As such, the '232 publication describes the production of ceramic dielectric compositions that have high dielectric constants and can be sintered in a reducing atmosphere even though nickel is used in the electrodes. (*Id.*) One of the embodiments mentioned in the '232 publication involves (Ba,Ca)TiO and Re_2O_3, where Re is selected from Y, Gd, Dy, Ho, Er, and Yb. (RBr.) This embodiment also includes manganese, magnesium, Li_2CO_3

and SiO_3, says Samsung. (*Id.* at 65.) Sample 36 in Table 7 of the '232 publication mentions proportions of Ba, Ca, Re, MnO, and SiO_2, which Samsung suggests "allow comparison with the '254 patent claims. (*Id.*)

According to Samsung, the absence of a limitation in the '232 publication stating that the presence of metal oxides in the composition have to be 0.02 percent or less is not a fatal omission for the '232 publication being considered invalidating prior art, because such a restriction of alkali metal oxides was well known to those of skill in the art at the time of its publication and also was taken into account by virtue of the fact that commercially available starting materials came that way. (*Id.* at 65-66.) Because persons skilled in the art understood and appreciated the fact that impurities, such as alkali metal oxides, had to be minimized, they therefore would have known the importance of making use of low alkali metal content in any family of barium titanate materials for starting materials, says Samsung. (*Id.* at 66.) Samsung emphasizes that, prior to the '254 patent application, barium titanate powders were readily available, commercially, that contained less than 0.02 percent alkali metal oxide by weight. (*Id.*) Therefore, says Samsung, the alkali metal oxide limitation that Dr. Burn says was not included in the '232 publication would nevertheless have been obvious to anyone of skill in the art at the time the '254 application was filed. (*Id.* at 67.) Samsung argues that, because Murata relies solely on the absence of this limitation in the '232 publication, it bears the burden of proving the publication does contain alkali metal oxide in an amount greater than what is allowed by the '254 patent. (*Id.* (citing *Upsher-Smith Labs v. Pamlab, LLC,* 412 F.3d 1319, 1322 (Fed. Cir. 2005)).) According to Samsung, its *prima facie* proof that the '254 patent is invalid by reason of the '232 publication shifts the burden of producing rebuttal evidence to Murata. (*Id.* at 68.)

Samsung argues that Murata is only speculating when it says that Li_2CO_3, which is present as a sintering aid in sample 36 of the '232 publication, will decompose at sintering temperatures and form Li_2O, and in saying that, the resulting Li_2O may diffuse into $(Ba_{1-x}Ca_xO)_mTiO_2$ in an amount that exceeds the 0.02 percent by weight threshold of the '254 patent. (*Id.*) Samsung argues that Murata's speculation here is flawed for several reasons. First, lithium carbonate, the compound actually used as a sintering aid in sample 36 of the '232 publication, is not an alkali metal oxide. (*Id.* (quoting Tr. at 584 (Burn).) Second, the '232 publication teaches the addition of Li_2CO_3 in combination with SiO_2, and as lithium is known to be stable in that form, it is not likely to diffuse into the barium calcium titanate of sample 36. (*Id.* at 69.) Additionally, Samsung argues that Li_2CO, to the extent it might be formed at all from Li_2CO_3, would not diffuse into barium calcium titanate. (*Id.*)

According to Samsung, even if one were to assume that Li_2CO_3 decomposes to form Li_2CO, which in turn diffuses into $(Ba_{1-x}Ca_xO)_mTiO_2$ in sample 36 of the '232 publication, such diffusion fails to distinguish the '254 patent claims over the '232 publication, because, in the first place, the '254 patent itself claims a lithium-containing sub-component, Li_2O-$(Si,Ti)O_2$-MO oxide, and if Li_2CO diffuses into $(Ba_{1-x}Ca_xO)_mTiO_2$ insofar as the teaching of the '232 publication, it would likewise diffuse in the embodiment of the '254 patent that makes use of Li_2O-$(Si,Ti)O_2$-MO oxide as a "first component." (*Id.* at 70.) Secondly, Samsung argues that any possible diffusion of alkali metal oxide during sintering is irrelevant to this discussion because any proper construction of the '254 patent requires that there only be 0.02 percent by weight, or less, of alkali metal oxides in $(Ba_{1-x}Ca_xO)_mTiO_2$ as starting materials.[25] Accordingly, Samsung believes it would be inconsistent to interpret the '254 patent to include a limitation on the amount of Li_2O

[25] Before sintering.

diffusion into $(Ba_{1-x}Ca_xO)_mTiO_2$ when the amount of Li_2O diffusion was never mentioned in the '254 specification and is, according to Dr. Burn, impossible to quantify, anyway. (*Id.*)

Even assuming Li_2CO_3 decomposes to form Li_2O, which diffuses into barium calcium titanate, the sintered barium calcium titanate would be lithium-free at its core, argues Samsung. (*Id.* (citing Tr. at 1920 (Dougherty).) Therefore, according to Samsung, even after sintering, sample 36 indisputably would contain lithium-free $(Ba_{1-x}Ca_xO)_mTiO_2$ at the core and, thus, the '232 publication renders obvious the '254 patent regardless of any lithium diffusion into the shell. (*Id.* at 71.)

Murata counters that, in the '232 publication, lithium oxide is not considered to be an impurity but, rather, an essential component, commenting that what may be considered an impurity for one composition may not be for another. (CRBr. at 30.) Murata says that the '232 publication teaches that a high level of lithium oxide (Li_2O), an alkali metal oxide, must be present in the sintered dielectric material, far more than the maximum of 0.02 percent by weight permitted by the '254 patent. (CBr. at 47.) Murata says that Li_2O is an essential component of the '232 publication dielectric material and no combination, including the ones mentioned in the '232 publication, would have eliminated it. (*Id.* at 48.) The inventors named in the '232 publication found experimentally that an insufficient lithium concentration produced unexpectedly poor temperature characteristics of capacitance, Murata argues. (*Id.* 49.) Therefore, Murata argues that no one of ordinary skill would find it obvious to eliminate the essential Li_2O ingredient, quoting *In re Marosi*, 710 F.2d 799, 803 (Fed. Cir. 1983) as follows:

> the [prior art], which requires alkali metal as an essential ingredient, neither anticipates nor renders obvious appellants' process, which requires the practical elimination of alkali metal. A person of ordinary skill in the art would reasonably expect that, if what is taught as an essential ingredient is not included, an undesirable reaction or no reaction at all would occur.

(CRBr. at 30-31.)

Murata argues that the '254 patent's requirement, that the molar ratio of calcium (x) in the barium calcium titanate material must fall within a range of 0.005 to 0.22, would not have been obvious in view of the '232 publication. This is because Samsung's expert witness Dr. Dougherty only discussed sample 36 in Table 7 of the '232 publication and ignored other samples in the same table that were contraindicative of obviousness, such as sample 39 which has an x value of 0.030, which, although within the range of the '254 patent, is marked outside the range of the '232 publication. (CBr. at 50.) Murata says that the '232 publication's inventors found that the amount of calcium in sample 39 resulted in a low specific dielectric constant and low insulation resistance, and the publication teaches away from the '254 patent's x range with samples 33 and 34 within the stated range of the '232 publication, yet with values of less than 0.005. (*Id.*)

Murata says that the '232 publication could render the '254 patent obvious only if Samsung had proved by clear and convincing evidence that Li_2O in the '232 publication was present outside the barium calcium titanate material (not having been diffused into it during sintering), and because Samsung did not test the material described in the '232 publication, it is unclear whether that material contains over 0.02 percent by weight of alkali metal oxides. (CRBr. at 31.)

Murata responds to the portion of Samsung's argument that references *Upsher-Smith Labs v. Pamlab, LLC*, *supra*, by noting that in that case the court found that a "prior art composition that 'optionally includes' an ingredient anticipates a claim for the same composition that expressly excludes that ingredient." (*Id.* at 32 (quoting *Upsher-Smith*, 412 F.3d at 1320-21).) Unlike the circumstances in that case, the '232 publication does not "optionally include" Li_2O;

instead, it requires a very high concentration of it, argues Murata, and therefore the cited case is inapposite. (*Id.*) Furthermore, in the cited case, the prior art was anticipatory and therefore secondary considerations of non-obviousness and the prior art's teaching away from the claimed invention were not an issue, as they are here. (*Id.*) Finally, Murata says that in *Upsher-Smith*, the burden of production only shifted to the patentee once the challenger had presented a prima facie case of invalidity, which Samsung has not done here. (*Id.*)

Murata says that, because the '232 publication is not anticipatory, one must examine the reference as a whole to determine if the '254 patent's claims are obvious, and Samsung's expert never attempted to explain why a person of ordinary skill in the art upon reviewing the '232 publication would have been motivated to use the amount of calcium in sample 36 but not samples 33, or 39, which are within the scope of the '232 publication but not the '254 patent, or vice versa. (*Id.*) Finally, argues Murata, Samsung's obviousness argument completely ignores the objective indicia, or secondary considerations, of non-obviousness. (*Id.* at 32-33.)

Staff says that the '232 publication, with respect to sample 36 or example 3, meets every claim limitation of claim 1 of the '254 patent except the limitation requiring 0.02 percent or less of an alkali metal oxide and the required value for the γ, which is equal to, instead of greater than, 0.001. (SBr. at 40-41.)

The Administrative Law Judge agrees with Murata and Staff that the evidence provided by Samsung does not demonstrate clearly and convincingly that the '232 publication renders obvious the '254 patent with respect to claim 1's limitation that restricts the presence of alkali metal oxides in $(Ba_{1-x}Ca_xO)_mTiO_2$ to 0.02 percent or less by weight (see JX-4 at 32:66-67). Given the lack of any empirical evidence that the barium calcium titanate material described in the '232

publication does not include more than 0.02 percent by weight of alkali metal oxide, the evidence does not demonstrate that it would have been obvious to one of skill in the art at the time to do so.

b) U.S. Patent No. 5,742,473.

Samsung also asserts that the '254 patent is rendered obvious over the '232 publication in view of U.S. Patent No. 5,742,473 entitled Monolithic Ceramic Capacitor ("the '473 patent") which was filed on December 20, 1996 and issued on April 21, 1998. (RBr. at 71.) According to Samsung, the '473 patent expressly teaches a principal component barium titanate with 0.02 percent by weight or less alkali metal oxides, and that it and the '232 publication are directed to ceramic compositions for use with nickel electrodes. Both of these compositions are sintered in a reducing atmosphere without developing semi-conductive properties, and thus it would have been obvious to apply the teaching of the '473 patent regarding 0.02 percent by weight or less alkali metal oxides in the principal component to the composition described in the '232 publication, Samsung argues. (*Id.* at 71.)

Samsung also argues that the '473 patent does not teach away from the '254 invention by treating calcium as an impurity in its Table 1, as maintained by Murata, because the '473 patent expressly teaches to include calcium as a sub-component in the form of oxide glass and because it is well understood by material scientists to control the amount of each compound that is added to a ceramic. (*Id.* at 71-72.) Because calcium is added as part of a sub-component in the '473 patent, the total calcium would vary if additional calcium were present in the principal component and thus the '473 patent labels calcium oxide an "impurity." (*Id.* at 72.) Samsung argues that this is because it needs to be controlled, not because it is to be excluded from the composition. (*Id.*)

Samsung says that the '473 patent explicitly teaches grain sizes smaller than 0.75 microns, and because it was known by those skilled in the art to start out with powders having particle sizes of 0.3 to 0.6 microns, the subject matter of claim 2 of the '254 patent (mean particle size of about 0.10 to 0.7 μm) was rendered obvious by the '473 patent and the '232 publication. (*Id.*)

With respect to claim 9 of the '254 patent, Samsung says sample 36 of the '232 publication teaches 0.384 parts by weight of SiO_2, which may be a third sub-component according to claim 9 as it depends from claim 1. (*Id.*)

With respect to dependent claims 11, 13, and 19, which are directed to a laminated ceramic capacitor having a plurality of dielectric layers containing the dielectric ceramic according to claims 1, 2, or 9 ("a plurality of inner dielectric layers comprising Ni or an NI alloy and existing among the plurality of said dielectric layers; and external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said capacitor"), Samsung contends that the subject matter of these claims is obvious in view of the '232 publication. (*Id.* at 73.)

With respect to dependent claims 12, 14, and 20, which are directed to a laminated ceramic capacitor according to claims 11, 13, and 19, wherein the external electrodes comprise a sintered layer of conductive metal powder or conductive metal powder and glass frit, Samsung argues that conductive metal powders and glass frits have been used for decades as the standard way to apply external electrodes. (*Id.*) Thus Samsung argues the subject matter of these claims is also obvious. (*Id.*)

Murata disputes Samsung's arguments with respect to the '473 patent by pointing to the fact that both Dr. Dougherty and Mr. Sano[26] agreed that little or no calcium from the calcium-

[26] One of the '473 patent's inventors.

containing sintering aid would incorporate into barium titanate during sintering under process conditions described in the '473 patent. (CBr. at 46.) Murata argues that chemical analysis would be required to determine the extent to which any calcium from the sintering aid diffused into barium titanate, and Samsung presented no such evidence. (*Id.*) Also, Mr. Sano testified that according to experiments that were conducted regarding the '473 composition, calcium does not diffuse into the barium titanate in the '473 dielectric material during sintering. Murata further notes that all of the expert witness who dealt with the '473 patent agreed that barium calcium titanate is not present in its dielectric material either before or after sintering. (*Id.* at 47.)

Staff agrees with Murata that the '473 patent does not render the '254 patent obvious. Staff's position stems from the fact that the '473 patent does not disclose an amount of manganese that falls within the range of the '254 patent. (SBr. at 45.)

The Administrative Law Judge concludes that Samsung has not produced evidence that shows clearly and convincingly that the '473 patent, either alone or in conjunction with the '232 publication, renders obvious the '254 patent. The calcium to be used as an optional sintering aid in the '473 patent has not been demonstrated by Samsung to diffuse into the barium titanate composition. No inferences can be drawn about that possibility based on conjecture alone; empirical evidence supportive of Samsung's allegation is lacking.

2. '309 patent.

a) The Yoneda Article.

Yoneda

Samsung maintains that the '309 patent is invalid by reason of an October 1996 article entitled "Relationship Between Microstructure and Characteristics of Multilayer Capacitors having 'Core-Shell' Structure," by Murata employee Yasunobu Yoneda (the "Yoneda" article).

(RBr. at 107.) Samsung says Yoneda was not disclosed to the Patent Office during the prosecution of the '309 patent. (*Id.*)

According to Samsung, Yoneda used the identical testing methods for an MLCC as were apparently used for the '309 patent, and Yoneda expressly discloses three of the four quantitative requirements of the '309 patent: 1) a ceramic layer thickness of 3 μm; 2) 200 or more layers (specifically 350); and 3) a ratio of the thickness of the internal electrode to the thickness of the ceramic layer of 0.4. (*Id.*) Although acknowledging that Yoneda does not expressly disclose the percentage of electrode coverage needed to determine electrode volume, Samsung argues that the electrode "coverage" was basic information that was known to persons of ordinary skill in the art of MLCC design at the time, or else it would have been obvious to them to apply to Yoneda the teaching of electrode coverage taught by Nakano. (*Id.* at 107-108.) Samsung reasons that persons skilled in the art would have been motivated to resort to Nakano's electrode coverage information using the teachings of Yoneda because both references are directed to the same problem of selecting dielectric and electrode thicknesses for MLCCs. (*Id.* at 108.) Furthermore, according to Samsung, persons of skill would also have been motivated to use the top and bottom cover layer thickness taught by U.S. Patent No. 6,160,472 ("Arashi") because both references are directed to the same problem of designing multilayer ceramic electronic parts. (*Id.*) Thus, Samsung contends, Yoneda alone, or in combination with either Nakano or Arashi, or both, renders the '309 patent obvious. (*Id.*)

Arashi

Samsung points out that Arashi, filed on March 22, 1996 and issued on December 12, 2000, which was not considered by the Patent Office during the prosecution of the '309 patent, discloses a multilayer varistor having the same structure as the MLCC of the '309 patent as well

as three of its quantitative requirements: 1) a ceramic layer thickness of 7 μm; 2) 200 layers; and 3) a ratio of thickness of the internal electrode to thickness of the ceramic layer equal to 0.36, which falls with the '309 patent's claimed range of 0.10 to 0.40. (*Id.*) Samsung says that Arashi also discloses all of the measurements needed to calculate the volume ratio of the '309 patent, including cover layer thickness, except the area of an internal electrode. (*Id.* at 109.) As a result, Arashi reveals a volume ratio ranging from 0.03 to 0.23—overlapping with the 0.10 to 0.30 range disclosed in claim 3 of the '309 patent—and, therefore, persons of skill in the art would have been motivated to combine the electrode coverage disclosed in Nakano with the teachings of Arashi. (*Id.*) Samsung argues this is because both references are directed to the same problem of selecting dielectric and electrode thicknesses for multilayer ceramic electronic parts. (*Id.*)

Sano

Samsung argues that another reference relevant to a finding of obviousness is Japanese Patent Application No. H07-074047 ("Sano"), which it says was published on March 17, 1995 and assigned to Murata, but was never disclosed to the Patent Office. (*Id.*) Samsung says Sano discloses a "stacked ceramic condenser" having the same configuration as the other prior art mentioned by Samsung and the '309 patent and teaches the same objective of avoiding cracking or delamination when using very thin ceramic layers. (*Id.*) Sano discloses an MLCC with a ceramic layer thickness of 7.5 μm and a ratio thickness of the internal electrode layer to the thickness of the ceramic layer which is less one-seventh, or 0.143. (*Id.*) Samsung argues that persons of skill in the art would have been motivated to combine Nakano's disclosure of numbers of electrode layers with the electrode coverage information of Sano, because both of these references are directed to the same problem of selecting dielectric and electrode

thicknesses for MLCCs. (*Id.* at 109-110.) Therefore Samsung argues that this combination of references renders obvious claim 3 under all of the parties' proposed claim constructions. (*Id.*) Additionally, Samsung says that Murata offered no evidence of secondary considerations to rebut Samsung's contentions of obviousness stemming from the three cited prior references. (*Id.* at 110.)

Staff believes that Nakano discloses all of the elements of the claim 3 of the '309 patent except elements (c)(3) and (4) and that Sano discloses elements (c)(3) and (4) to the same degree as claim 3 of the '309 patent. (SBr. at 67-68.) Staff argues that there was a great desire in the industry to design capacitors that used thinner layers and to increase the number of those layers. (*Id.* at 68.) Staff says that there is ample evidence that persons of skill in the art were motivated to combine the teachings of Nakano and Sano and therefore claim 3 of the '309 patent was rendered obvious by these prior art references. (*Id.*)

Staff also notes that Arashi discloses all of the elements of the '309 patent except possibly (c)(2), while Nakano discloses all of the elements except (c)(3) and (4). (*Id.* at 69-70.) Staff argues that the combination of Nakano and Arashi renders claim 3 of the '309 patent obvious. (*Id.* at 70-72.)

Staff is also of the opinion that Yoneda in combination with Nakano and Arashi renders claim 3 of the '309 patent obvious. (*Id.* at 72-73.) Staff does not believe that there is evidence of any secondary considerations that stand in the way of a finding of obviousness, noting that only { } of more than { }capacitors sold in the United States by Murata use the invention of the '309 patent, representing only { } percent of relevant sales. (*Id.* at 73.) Staff says there is no evidence licensing activity by Murata either. (*Id.*) Finally, Staff notes that Murata

has not shown that it has experienced any commercial success through its practice of the '309 patent. (*Id.*)

Murata counters Samsung's and Staff's respective obviousness contentions by arguing that none of the combinations of prior art put forth by the proposing parties discloses a volume ratio ranging from 0.10 to 0.30, and says that Samsung did not even attempt to show invalidity under its own proposed construction. (CBr. at 82; CRBr. at 44.) Murata argues that claim 3 of the '309 patent uses a combination of thickness and volume ratios to achieve desirable results, and that there can be no obvious finding if there is no recognition in the prior art that such a combination achieves a recognized result. (CBr. at 82.) Murata points out that none of the combinations relied upon by Samsung teaches that the thickness or volume ratio, considered individually, achieves a desired result, much less that they conjunctively accomplish the objectives of the '309 patent. (*Id.*) Murata argues that the only evidence that exists that the combination of the thickness and volume ratios is a key for solving reliability problems lies within the '309 patent itself. (*Id.*) Murata contends that Samsung, for its obviousness arguments, improperly employs hindsight. (*Id.*) Murata also reasons that Nakano's thickness ratio of 0.01 to 10 (which equates to a spread of 1 to 1,000) would not have caused a person of ordinary skill in the art to understand the benefits of the '309 patent's ratio of 0.10 to 0.40 (which equates to a spread of 1 to 4). (CRBr. at 44.)

Murata notes that Arashi was concerned with increased capacitance and improved surge resistance, not reliability, and proposed certain compositions for use in varistors. (CBr. at 83; CRBr. at 46.) Murata notes that, aside from a mention in one sentence that ceramic layers be "at least 1, preferably 2 to about 200" most of the examples in Arashi have 15 layers or fewer, the highest number shown in any example being 170. (*Id.*) Murata points out that Arashi does not

mention the subjects of cracking or delamination and teaches nothing about volume ratios in the varistors it discusses. (*Id.*)

As for Yoneda's bearing on the issue of obviousness, Murata points out that it does not even discuss the topic of a thickness ratio (CBr. at 84; CRBr. at 46) and is not concerned with enhancement of mechanical reliability. Rather, Yoneda is concerned with optimizing the dielectric's crystal structure to avoid electrical breakdown at high voltage and managing changes in voltage and capacitance. (CBr. at 84.) Yoneda does not disclose a volume ratio, discuss the importance of volume ratios, or provide sufficient information for how to calculate a volume ratio, Murata notes. (*Id.*; CRBr. at 47.) According to Murata, a person of ordinary skill in the art would not look to all references relating in any way to MLCC design but would instead focus on references addressing the particular problem under consideration. (CRBr. at 47.)

Murata argues that Sano does not disclose volume ratios or their importance and addresses devices with only 19 layers—a small number relative to the number claimed in the '309 patent. (CBr. at 85; CRBr. at 47.) Murata contends that Sano teaches away from the '309 patent based on some of the thickness ratios included in its examples, which would fall within the range disclosed in the '309 patent but, according to Sano, are outside the scope of what it teaches. (*Id.*)

Murata, addressing Staff's argument that the '309 patent itself does not disclose required information for calculating a volume ratio, anymore than do the Yoneda, Sano, or Arashi references, argues that Staff's reasoning is fundamentally flawed, on the basis that it ignores the specification of the '309 patent. Murata argues that the '309 specification expressly discloses the volume ratios of MLCCs that were actually tested and the manner in which the volume ratio is determined, that being dividing the volume of the internal electrodes by the volume of the entire

ceramic element. (CRBr. at 48.) Therefore, argues Murata, it is irrelevant that the '309 patent does not provide values for the dimensions needed to re-calculate the volume ratios determined by the inventors for their specific test samples; whereas, it is dispositive that the asserted prior art references do not disclose either a volume ratio or sufficient information to calculate it, and lacking such information, they cannot be considered as rendering the '309 patent obvious. (*Id.*)

The Administrative Law Judge concludes that Nakano, Yoneda, Arashi, and Sano do not invalidate the '309 patent. As noted by Murata, these references do not teach how to achieve the benefits claimed by the '309 patent by combining the thickness and volume ratios disclosed in claim 3, elements (c)(3) and (4). The argument that a person of skill in the art would extract bits and pieces of information from these references and combine them in the manner achieved by the '309 patent is too attenuated. Nakano's thickness ratio of 0.01 to 10 is simply far too broad to suggest that the far narrower thickness ratio declared in the '309 patent is an obvious derivation of Nakano. Arashi does not disclose the relationship between the thickness and volume ratios described in the '309 patent or associate the volumes of the electrodes and ceramic layers with the number of layers; and neither Samsung nor Staff has offered more than generalities for why someone of skill in the art would find it obvious to extract information in Nakano, Arashi, Yoneda, and Sano for purposes of producing more reliable electronic parts or would be motivated to ferret information from them for doing so. Sano does not address a volume ratio; nor does it suggest a way of improving reliability of electronic parts that have ceramic layers of 200 and above. It is not simply multilayered ceramic electronic parts that are the subject of the '309 patent, but parts that suffer additional delamination and cracking problems when they are laminated in layers of 200 and more. Sano does not address this subject or how the thickness and volume ratios of the internal electrodes and ceramic layers are

interrelated therewith. Yoneda does not concern the subject of advantages of certain thickness ratios and does not discuss a volume ratio or how to calculate a volume ratio that offers reliability against cracking and delamination.

3. '229 patent.

Samsung and Staff contend that the '229 patent is rendered obvious based on the knowledge possessed by one of skill in the art, or alternatively, on combinations of prior art references. (RBr. at 139-143; SBr. at 127-129.) For the reasons discussed above with respect to anticipation, the Administrative Law Judge declines to consider the AAPA as a prior art reference in lieu of the underlying H2 application. It is further noted that any issues relating to the level of skill in the art and scope of the asserted patent claims have already been resolved in Section III.D. above. Below is a discussion of (i) the scope and content of the relevant prior art, as well as the differences between it and the asserted claims of the '229 patent, to the extent these were not already discussed above with respect to anticipation; and (ii) any objective indicia of non-obviousness raised by the parties. *Smiths Indus.*, 183 F.3d at 1354.

a) DuPré.

Claim 1.

It is undisputed that DuPré discloses a multi-layer capacitor. (RFF 6.253 (undisputed).) It is further undisputed that:

> DuPré discloses a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces. (Tr. at 1635:15-23 (Randall); RX-113 at 5:17-23, figs. 4-5)
>
> DuPré discloses a capacitor body including a plurality of first electrode plates and a plurality of second electrode plates. (Tr. at 1635:15-23 (Randall); RX-113 at 5:17-23, figs. 5, 6.)

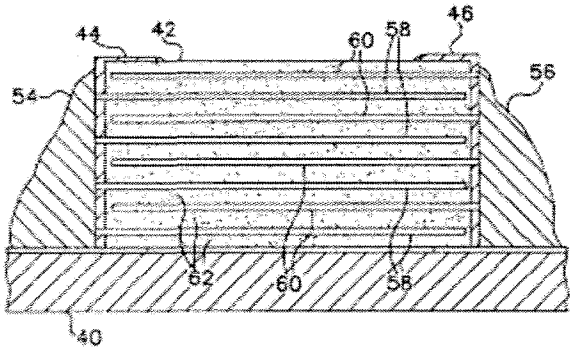


Figure 5 of DuPré (RX-113)

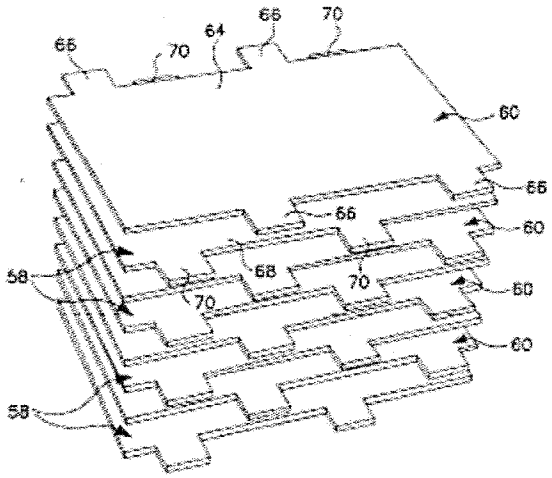


Figure 6 of DuPré (RX-113)

DuPré discloses a capacitor body wherein the first and second electrode plates being interleaved with each other in opposed and spaced apart relation. (Tr. at 1514:8-15, 1635:15-1637:11, 1637:2-24 (Randall); RX-113 at 2:17-21, figs. 5-6; see also RX-113 at 5:49-52, 6:42-51)

DuPré discloses a capacitor body wherein a dielectric material located between each opposed set of the first and second electrode plates. (Tr. at 1635:15-23 (Randall); RX-113 at 1:45-47; 5:54-59, figs. 5-6; see also RX- 113 at 6:42-51)

DuPré discloses the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom. (Tr. at 1635:15-1636:6 (Randall); RX-113 at 2:21- 28; 6:1-17)

DuPré discloses lead structures of the first electrodes plates being located adjacent to respective lead structures of the second electrode plates in an interdigitated arrangement. (Tr. at 1514:6-25, 1613:5-20, 1635:15-1636:6, 1637:2-24 (Randall); RX-113 at 2:21-28; 5:25-28; 6:1-17, figs. 6-7)

DuPré discloses lead structures of the first electrodes plates and lead structures of the second electrodes plates projecting alternately between each other. (Tr. at 1514: 6-25, 1613:5-20, 1637:2-24 (Randall); RX-113 at 2:21-28; 5:25-28 ("As can be seen, the opposite polarity terminals located on each lateral side of capacitor body 42 are interdigitated such that a first polarity terminal 44 will always be adjacent at least one second polarity terminal 46 (and vice versa)."); 6:1-17, figs. 6-7)

DuPré discloses a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body. ([]; RX-113 at fig. 4, 5:16-23)

> DuPré discloses a capacitor body wherein the corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates are electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals[.] ([]; RX-113 at figs. 4-7, [])

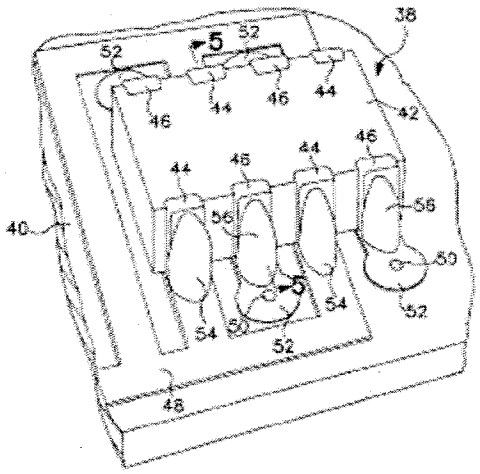


Figure 4 of DuPré (RX-113)

> DuPré discloses a capacitor body wherein each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body. ([]; RX-113 at 1:23-25; 5:17-32, fig. 4)

(RFF 6.254-60 (undisputed); RFF 6.261-263 (undisputed in relevant part).) Thus it is undisputed that the DuPré prior art reference teaches all of the elements of claim 1 except the last element, which requires that "at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less." (JX-1 at 18:35-37.) As discussed above with respect to anticipation, the Administrative Law Judge has found that this is not disclosed in DuPré.

At issue is whether the claimed L/W ratio would have been obvious for one of skill in the art. Samsung and Staff contend that one of skill in the art would have had sufficient knowledge to understand that even if the figures in DuPré were not drawn to scale, roughly square leads

with a L/W ratio of approximately 1 were disclosed. (RBr. at 138-39; SBr. at 121.) Murata contends that Samsung's arguments are based on hindsight, and that there was no recognition in the prior art that the length to width ratio achieved desirable results. (CBr. at 125.)

The clear and convincing evidence shows that it would have been obvious for a person of skill in the art at the time the '229 patent was filed to implement leads within the claimed L/W range when making the capacitor device disclosed in DuPré. According to the testimony of Dr. Randall, it would have been obvious for one of skill in the art to try various combinations of electrode lead lengths and widths to achieve reduced inductance. (Tr. at 1611-14 (Randall).) His testimony is supported by the unrebutted testimony of two persons of skill in the art. Mr. Galvagni, who designed interdigitated low inductance products in the 1980's through the mid-1990's, testified that he never designed general purpose interdigitated capacitors with tabs having a L/W ratio greater than 3 because that would "violate some of the first principles." (Tr. at 1474-77 (Galvagni).) Mr. deNeuf, who designed and manufactured multilayer capacitor devices for a Murata U.S. subsidiary until 1995, testified that one of the considerations for determining the width of the lead electrodes for the capacitor he designed was "to improve the ESR inductance properties of the product." (Tr. at 1485-87, 1489, 1492-93, 1500-01 (deNeuf); RX-345.) Furthermore, Dr. Ulrich admitted that one of skill in the art would have known that shortening the current path by widening the lead electrode tabs would have reduced inductance. (Tr. at 1294-96, 1300-01 (Ulrich).) Likewise, he admitted that a person of skill in the art would have known that shortening lead electrodes would also result in a reduction of inductance. (*Id.* at 1288.) In contrast to the findings with respect to disclosed ratios in the '309 patent above, the Administrative Law Judge concludes that the clear and convincing evidence shows here that it

would have been obvious for one skilled in the art to implement leads within the claimed L/W range when making the capacitor device disclosed in DuPré.

DuPré in Combination.

The Administrative Law Judge further notes that DuPré in combination with other prior art also renders claim 1 obvious. For example, Japanese unexamined patent application H11-214249 ("Nagakari"), published January 29, 1998, discloses a low inductance decoupling capacitor. (RX-413.) Nagakari teaches multiple options for reducing inductance, including putting tabs closer together. (*Id.* at ¶¶0010, 21, 53.) Furthermore, Nagakari specifically discloses L/W dimensions for the lead electrode formed using a mask pattern[27] resulting in a L/W ratio of 0.67. (*Id.* at ¶¶0001, 43, Figs. 1, 6; Tr. at 1649 (Randall).) Murata argues that these dimensions are "pre-cutting dimensions" (CBr. at 127), however, as Staff points out, "that will decrease L while keeping W the same, thereby only making the L/W range smaller than 0.67 and thus even closer to the center of the claimed ranges." (SBr. at 128.) As another example, the product samples sold by Murata and provided by Mr. deNeuf have electrode tabs with a L/W ratio between 1.59 and 2.9. (Tr. 1649:8-1650:1, 1651:23-24 (Randall); Tr. at 1491-1493 (deNeuf); RPX-15.)

Dr. Randall further presented testimony that a person of ordinary skill in the art would have been motivated to combine Nagakari or DeNeuf with DuPré because they provide guidance on making low inductance capacitors. (Tr. 1626:14-1627:6, 1629:23-1630:11, 1650-52 (Randall).) Murata argues that persons of skill in the art would not have been motivated to combine any of the references cited by Samsung, but Murata does not cite to any supporting

[27] Murata argues that Nagakari describes the dimensions of a mask and not a lead electrode. (CRBr. at 67.) However, because the mask is used to set the boundaries of the electrode during formation, this is a distinction that leads to the same result: a lead electrode with those L/W dimensions or a close approximation thereof.

evidence. (CBr. at 125-26.) "Unsworn attorney argument is not evidence." *Perfect Web Technologies, Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1332 (Fed. Cir. 2009).

Secondary Indicia of Non-Obviousness.

Murata argues that Samsung's obviousness defense is undermined because Samsung (i) { } when designing { } { }and (ii) { } { } (CBr. at 128 (citing CFF 5.283; CFF 5.585; CFF 5.588; CFF 5.94; CFF 5.600).) Staff argues that Murata has failed to provide evidence of copying or other evidence that would be sufficient to outweigh a finding of obviousness. (SBr. at 130.) Samsung argues that Murata relies on evidence that does not amount to a showing of copying and therefore has failed to present any secondary indicia of non-obviousness. (RRBr. at 71-72.)

With respect to (i), Murata relies on proposed finding of fact CFF 5.283 which reads:

> CX-157C at page SEMCO00069512 identifies claim 51 of U.S. Patent No. 6,226,229, and states as follows: {
>
> } (CX-157C at SEMCO00069512 (emphasis added), CX-657C (Youn dep. Vol. VIII) at 267:25-268:20; CX-643, (Wi dep.) at 78:20 – 79:8, 85:24 – 86:7.).

(CFF 5.283.) The Administrative Law Judge finds that this quoted intellectual property opinion does not amount to evidence of non-obviousness.

Murata's other proposed findings of facts on which it relies, CFF 5.585, CFF 5.588, CFF 5.594, and CFF 5.600, refer to proposed exhibits CX-635C and CX-636C, which exhibits were not admitted into the record. Thus CFF 5.585 and CFF 5.588, which cite to no other supporting evidence, will be disregarded. CFF 5.594 and CFF 5.600 cite to CX-250C at SEMCO00019363 and CX-32C at SEMCO00078060, respectively. CX-250C at SEMCO00019363 and CX-32C at SEMCO00078060 are untranslated and show little more than that Samsung { }

{ } The Administrative Law Judge finds Murata's evidence unpersuasive. Having considered "the totality of the evidence," the Administrative Law Judge finds that claim 1 of the '229 patent is invalid as obvious. *Richardon-Vicks*, 122 F.3d at 1483.

Claims 2-4, 7, 17-18, 23, 28-31, 34, 51-53.

For the reasons discussed above with respect to claim 1, the Administrative Law Judge finds that claims 2-4 would have been obvious to one of skill in the art because they claim L/W ratios within the disclosed range of claim 1. It is undisputed that DuPré discloses the additional limitations of claims 7, 17, and 23 of the '229 patent, and therefore the Administrative Law Judge also concludes that these are obvious under Section 103. (RFF 6.274 (undisputed in relevant part); RFF 6.288 (undisputed in relevant part); RFF 6.300 (undisputed).)

With respect to claim 18, Murata argues that Samsung has failed to carry its burden to show any prior art with "electrical terminals extending to the top and bottom surfaces of the capacitor device." (CRBr. at 66.) Even if Murata were correct (and the Administrative Law Judge does not agree that this limitation is not disclosed in DuPré Figure 4), this appears to be a distinction without a difference as Murata has admitted that electrical terminals extending to the top and bottom surfaces of the capacitor device were known at the time the '229 patent was filed. (CORFF 6.515.[28]) Indeed, the prior art submitted by patentees in the file history shows that electrical terminals extending to the top and bottom surfaces of the capacitor device were well known at the time the '229 patent was filed. (*See e.g.*, JX-9 at MM_000116, MM_000119-20, MM_000134, MM_000137-38,MM_000177-78, MM_000236, MJM_000407-08, MM_000417-21, MM_000477-78, MM_000484, MM_000490. *See also* examiner comments at JX-9 at

[28] Note that the Administrative Law Judge is not using the AAPA as a prior art reference, but for the limited purpose of showing *Murata's own admission* as to what was known in the art at the time the '229 patent was filed.

MM_000501 recognizing that only the claimed L/W ratio is novel in relation to the prior art.)

Accordingly, the Administrative Law Judge finds that claim 18 is also obvious.

With respect to claim 28, it is undisputed that:

> DuPré discloses a capacitor body with a pair of opposed side surfaces having continuously smooth surfaces and a pair of opposed end surfaces disposed between the pair of opposed side surfaces. (Tr. at 1635:18-1636:6 (Randall); RX-113 at 5:17-23, fig. 4)
>
> DuPré discloses a capacitor body wherein at least four electrical terminals disposed on each of the opposed side surfaces. (Tr. at 1635:18-1636:6 (Randall); RX-113 at 5:17-23, figs. 4, 7)

(RFF 6.305-306 (undisputed).) It is further undisputed that with the exception of the L/W ratio limitation, the remaining limitations of claim 28 which overlap with claim 1 are disclosed by DuPré. (RFF 6.254-60 (undisputed); RFF 6.261-263 (undisputed in relevant part). *But see* CORFF 6.304, which points out that claim 28 does not have the "interleaved" limitation.) For the reasons discussed with respect to claim 1, the Administrative Law Judge finds the L/W ratio of claim 28 obvious. Accordingly, the Administrative Law Judge concludes that claim 28 of the '229 patent is invalid as obvious pursuant to Section 103.

For the reasons discussed with respect to claims 1 and 28, the Administrative Law Judge finds that claims 29-31 are obvious. It is undisputed that DuPré discloses the additional limitation found in claim 34, and therefore that claim is obvious. (RFF 6.314 (undisputed in relevant part).)

With respect to claim 51, it is undisputed that:

> DuPré discloses a monolithic capacitor. (Tr. at 1634:2:10 (Randall); RX- 113 at Title; RDX-149)
>
> DuPré discloses a capacitor body having two opposed main surfaces and four side surfaces connected between the two main surfaces. (Tr. at 1634:2-10, 1635:18-1636:6 (Randall); RX-113 at 5:17-23 , figs. 4; RDX-149)

> DuPré discloses a capacitor body including a plurality of dielectric layers extending in the direction in which the two opposed main surfaces extend. (Tr. at 1634:2-10, 1635:18-1636:6 (Randall); RX-113 at 6:42-51 , fig. 5; RDX-149)
>
> DuPré discloses a capacitor body wherein least one pair of first and second internal electrodes opposed to each other through one of the dielectric layers so as to define a capacitor unit. ([]; RX-113 at fig. 5; 1:45-47; 5:54-59; RDX-149)
>
> DuPré discloses a capacitor body including at least two first lead electrodes extending from one of the first internal electrodes to at least two positions on at least one of the side surfaces. ([]; RX-113 at 5:25-28; 5:60-67, figs. 6-7; RDX-149)
>
> DuPré discloses a capacitor body including at least one second lead electrode extending from the second internal electrode to a position located between the positions to which the first lead electrodes extend[.] ([]; RX-113 at 5:25-28, figs. 6-7; [])
>
> DuPré discloses a capacitor body wherein first and second external terminal electrodes are provided on the side surfaces onto which the first and second lead electrodes extend, and electrically connected to the first and second lead electrodes, respectively. ([]; RX-113 at 1:55-61, fig. 4; [])

(RFF 6.320-42 (undisputed); RFF 6.343-46 (undisputed in relevant part)[29].) Thus it is undisputed that DuPré discloses all the limitations of claim 51 except for the L/W ratio limitation. For the reasons discussed above with respect to claim 1, the Administrative Law Judge finds the L/W ratio limitation of claim 51 obvious. Accordingly, the Administrative Law Judge concludes that claim 51 of the '229 patent is invalid as obvious.

With respect to claim 52 of the '229 patent, for the reasons discussed above with respect to claims 1 and 51, this claim is invalid as obvious. It is undisputed that the additional limitation found in claim 53 is disclosed by DuPré, and therefore the Administrative Law Judge finds that claim 53 is invalid as obvious. (RFF 6.352 (undisputed).)

[29] With respect to RFF 6.346, Murata objects that the cited passage of DuPré does not "state that the external terminals connect the lead electrodes." (CORFF 6.346.) However, Murata does not argue that the cited Figure 4 fails to disclose this limitation. (*Id.* *See also* JX-9 at MM_000343, Fig. 5.)

D. Validity Under 35 U.S.C. § 112.

1. '254 Patent

Samsung alleges that claims 11-14 and 19-20 of the '254 patent are invalid according to 35 U.S.C. § 112, because they do not adequately describe the invention. (RBr. at 74.) Claim 11 reads as follows:

> **11**. A laminated ceramic capacitor having:
>
> [a] a plurality of dielectric layers containing the dielectric ceramic according to claim 1;
>
> [b] a plurality of inner dielectric layers comprising Ni or a Ni alloy and existing among a plurality of said dielectric layers; and
>
> [c] external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said ceramic capacitor.

(JX-4 at 33:55-64.) Claims 12-14, 19 and 20 either depend from claim 11 or else have similar language. (*Id.* at 34:1-62.) According to Samsung, the '254 specification does not describe "a plurality of inner dielectric layers comprising Ni or Ni alloy and existing among a plurality of said dielectric layers." Samsung notes that Murata's expert Dr. Burn testified that he could find no mention of nickel or nickel alloy in the specification. (*Id.*) Samsung reasons that nickel, in one or the other mentioned forms, is required for the *electrodes*, not for the *dielectric layers*, as is stated in claims 11-14 and 19 and 20. Samsung quotes one of the inventors as acknowledging that nickel cannot be used as a dielectric and that the specification does not disclose nickel as being a dielectric. (*Id.* at 75.)

Samsung argues that Murata did not propose a claim construction for the subject claims of the '254 patent and therefore cannot now seek to have the defective claims amended following the Hearing. (*Id.*) Furthermore, says Samsung, these defective claims should not be rewritten for the purpose of preserving their validity. (*Id.*) Samsung argues that in order to correct

language mentioning nickel in association with dielectric layers rather than electrodes, multiple paragraphs of six different claims would have to be rewritten and that goes beyond correcting an obvious typographical error. (*Id.* at 76.) Samsung also says that the fact that Murata itself proposes contradicting constructions of these claims proves the nature of the alleged error is not apparent from the face of the patent. (*Id.*)

Murata responds that, although the challenged claims contain the errors cited by Samsung, as properly written, these claims refer to "inner *electrode* layers comprising Ni or Ni alloy" instead of the mistakenly worded "inner *dielectric* layers comprising Ni or Ni alloy." (CBr. at 55.) Murata argues that a claim satisfies the written description requirement of 35 U.S.C. § 112 when it reasonably conveys the invention to those skilled in the art, citing *Ariad Pharms., Inc. v. Eli Lilly & Co.,* 598 F.3d 1336, 1351 (Fed. Cir. 2010). Murata points to the fact, acknowledged by Samsung, that the original written description of the '254 patent and its priority applications described nickel and nickel alloy used as electrodes and not as dielectric layers. (*Id.*) Murata notes that both Mr. Sano and Dr. Burn testified that a person of ordinary skill in the art would immediately recognize this "translation" error and would understand that the claims actually refer to "inner *electrode* layers." (*Id.*)

Murata argues that Samsung cannot seriously dispute the fact that this was an obvious drafting error, having agreed in the Joint Technology Stipulation that the standard MLCC structure includes inner electrodes that are electrically connected to "outer electrodes" or "eternal electrodes" formed on the external side faces of the ceramic block. (*Id.*) Murata notes that claims 11, 13, 15, 17, and 19 include a limitation of "external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said ceramic capacitor." This language would make no sense and would be inconsistent with the basic structure of an

MLCC as understood by Samsung and everyone else in the industry, unless the claims are corrected to read "inner electrode layers comprising Ni or a Ni alloy," argues Murata. (*Id.*) Therefore, Murata reasons that Samsung's Section 112 defense should be rejected and the claims should be corrected to read as Murata proposes. (*Id.*)

Samsung rejoins that although the challenged claims have indisputable errors it is unclear what was intended. (RRBr. at 40.) Samsung points to the fact that Murata and its expert Dr. Burn acknowledged that nickel may be included in a dielectric material. (*Id.*) Therefore, argues Samsung, because the claim language is indisputably susceptible to two alternative interpretations, the language is not is not suitable for modification now in this Investigation, citing *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1357-58 (Fed. Cir. 2003.) (*Id.* at 41.)

Staff contends that evidence does not warrant treating the language of the challenged claims as clear error subject to correction, as there is disagreement on that point. (*Id.*at 48-49.)

Patents are presumed valid. 35 U.S.C. § 282. The first paragraph of Section 112 says: "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. . . ." 35 U.S.C. § 112. "The form and presentation of the description can very with the nature of the invention; compliance with the written description requirement is a fact-dependent inquiry." *In re Skvorecz*, 580 F.3d 1262, 1269 (Fed. Cir. 2009). "[T]he applicant [for a patent] may employ 'such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.'" (*Id.*, citing In re Alton, 76 F.3d 1168, 1172 (Fed. Cir. 1996).) The adequacy of the description depends on content, rather than length. *In re*

Hayes Microcomputer Products, Inc. Patent Litigation, 982 F.2d 1527, 1534 (Fed. Cir. 1992). "Specifically, the level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology." *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc). The specification must objectively demonstrate that the applicant was in possession of the claimed subject matter. (*Id.* at 10, 12.)

The Administrative Law Judge concludes that claims 11-14, 19 and 20 are invalid as written for lack of a written description as required by 35 U.S.C. § 112. Given the fact that Dr. Burns acknowledges that dielectric materials may contain nickel (Tr. at 594 (Burn)), whereas the specification does not mention any dielectric layers comprising Ni or Ni alloy, the patent fails to reveal how the contested claims were precisely understood by the inventors. Regardless of any conclusions that might be drawn respecting the obvious existence of errors in the wording (or lack thereof) in these claims, redrafting them so that they indisputably conform with the intentions of the inventors is not appropriate in a case such as this, especially since there are a variety of ways to modify the language of the claims, which may or may not faithfully express what the inventors actually had in mind. For example, the first element of claim 11 describes a plurality of dielectric ceramic layers, but not inner dielectric ceramic layers, and therefore the term "said dielectric layers" in the second element appears not to pertain to the "plurality of inner dielectric layers" mentioned at the start of that element, which may be an error, but if it is, how should that be corrected? If the "Ni or Ni alloy" mentioned in the second element was intended to apply to electrodes, instead of "inner dielectric layers," then does "said dielectric layers" also mentioned in that element need to be amended to read "said inner dielectric layers" or left as it is, but placed somewhere else?

Obviously, the problem here is not merely a typographical error, but something more substantive. The Administrative Law Judge is no more permitted to rewrite claims to preserve their validity than are the federal courts. *See Allen Eng'g Corp. v. Bartell Indus, Inc.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002.) There is no description of Ni or Ni alloy dielectric ceramic material in the patent specification and there is no way a person of ordinary skill would be enabled to understand and practice claims 11-14 and 19 and 20 as they are written.

For these reasons the Administrative Law Judge concludes that claims 11-14, 19, and 20 of the '254 patent are invalid for lack of written description under 35 U.S.C. § 112.

2. '309 Patent

Samsung asserts that the '309 patent is invalid according to 35 U.S.C. § 112, par. 1, because the patent does not adequately describe the claimed thickness and volume ratio ranges to demonstrate that the inventors actually possessed the invention. (RBr. at 98.) Pointing to Table 1 of the patent, Samsung notes that the patent supposedly provides test data of 16 sampled devices as to such characteristics as their ceramic layer and electrode thicknesses, their calculated values for thickness and volume ratios, their capacitances and insulation resistances, and their incidences of defects by way of delamination, cracking, and thermal shock cracking. (*Id.* at 98-99.) Samsung says that the specification does not explain how the inventors of the '309 patent determined the claimed ranges for the thickness and volume ratios and notes that, according to Table 1, the sole source of experimental data for the claimed ranges, is replete with errors. (*Id.* at 99.) In its post-hearing brief, Samsung included an excerpt from Table 1 of the '309 patent, wherein Samsung has added corrections, in brackets, of erroneous calculations, shown as strikethroughs, reported in the table. Samsung's emendation is reproduced below.

Table 1 (Excerpt)

	Thickness of Ceramic Layer (μm)	Thickness of Internal Electrode (μm)	Ratio of Thickness of Internal Electrode (—)	Ratio of Volume of Internal Electrode (—)
*1	9.8	0.68	~~0.06~~ [0.07][1]	~~0.075~~ [0.065][2]
2	9.8	0.99	0.10	~~0.100~~ [0.092][2]
3	9.8	1.13	~~0.15~~ [0.12][1]	~~0.112~~ [0.103][2]
4	9.8	1.97	0.20	~~0.186~~ [0.167][2]
*5	9.8	2.50	0.26	~~0.307~~ [0.203][2]
*6	6.2	0.58	0.09	~~0.095~~ [0.086][2]
7	6.2	0.87	0.14	~~0.135~~ [0.123][2]
8	6.2	1.15	0.19	~~0.172~~ [0.156][2]
9	6.2	1.87	~~0.31~~ [0.30][1]	~~0.257~~ [0.232][2]
*10	6.2	2.40	~~0.38~~ [0.39][1]	~~0.310~~ [0.279][2]
*11	4.3	0.41	~~0.95~~ [0.10][1]	~~0.103~~ [0.087][2]
12	4.3	0.71	~~0.16~~ [0.17][1]	~~0.170~~ [0.142][2]
13	4.3	0.97	0.23	~~0.200~~ [0.184][2]
14	4.3	1.23	0.29	0.210
*15	4.3	1.65	~~0.41~~ [0.38][1]	~~0.310~~ [0.277][2]
*16	4.3	2.40	0.56	~~0.399~~ [0.358][2]

[1] Math errors. (RFF 5.119.)

[2] Volume ratios greater than either thickness ratios or maximum volume ratios. (RFF 5.120-121.)

(RBr. at 99-100.) Because of the alleged errors in Table 1 as shown above, Samsung says the inventors have not demonstrated that they were in possession of the claimed subject matter at the time of the '309 patent invention. (*Id.*) Samsung remarks that in the cases of samples 11 and 15 shown in the table, the corrected values place those samples from outside to inside the claimed range for the thickness ratio (*id.* at 100) and notes that in five instances the volume ratios are shown to be greater than the samples' thickness ratios, which, according to both Drs. Ulrich and Randall, cannot be true, geometrically. (*Id.*) Samsung further notes that 15 of the 16 entries included in Table 1 of the patent declare volume ratios that are greater than the maximum values that would result if the electrode coverage was 100 percent. (*Id.*) Samsung argues that the devices had no margins or cover layers, instead of the claimed features of the invention, revealing that in all but one of the 16 samples shown in the table the volume ratios impossibly

exceed either the thickness ratios or the theoretical maximum value that could be realized given the characteristics of the device disclosed in the invention. (*Id.*) Inasmuch as all but one of the volume ratio values shown in Table 1 exceed either the thickness ratio or the theoretical maximum ratio, Samsung argues, this reveals that the inventors of the '309 patent did not have possession of the claimed subject matter as of the filing date. (*Id.*)

According to Samsung, the errors identified in Table 1 are not typographical or mechanical, because correcting them in some cases places them outside the range claimed in the patent and, in others, invalidates the conclusions drawn by the inventors. (*Id.* at 101.) After corrections for several of the errors contained in the table, those samples fell within the claimed range of the patent, but nevertheless they were still found to include unacceptable levels of cracking, delamination, and thermal shock cracking, contrary to the benefits claimed for the invention. (*Id.* at 102.) Samsung argues that in the face of the profound deficiencies in the data disclosed in Table 1, there is no meaningful disclosure. (*Id.*) Because of the patent's numerous errors and omission of any description of how the ratio ranges—the only claimed novelty of the invention—were calculated or how they support the alleged utility of the claimed invention, Samsung adds, the patent fails to satisfy the written description requirement of the statute. (*Id.* (citing *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 922 (Fed. Cir. 2004)).)

Besides those shortcomings, Samsung contends that the '309 patent fails to satisfy the enablement requirement of 35 U.S.C. § 112, par. 1, because it furnishes no detail of how the inventors calculated the volumes of the internal electrodes or the ceramic layers, owing to the fact that the patent does not disclose the dimensions for the margins, electrode areas, or cover layer thickness. (*Id.* at 103.) Samsung cites Dr. Ulrich's testimony acknowledging that the volume ratio mentioned in the patent cannot be calculated from the information it provides. (*Id.*)

Samsung points out that Murata itself requires dimensions for the margins, electrode areas, and cover layer thickness in order to calculate the volume ratios for its domestic industry products, thereby acknowledging that this information is essential for determining the claimed volume ratio. (*Id.*) Quoting from *National Recovery Techs. Inc. v. Magnetic Separation Sys. Inc.*, 166 F.3d 1190, 1198 (Fed. Cir. 1999), Samsung says that by only providing a starting point that necessitates that a person of ordinary skill in the art perform further research in order to practice the claimed invention as regards the omitted dimensions, the inventors of the '309 patent failed to discharge their duty to provide sufficient information to enable others to practice the invention. (*Id.* at 103-104.)

Staff also finds fault with the information in Table 1 of the '309 patent and believes the inaccuracies therein render the patent invalid for failing to provide an adequate written description. (SBr. at 74-76.) Staff further believes that the '309 patent is defective for lack of sufficient information for someone to enable someone to determine the volume ratio, noting, as did Samsung, that even Murata's expert Dr. Ulrich could not calculate the volume ratio from the information in the patent. (*Id.* at 77 (citing Tr. at 1315 (Ulrich)).) Staff points to the testimony of Samsung's expert witness Dr. Randall, who said that the '309 specification "doesn't tell you really some very key information that you'd need to know, one skilled in the art, in order to actually design a device with these thicknesses and volume ratios." (SBr. at 77 (citing Tr. at 1554 (Randall)).) Staff concludes that claim 3 of the patent is not enabled. (*Id.*)

Murata counters both Samsung's and Staff's Section 112 complaints with the statement that the '309 specification specifically explains how to calculate the volume ratio, referring to JX-2, Abstract and at 2:30-35. (CRBr. at 49.) Murata argues that the specification explains that the volume of the ceramic element includes the "total volume of the [sic] internal electrodes and

the ceramic material," according to JX-2 at 2:34-35, thereby leaving no room for doubt that the upper and lower ceramic layers are included in the calculation. (*Id.*) Murata argues that neither Samsung nor its expert Dr. Randall had any trouble understanding the concept of volume ratio or applying it in their analysis of prior art for purposes of invalidity or with respect to their contention that it is impossible for the volume ratio to exceed the thickness ratio. (*Id.*)

As noted above, patents are presumed valid. 35 U.S.C. § 282. The specification shall contain a written description of the manner and process of making and using the invention "in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same." 35 U.S.C. § 112. According to the Federal Circuit,

> 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. Whether undue experimentation would have been required to make and use an invention, and thus whether a disclosure is enabling under 35 U.S.C. § 112, ¶ 1, is a question of law that we review de novo, based on underlying factual inquiries that we review for clear error. Because patents are presumed valid, lack of enablement must be proven by clear and convincing evidence.

ALZA Corp. v. Andrx Pharmaceuticals, LLC, 603 F.3d 935, 940 (Fed. Cir. 2010) (internal quotations and citations omitted). One of skill in the art may need to exercise a reasonable amount of routine experimentation to practice the patent, provided the experimentation is not undue. (*Id.*) Factors that should be considered with respect to this inquiry into whether a disclosure requires undue experimentation ("*Wands* factors") are as follows:

> (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Id. However, Samsung has failed to expressly discuss any of the *Wands* factors. (RBr. at 97-104.)

Element (c)(4) of claim 3 reads as follows: "the ratio of the combined volume of said internal electrodes to the combined volume of said ceramic element is 0.10 to 0.30." (JX-2 at 6:35-38.) The "ceramic element" mentioned there is defined in element (a):

> (a) a ceramic element including:
>
> (1) a plurality of overlapping internal electrodes;
>
> (2) a plurality of internal ceramic layers located between respective pairs of said overlapping internal electrodes;
>
> (3) upper and lower ceramic layers located above and below the uppermost and lowermost ones of said overlapping internal electrodes, respectively;

(*Id.*) Thus, the "ceramic element" includes the internal electrodes, the internal ceramic layers and the upper and lower ceramic layers, everything but the external electrodes (*see id.* at 6:23-26.) Because ceramic electronic parts are manufactured in multiple standard sizes, their respective electrode volumes and ceramic layer volumes will vary, as will the volumes of their upper and lower ceramic layers. The "volume ratio" of element (c)(4), nevertheless, is capable of understanding by those of ordinary skill in the art as that portion of the total volume of the "ceramic element" represented by the combined volume of the internal electrodes, and can be determined by fairly elementary mathematics. A person skilled in the art would know how to design a capacitor to adapt the side and end margin dimensions and the sizes of the cover layers in order to affect total volume. (Tr. at 1594-95 and 1600-01 (Randall).)

For these reasons, the Administrative Law Judge concludes that the evidence does not demonstrate, clearly and convincingly, that element (c)(4) of claim 3 of the '309 patent is not enabled.

In regard to Samsung's and Staff's assertions that the patent does not provide an adequate written description because of the errors in Table 1, Murata replies that the proponents have not cited any judicial authority that incorrect data in the specification invalidates a clearly asserted claim of a patent. (CRBr. at 50.) Murata argues that the written description requirement of Section 112 does not demand either examples or an actual reduction to practice and a constructive reduction to practice that definitively identifies the claimed invention will satisfy the written description requirement. (*Id.* at 50-51 (citing *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc)).) Murata points to the fact that the patent discloses "in a definite way" a MLCC with at least 200 inner electrodes and certain dimensional requirements for the inner electrode and dielectric layers and prescribes exactly how to calculate both the thickness and volume ratios. (*Id.* at 51.)

Murata further argues, in response to the contentions of Samsung and Staff about the errors in Table 1 in the patent specification, that the complaining parties have in many respects erred themselves and based their conclusions on unfounded assumptions. (*Id.*) Murata notes, by way of example, that Staff mistakenly concluded that there are errors in Table 1 because the percentage incidence of delamination must be in multiples of 0.2 percent, but certain samples in the table show percentages that are odd numbers, in disregard of detailed testimony of Mr. Ueno who explained why these particular values as they are reported in the table need not be even whole-number multiples of 0.2 percent. (*Id.*)

Murata argues that Samsung and Staff assume the error in Table 1 with respect to the thickness ratio shown for sample 11 is a calculation error rather than a transcription error respecting the actual thickness of the electrode or ceramic layer, which is equally plausible, and the same possibility exists for each of the mathematical errors in Table 1 cited by Samsung. (*Id.*)

Murata argues that sample 1 in the table was considered outside the scope of the invention even though it was not afflicted by cracking or delamination because the specification notes that the electrostatic capacity value was low. (*Id.* at 52.) Murata points out that Samsung and Staff ignore explanations given by Mr. Ueno for why some of the sampled parts shown in Table 1 could have volume ratios that exceed their thickness ratios and notes that in certain cases where cracking was found within compliant parts, the incidences of such were extremely small and were less than the defect rate of Samsung's own parts. (*Id.*) Murata maintains that the inventors were at liberty to establish for themselves criteria for gauging acceptable or unacceptable outcomes for their invention. (*Id.*) Murata also argues that Dr. Randall's calculations for maximum volume ratios and inconsistent with Mr. Ueno's experiments. (*Id.*) Concluding, Murata asserts that Samsung and Staff have failed to put forth clear and convincing evidence that the inventors were not in possession of the claimed subject matter at the time of the invention. (*Id.* at 52-53.)

As noted above with respect to the '254 patent, compliance with the written description requirement is a fact-dependent inquiry that varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology. *Skvorecz*, 580 F.3d at 1269; *Ariad*, 598 F.3d at 1352. The specification must objectively demonstrate that the patentees were in possession of claim 3 of the '309 patent.

Here, the Administrative Law Judge concludes that Samsung and Staff have not demonstrated by clear and convincing evidence that the '309 patent fails to satisfy the written description requirement of 35 U.S.C. § 112. The discrepancies pointed to in Table 1 do not vitiate what is expressed in the language of claim 3 and are not necessary for a person of ordinary skill to practice the patent.

E. Inequitable Conduct.

Patent applicants and their attorneys have "a duty of candor and good faith" in dealing with the PTO, "which includes a duty to disclose . . . information known . . . to be material to patentability." 37 C.F.R. § 1.56(a). A patent may become unenforceable on the grounds of inequitable conduct if the patentee withheld material information from the PTO with intent to mislead or deceive the PTO into allowing the claims. *LaBounty Mfg., Inc. v. U.S. Int'l Trade Comm'n*, 958 F.2d 1066, 1070-1074 (Fed. Cir. 1992) ("*LaBounty*"). Both materiality and intent must be proven by clear and convincing evidence. *Id.* When inequitable conduct occurs in relation to one or more claims of a patent, the entire patent is unenforceable. *Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988) (*en banc*).

"The materiality of information withheld during prosecution may be judged by the 'reasonable examiner' standard." *McKesson Information Solutions, Inc. v. Bridge Medical, Inc.*, 487 F.3d 897, 913 (Fed. Cir. 2007) ("Materiality . . . embraces any information that a reasonable examiner would substantially likely consider important in deciding whether to allow an application to issue as a patent."). However, a patentee need not disclose material information that is merely cumulative of other information already before the examiner. *Baxter Int'l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328 (Fed. Cir. 1998); 37 C.F.R. 1.56(b).

Generally, when withheld information is highly material, a lower showing of deceptive intent will be sufficient to establish inequitable conduct. *American Hoist and Derrick Co. v. Sowa and Sons, Inc.*, 725 F.2d 1350, 1363 (Fed. Cir. 1984) (*America Hoist*). Moreover, "[d]irect evidence of intent or proof of deliberate scheming is rarely available in instances of inequitable conduct, but intent may be inferred from the surrounding circumstances." *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1256 (Fed. Cir. 1997). Once the

materiality of the withheld information and the patentee's intent to mislead have been established, the administrative law judge "must weigh them to determine whether the equities warrant a conclusion that inequitable conduct occurred." *Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1234 (Fed. Cir. 2003) (quoting *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995)).

1. '254 Patent

Murata points out that Samsung did not include any discussion of its inequitable conduct defense of the '254 patent in its brief and therefore such defense is waived under Ground Rule 10.1 and should therefore should not be considered. (CRBr. at 34.) Staff contends that the evidence at the hearing does not establish that the '254 patent is unenforceable on this ground. (SBr. at 51.)

The Administrative Law Judge concludes that Samsung has waived this defense by failing to raise and argue it in its post-hearing brief by virtue of Ground Rule 10.1.

2. '309 Patent

Murata points out that Samsung did not mention inequitable conduct as a defense to infringement of the '309 patent in its post-hearing brief and, therefore, it has been waived and abandoned. (CRBr. at 49.) Staff maintains that the evidence does not support a finding that the '309 patent is unenforceable because of inequitable conduct on the part of Murata since requisite intent has not been demonstrated.

The Administrative Law Judge concludes that Samsung has waived this defense according to Ground Rule 10.1, by failing to argue it in its post-hearing brief and finds that the

evidence does not demonstrate clearly and convincingly that the '309 patent is invalid by reason of inequitable conduct of the patentees.

3. '229 Patent

Samsung did not set forth an inequitable conduct defense with respect to the '229 patent in the initial post-hearing brief. (RBr. at 110-143.) The Administrative Law Judge finds that this defense is waived. (Ground Rule 10.1.)

VI. WAIVER OR WITHDRAWAL OF RESPONDENTS' OTHER DEFENSES.

Samsung's response to the Complaint and Notice of Investigation contain a number of defenses and arguments that were not raised in Samsungs' pre-hearing briefing, discussed at the hearing, or raised in post-hearing briefing ("non-asserted defenses"). The non-asserted defenses include the "public interest," laches, waiver, and estoppel affirmative defenses. (*See* Response of Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc. to the Complaint and Notice of Investigation, dated November 19, 2009.) These non-asserted defenses and arguments are deemed abandoned or withdrawn. (*See* Order No. 2, Ground Rules 7.2 10.1.)

VII. DOMESTIC INDUSTRY

As stated in the Notice of Investigation, a determination must be made as to whether an industry in the United States exists as required by subsection (a)(2) of Section 337. Section 337 declares unlawful the importation, the sale for importation or the sale in the United States after importation of articles that infringe a valid and enforceable U.S. patent "only if an industry in the United States, relating to articles protected by the patent . . . concerned, exists or is in the process of being established." 19 U.S.C. § 1337(a)(2); *Certain Ammonium Octamolybdate Isomers*, Inv. No. 337-TA-477, Comm'n Op. at 55 (U.S.I.T.C., Jan. 2004) ("*Certain Isomers*"). The domestic

industry requirement consists of both an economic prong (*i.e.*, the activities of, or investment in, a domestic industry) and a technical prong (*i.e.*, whether complainant practices its own patents). *Certain Isomers*, at 55. The complainant bears the burden of proving the existence of a domestic industry. *Certain Methods of Making Carbonated Candy Products,* Inv. No. 337-TA-292, Comm'n Op. at 34-35, Pub. No. 2390 (U.S.I.T.C., June 1991).

{*See* Notice Re Correction of Error in Final Initial Determination, dated January 11, 2011.

}

At issue is whether the Murata Products meet the technical and economic prongs of the domestic industry requirement with respect to the '254, '309, and '229 patents. The Administrative Law Judge finds that (i) the economic domestic prong is met with respect to all of the asserted patents; (ii) the technical domestic industry prong is met with respect to the '254 patent; (iii) the technical domestic industry prong is not met with respect to the '309 patent; and

(iv) the technical domestic industry prong is met with respect to the '229 patent, as discussed below.

A. Technical Analysis

A complainant in a patent-based Section 337 investigation must demonstrate that it is practicing or exploiting the patents at issue. *See* 19 U.S.C. § 1337(a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 8, Pub. No. 2949 (U.S.I.T.C., January 16, 1996). "In order to satisfy the technical prong of the domestic industry requirement, it is sufficient to show that the domestic industry practices any claim of that patent, not necessarily an asserted claim of that patent." *Certain Isomers*, *supra*, at 55. Fulfillment of the "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. *Certain Diltiazem Hydrochloride and Diltiazem Preparations*, Inv. No. 337-TA-349, Initial Determination at 139, Pub. No. 2902 (U.S.I.T.C., June 1995) (unreviewed in relevant part); *Certain Double-Sided Floppy Disk Drives and Components Thereof*, Inv. No. 337-TA-215, Views of the Comm'n, Additional Views of Chairwoman Stern on Domestic Industry and Injury at 22, 25, Pub. No. 1860 (U.S.I.T.C., May 1986).

The test for claim coverage for the purposes of the technical prong of the domestic industry requirement is the same as that for infringement. *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), *aff'd*, Views of the Commission at 22 (October 31, 1990). "First, the claims of the patent are construed. Second, the complainant's article or process is examined to determine whether it falls within the scope of the claims." *Id.* The technical prong

of the domestic industry can be satisfied either literally or under the doctrine of equivalents. *Certain Dynamic Sequential Gradient Devices and Component Parts Thereof*, Inv. No. 337-TA-335, Initial Determination at 44, Pub. No. 2575 (U.S.I.T.C., November 1992).

1. '254 patent.

Murata's { } capacitors and those with similar compositions.

Murata asserts that the evidence establishes that its model number GRM155B30J105KE18D is representative of its domestic industry products using various compositions, including the { } which is specifically designed to practice the '254 patent and is made in accordance with the preferred embodiment of the '254 patent. (CBr. at 40.) Murata says that much information establishing its practice of the '254 patent is contained in Murata's { } the former one having been prepared by Mr. Sano and other Murata employees. (*Id.*) Murata says the { } is a roadmap used to achieve its goal of practicing the '254 patent. (*Id.*) During the development of the { } composition, Murata used an analytical method known as ICP testing to confirm that the composition of the dielectric ceramic contains sufficient amounts of the elements needed to meet the limitations of the '254 patent. (*Id.* at 40-41.) Murata says that during mass production, Murata used a "calibration line" set by ICP and other forms of testing to confirm that MLCCs made with { } contain sufficient rare earth and other components to meet the limitations of the '254 patent. (*Id.* at 41.) Murata says that its { } document that the products made with { } materials meet the { } relating to the '254 patent. (*Id.*)

Murata says that elements present in the starting materials used to make dielectric compositions will still exist in their initial molar amounts after sintering. (*Id.*) Murata points out that Dr. Burn used Murata's { } to compile a table

of the materials used in producing each of the { } Murata dielectric compositions in question and converted the table into form that facilitated comparison of the amounts listed to the limitations of the '254 patent. (*Id.*) According to Murata, these documents show that the powders combined for the { } composition include a sufficient amount of rare earth, magnesium, and manganese to meet the α, β, and γ limitations of claim 1 of the '254 patent, as well as the alkali metal oxide limitation and the requirement of a specified amount of one of three alternative sub-components (in this case, { } sub-component). (*Id.*)

The dielectric ceramic of the { } composition also meets the *x* value limitation of the '254 patent, according to the evidence at the hearing. (*Id.* (citing Tr. at 427-28 (Burn), 683-85 (Sano)).) First, argues Murata, { } uses barium calcium titanate starting material with calcium distributed { } including sufficient calcium in the starting material to ensure that $x > 0.005$ and ≤ 0.22 will exist in the sintered material. (*Id.*) Second, according to Murata, EDX testing on a representative GRM155B30J105KE18D capacitor by EAG, at Dr. Burn's direction, confirmed that the level of calcium in the grain of the { } material was about the specified *x* amount of 0.05 and within the range of claim 1 of the '254 patent. (*Id.* at 42.)

Murata contends that the { } composition also satisfies the *m* limitation of claim 1 of the '254 patent ($1.000 < m \leq 1.035$), *m* being the ratio of (Ba+Ca)/Ti. (*Id.* (citing JX-4, at 6:48, 10:66, 66:1-5).) Murata says that the barium calcium titanate starting material for making { } has a (Ba+Ca)/Ti ratio very close to { } and Murata adds to the starting material { } compound containing barium as a starting material, with the { }diffusing into the barium calcium titanate during sintering. This increases the (Ba+Ca)/Ti above { } and ensures that the $m > 1.0$ to satisfy the lower limit for *m* in claim 1. (*Id.*) Murata notes that the '254 patent specifically discusses such an adjustment. (*Id.* (citing JX-4 at 6:47-7:45, Tables 1, 2).) By

controlling the amount of calcium added to the starting material, Murata says it ensures that *m* does not exceed the upper limit of 1.035 in claim 1. (*Id.*)

Murata says that in addition to the foregoing, ICP and X-ray Fluorescence testing by Murata on a GRM155B30J105KE18D capacitor, included as an addendum to Dr. Burn's declaration in support of the Complaint also confirms that all of the requirements of claim 1 of the '254 patent are met. (*Id.*) Based on this evidence, Dr. Burn opined that the GRM155B30J105KE18D capacitor and the { } material practice all of the limitations of claim 1. (*Id.* at 42-43.) { } dielectric materials developed by Murata also use a barium calcium titanate starting material similar to the { } composition along with similar levels of relevant additives, it says. (*Id.*) Therefore any of these similar compositions (namely, { } { } also practices claims 1 and 2 of the '254 patent, according to Murata. (*Id.*) Murata says also that it has sold { } of capacitor models through MENA that were made using { } other similar compositions all of which practice the '254 patent. (*Id.*)

Murata's capacitors that use the HJA and HJV compositions.

Murata asserts that its { } compositions were specifically designed to practice the '254 patent using an alternative method that includes barium titanate, rather than barium calcium titanate, as a starting material, in which calcium diffuses into the barium calcium during sintering so that the requirements of the '254 patent are met in the sintered dielectric material. According to Murata, the procedure for producing the { } compositions allowed Murata to make small, highly reliable capacitors as taught by the '254 patent, but with a slightly higher dielectric constant than that found in materials made using barium calcium titanate as starting materials. (*Id.* at 43-44.) Murata argues that evidence which it presented, including

conclusions derived from Murata's { } and { } confirmed that the { } compositions practice the '254 patent, just as in the case of the accused Samsung products, and shows that these compositions meet the rare earth, magnesium, manganese and alkali metal oxide specifications of the '254 patent. (*Id.*)

According to Murata, it was able to confirm that calcium diffuses into barium titanate to form $(Ba_{1-x}Ca_xO)_mTiO_2$ that meets the *x* and *m* requirements of the '254 patent by TEM-EDX testing, examples of which were presented at the hearing. (*Id.*) Murata says that Mr. Sano specifically confirmed during his hearing testimony that the { } materials were above Murata's target values for the presence of calcium required by the '254 patent as regards the *x* value and also confirmed that the patent's restriction of the *m* value was also met by these compositions. (*Id.*)

Samsung did not address the question whether Murata's own products practice the '254 patent and, therefore, as Murata notes in its reply brief, Samsung has waived any objection on this issue by reason of Ground Rule 10.1. (CRBr. 28.)

Staff believes that Murata's { } composition does satisfy claim 1 of the '254 patent for purposes of satisfying the technical prong of the domestic industry requirement. (SBr. at 34-35.) However, Staff argues that with respect to the {} composition, Murata's evidence does not establish that the composition meets the calcium-related limitation of the patent. (*Id.* at 35-36.)

The Administrative Law Judge concludes that the evidence with respect to the { } and similar compositions[30] is sufficient to demonstrate that Murata's domestic products made from these compositions do practice the '254 patent. However, with respect to the { } and { } compositions, the Administrative Law Judge concludes that they do not satisfy the limitations of

[30] { } (CBr. at 40.)

claim 1 insofar as they do not contain barium calcium titanate as starting material, and consequently do not satisfy any of the dependant claims either. The Administrative Law Judge concludes that Murata has satisfied the technical domestic industry prong with respect to the '254 patent.

2. '309 patent.

Murata contends that the evidence demonstrates that certain domestic MLCCs of Murata practice claim 3 of the '309 patent, particularly the testimony of Mr. Kubodera. (CBr. at 70 (citing CFF 4.214-240).) Murata says that the evidence clearly establishes that the Murata products designated the '309 patent DI Products satisfy each limitation of claim 3. With respect to subparts (a) and (b) of the claim, Murata says there can be no real dispute that they are satisfied by these products, as they include a plurality of overlapping internal electrodes and a plurality of internal ceramic layers located between respective pairs of overlapping internal electrodes. (CBr. at 70.) They also include upper and lower ceramic layers located above and below the uppermost and lowermost overlapping internal electrodes and a pair of external electrodes formed on at least one outer surface of the overlapping internal electrodes electrically coupled to a respective external electrode, says Murata. (*Id.*)

According to Murata, the '309 patent DI Products are shown to practice subpart (c) as well, by reason of Murata's { } which shows that each ceramic layer has a thickness is between { } μm thick—far less than the 10 μm maximum of (c)(1) of claim 3. (*Id.* at 71.) Murata notes also that the database further discloses, as Mr. Kubodera and Dr. Ulrich testified, that each Murata DI Product has more than 200 layers. (*Id.*) Murata says that, with respect to element (c)(3) of claim 3, Murata's database provides the { } thickness of the paste used for making the electrodes, and the sintered thickness of the electrode

is known by Murata to be { } greater than the thickness of the paste, based on Murata's manufacturing experience. Therefore, the sintered thickness is easily obtainable by simply multiplying the pre-sintered thickness of the paste by a factor of { } (*Id.*) As a result of doing this, Mr. Kubodera and Dr. Ulrich were able to testify that the '309 patent DI Product indentified in CX-8C and CX-190C has a thickness ratio between 0.10 and 0.40 and therefore satisfies element (c)(3) of claim 3. (*Id.* (citing CFF 4.272-274).)

With respect to the volume ratio requirement, Murata asserts that Mr. Kubodera explained his analytical framework for calculating these ratios, using the { } { } to determine the volume ratio, and Dr. Ulrich confirmed the accuracy of this analysis. (*Id.*) Murata says that this was done by taking the pre-sintered values for length and width of the ceramic element and taking into account, based on years of manufacturing experience, that shrinkage will occur in the length and width dimensions of the ceramic layers of about { } percent. Therefore, Murata calculated post-sintered lengths and widths of the ceramic element by multiplying the pre-sintered values by { } percent. (*Id.*) Murata then took into account the maximum and minimum sintered values for the thickness of the ceramic element as included in its { } which can vary slightly depending on processing conditions. (*Id.* at 72-73.) By averaging those thickness values, Murata was able to obtain a post-sintered measurement for the thickness of the ceramic element, which, when multiplied by the calculated post-sintered length and width values, produced the volume of the ceramic element. (*Id.* at 73.)

Murata determined the volume of the internal electrode region by multiplying the thickness of an internal electrode by the product of the number of electrode layers and the internal electrode area. (*Id.*) Murata says that the length of the internal electrode is determined by taking the overall length of the sintered device, as calculated according to the description in

the previous paragraph, and subtracting the value of the sintered "L-gap." (*Id.*) The same procedure was used for determining overall width, only this time double the value of the "W-gap" was subtracted. (*Id.*) Once the post-sintered length and width of the internal electrode have been determined, the electrode area is obtained by multiplying those two values. (*Id.*)

Following its determination of the electrode area, Murata calculated the volume of the internal electrodes and then calculated the volume ratio by dividing the volume of the internal electrodes by the volume of the ceramic element. (*Id.*) According to Murata, that calculation shows that every Murata MLCC identified in CX-8C and CX-190C has a volume ratio between 0.10 and 0.30. (*Id.*) Therefore, as Dr. Ulrich and Mr. Kubodera testified, every Murata '309 patent DI Product meets the final element of (c)(4) of claim 3. (*Id.*)

Murata says that it confirmed the results of the foregoing calculations by taking measurements of a sample of one of the '309 patent DI Products, GRM21BG31C475K, Murata used electronic and optical microscopes for measuring at 75 different locations, 25 each from upper, middle, and lower regions, thereby determining that the smallest thickness of the ceramic layer was { } μm and the greatest was { } μm, with the average being { } μm. (*Id.* at 74.) With respect to the internal electrodes, Murata determined through this analysis that the smallest thickness measured {. } μm and the largest measured {. } μm, with an average thickness of { } μm. (*Id.*)

Murata determined the number of internal electrodes by using an optical microscope for counting, and came up with the number { } (*Id.*)

In order to obtain the information necessary to calculate the volume ratio, Murata took measurements of the length, width, and thickness of the ceramic element. (*Id.*) It then took L-gap and W-gap measurements at six locations in the upper, middle, and lower regions, and used

the information obtained to calculate the volume of the ceramic element (length times width times thickness) and the volume of the internal electrodes (the length, less L-gap, times the width, less twice the W-gap, times the thickness of the internal electrodes, divided by 1,000 times the number of internal electrodes). (*Id.*) By this process, Murata calculated the volume ratio. (*Id.*) Murata says that the results of these measurements fully support and confirm the accuracy of the calculations it performed using its { } showing that for the DI Product that was analyzed, the thickness of the ceramic layers was about { } µm, there were { } internal electrodes, the thickness ratio was { } and the volume ratio was { } (*Id.*) Those measurements are very close and serve to verify the predicted dimensions based on the { } { }analysis which showed that the thickness of the ceramic layers was about { } microns, that there were { } inner electrodes, the thickness ratio was { } and the volume ratio was{ } (*Id.*)

Samsung says that Murata failed to demonstrate that its products practice the '309 patent because Dr. Ulrich's evaluation of information from Murata's { } was insufficient and unreliable, particularly, since Murata admits that it examined only one physical product to verify Dr. Ulrich's predictions based on the { }. (RBr. at 50.) Samsung notes that Dr. Ulrich's predicted ceramic layer thickness was off by ten percent { } µm versus { }µm and that he miscounted the number of layers by { } predicted and { } measured). (*Id.*) Samsung says these degrees of inaccuracy in Dr. Ulrich's predictions, given that it was Murata's own product and database, show that Dr. Ulrich's methodology was unreliable. (*Id.*)

Staff says that the evidence shows that some of Murata's products meet the limitations of element (c) of claim 3. (SBr. at 62.) Staff says Mr. Kubodera was unable to answer questions

about how the data in the tables used for Dr. Ulrich's predicted values was obtained and his testimony was inconsistent, for example, with respect to length and width values for electrodes, which he said were not recorded in any database or document. (*Id.* at 63.) Also, Staff says there are inconsistencies in the methodology used by Murata, pointing out that although Murata says that it historically experiences a { } percent shrinkage after sintering, Dr. Ulrich's predictions were based on shrinkages ranging from { }to {} percent and different products were assumed to have different shrinkage rates. (*Id.*) In addition, says Staff, the evidence shows that sintered electrode thicknesses actually increase. (*Id.* (citing testimony of Mr. Kubodera at Tr. 908).) Nevertheless, Staff concludes that Murata offered sufficient evidence to establish that the majority of its '309 Domestic Products practice the '309 patent. (*Id.*)

The Administrative Law Judge concludes that the evidence does not demonstrate that Murata's '309 patent DI products practice claim 3 of the patent. Murata's manufacturing process and the data derived from it are sufficient to establish that the subject products satisfy elements (a), (b), and (c)(1) and (2), as discussed above. With respect to elements (c)(3) and (4), the evidence is less clear. The fact that Murata uses a standard process for administering the thickness of the paste material it uses for making its electrodes and, based on historical experience, has compiled data of the sintered thickness of its electrodes from which a determination can be made of the relationship between the thickness of the sintered electrode and the paste, is not disputed. However, element (c)(3) specifies that the ratio of the average thickness of *each* said internal electrode to the average thickness of *each* said internal ceramic layer is 0.10 to 0.40[.]" (JX-2 at 6:32-34 (emphasis added).) Murata's evidence does not show how it determined that the average thickness of each of the internal electrodes to the average thickness each of the internal ceramic layers of its DI Products is between 0.10 and 0.40. Just as

was the case for proving infringement, Murata must show for purposes of satisfying the technical prong of the domestic industry requirement that element (c)(3) is satisfied. That requires more than making predictions about a thickness value of an electrode after sintering based on the thickness of the paste that is used to make it. Murata has not shown that the thickness of each internal ceramic layer is uniform throughout its length and width; nor has it shown that to be the case with each internal electrode. Even the analysis performed by Murata for the purpose of confirming Dr. Ulrich's predictions only shows thickness values at certain points, not the average thickness of the electrode itself or of the ceramic layer itself. When Murata says that a certain measured thickness of a ceramic layer is "approximately { } μm" (CBr. at 75), this does not establish that that is also the average thickness of that layer. Yet that is how claim 3 of the '309 patent reads and must be measured. Murata's evidence does not demonstrate that its '309 DI Products satisfy element (c)(3) of claim 3 and for that reason, the Administrative Law Judge concludes that the evidence does not establish that Murata's products satisfy the technical prong of the domestic industry requirement.

3. '229 patent, claim 1.

Murata and Staff argue, and Samsung does not dispute, that the Murata '229 Products meet all of the elements of claim 1 of the '229 patent such that the technical domestic industry requirement is met. (CBr. at 116-119; SBr. at 109-113; RBr. at 125-145.) The Administrative Law Judge finds that the Murata '229 Products meet all of the elements of claim 1 of the '229 patent because these products are multi-layer capacitor devices that comprise: (i) a capacitor body including top and bottom surfaces and opposed side surfaces which have continuously flat surfaces and are disposed between the top and bottom surfaces and opposed end surfaces disposed between the top and bottom surfaces and the opposed side surfaces, the capacitor body

including a plurality of first electrode plates and a plurality of second electrode plates, the first and second electrode plates being interleaved with each other in opposed and spaced apart relation; (ii) a dielectric material located between each opposed set of the first and second electrode plates; (iii) the first and second electrode plates each including a main electrode portion and a plurality of spaced apart lead structures extending therefrom, respective lead structures of the first electrodes plates being located adjacent respective lead structures of the second electrode plates in an interdigitated arrangement; and (iv) a plurality of electrical terminals located on each of the opposed side surfaces of the capacitor body, corresponding lead structures of the first electrode plates and corresponding lead structures of the second electrode plates being electrically connected together by respective ones of the electrical terminals to define a plurality of first polarity electrical terminals and a plurality of second polarity electrical terminals, respectively, located on the capacitor body; wherein (v) each of the first polarity terminals is disposed opposite to another of the first polarity terminals across the capacitor body and each of the second polarity terminals is disposed opposite to another of the second polarity terminals across the capacitor body; and (iv) at least one of the lead structures of the first and second electrode plates have a length L and a width W and a ratio L/W is equal to about 3 or less. (CX-159C; CX-160C; CX-161C; RX-910 at MM_011693; CFF 5.377-78 (undisputed in relevant part); CFF 5.391-399 (undisputed[31]); CFF 5.403-426 (undisputed[32]);SFF 274-78 (undisputed); SFF

[31] Samsung's chief, repeating objection to these proposed findings of fact is that Dr. Ulrich is not an expert in the '229 patent. Such an objection directly contradicts the Administrative Law Judge's specific finding at the hearing that Dr. Ulrich is recognized "as an expert with respect to the areas that he will be testifying in this case." (Tr. at 994.) While the fact that Dr. Ulrich is not a person of ordinary skill in the art of the '229 patent gives his testimony little persuasive value with respect to his opinions on claim construction under *Phillips*, this does not mean he is unqualified with respect to such topics as infringement, validity, and technical domestic industry. Samsung's "objections" in this regard are rejected. It is further noted that Samsung points to no evidence or testimony to show that the facts underlying Dr. Ulrich's opinions are incorrect. Samsung's objections with respect to claim construction are likewise unsupported, as Samsung's proposed claim constructions relating to these proposed findings of fact were not adopted in Section III.D., above.

[32] *See* previous footnote.

280-81 (undisputed); SFF 283 (undisputed); ROSFF 282.2; ROSFF 282.3; Tr. at 849-862 (Kubodera); Tr. at 1122-1134 (Ulrich).) Therefore, the Administrative Law Judge concludes that Murata has met the technical prong of the domestic industry requirement for the '229 patent.

B. Economic Analysis.

The economic prong of the domestic industry requirement is defined in subsection 337(a)(3) as follows:

> (3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark or mask work concerned –
>
> (A) Significant investment in plant and equipment;
> (B) Significant employment of labor or capital; or
> (C) Substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3). The economic prong of the domestic industry requirement is satisfied by meeting the criteria of any one of the three factors listed. Murata bears the burden of demonstrating that the economic prong of the domestic industry requirement is satisfied.

Murata argues that it satisfies the economic prong of the domestic industry requirement for the asserted patents under any of the three Section 337(a)(3) criteria. (CBr. at 129.) Murata's evidence with respect to its domestic expenditures is dependent upon Murata's determination that the products listed in RX-58 at Exhibits 2-4 practice the three asserted patents (the "domestic industry products"). (CBr. at 130; Tr. at 765-66 (McHargue); Tr. at 1337-38 (Kubota); CX-15C; CX-33C; CX-44C; RX-58C.) Staff argues that while the issue of economic domestic industry is close, Murata has demonstrated that the requirement has been met for all three asserted patents. (SBr. at 133.)

Samsung argues that Murata's investments with respect to the '229 and '309 patents "are *de minimis* at best," although Samsung does not conclude that Murata's domestic investments with respect to the '254 patent are insufficient. (RBr. at 144-45.) Samsung argues that because Murata's products are manufactured overseas, it cannot meet the domestic industry requirement under Section 337(a)(3)(A) or (B). (RBr. at 144 (citing *Certain Mobile Telephone Handsets, Wireless Communication Devices, and Components Thereof*, Inv. No. 337-TA-578, Order No. 33 at 4 (U.S.I.T.C., Feb. 16, 2007) ("*Mobile Handsets*")).) Samsung further argues that Murata must show in "absolute terms" that it has made a substantial domestic investment pursuant to Section 337(a)(3)(C). (*Id.*)

As an initial matter, the *Mobile Handsets* order relied on by Samsung to claim that a party may not establish a domestic industry in a patented product manufactured overseas pursuant to subsections (A) or (B) of Section 337(a)(3) is not binding precedent. Even if this were not the case, the *Mobile Handsets* order relies on questionable precedent. According to *Mobile Handsets*, the Commission in *Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same* "interpreted the intent of Section 337(a)(3)(A)-(B) to be the protection of domestic manufacture of goods." *Mobile Handsets*, at 4 (citing *Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same*, Inv. No. 337-TA-242, Commission Opinion at 61, (U.S.I.T.C. September 21, 1987) ("*DRAM*")). What that opinion actually says is that "the intent of the statute is the protection of domestic manufacture of goods." *DRAM* at 61. However, the Commission in *DRAM* was referring to an older version of Section 337.[33] *Id.* In that opinion, the Commission commented on the fact that the "term 'domestic industry' for purposes of section 337 is *not defined in the statute*." (*Id.*

[33] It is noted that even at that time, the Commission considered the totality of the circumstances and credited not only manufacturing operations, but distribution, research and development, and sales. *DRAM* at 62.

(emphasis added).) One year after the *DRAM* opinion, Section 337 was amended to specifically provide a definition for 'domestic industry.'

Furthermore, Congress clarified that Section 337 is not just intended to protect the domestic manufacture of goods:

> The Committee is concerned, however, that in some recent decisions the Commission has interpreted the domestic industry requirement in an inconsistent and unduly narrow manner. In order to clarify the industry standard, a definition is included which specifies that an industry exists in the United States with respect to a particular article involving an intellectual property right if there is, in the United States,—
>
> 1. significant investment in plant and equipment;
> 2. significant employment of labor or capital; or
> 3. substantial investment in the exploitation of the intellectual property right including engineering, research and development or licensing.
>
> The first two factors in this definition have been relied on in some Commission decisions finding that an industry does exist in the United States. The third factor, however, goes beyond ITC's recent decisions in this area. This definition does not require actual production of the article in the United States if it can be demonstrated that significant[34] investment and activities of the type enumerated are taking place in the United States. Marketing and sales in the United States alone would not, however, be sufficient to meet this test.

Omnibus Trade and Competitiveness Act, H. Rept. 100-40, pt. 1, at 157 (1987) (emphasis added). It is noted here that "definition" refers to the definition of domestic industry as a whole, which includes discussion of all three subsections. In addition, the sentence that explains that the 'definition' does not require actual domestic production of the patented article uses the language "significant investment" (subsections 1 and 2) and not "substantial investment" (subsection 3). Therefore in that sentence "definition" does not refer to, and thus is not limited to, the word "factor" in the preceding sentence. The Administrative Law Judge finds that the 1988 amendment to Section 337 was intended to show that the domestic industry requirement is not limited *in any way* to actual production of the patented article in the United States.

[34] This word has frequently misquoted by other sources.

Instead, the new distinction drawn in the revision of the statute was tied to the broader question of whether an industry was extant or in the process of being developed. Subsection (C) reflects Congressional intent to include, for example, a patent owner "actively engaged in steps leading to the exploitation of the intellectual property, including application engineering, design work, or other such activities." (*Certain Coaxial Cable Connectors and Components Thereof and Products Containing Same*, Inv. No. 337-TA-650, Comm'n Op. at 45-46 (U.S.I.T.C., April 14, 2010) (quoting S.Rep.No. 100-71 at 130).) The Commission has expressed the belief, in reference to the 1988 amendment, that a common thread may be derived from Congressional discussion of the amendment, namely a domestic industry inquiry into whether "the intellectual property right holder is taking steps to foster propagation or use of the underlying intellectual property, be it a copyrighted image or a patented invention." *Id.* at 49. Thus, provided the intellectual property right holder is fostering propagation or use of the patented invention domestically, it stands to reason that *significant* investment in plant and equipment in the United States or *significant* employment of labor or capital in the United States may be credited, even for products that are not manufactured domestically. It should be noted that the Administrative Law Judge is not suggesting that Section 337 has unlimited breadth with respect to economic domestic industry, but rather that the outcome must depend on a reasoned and detailed evaluation of the patent owner's domestic investments relating to the patented product rather than on any "hard and fast"[35] rules.

Other administrative law judges have taken this approach. For example, in *Certain Salinomycin Biomass and Preparations Containing Same*, the administrative law judge found the 1988 changes to Section 337 to mean that "Congress contemplated that the domestic industry

[35] *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Initial Determination at 421 (U.S.I.T.C., September 23, 2010).

requirement could be satisfied by foreign production under the patent at issue if coupled with activities and investments in the United States." *Certain Salinomycin Biomass and Preparations Containing Same*, Inv. No. 337-TA-370, Final Initial Determination at 124-25 (U.S.I.T.C., November 6, 1995) (unreviewed) (also noting that even predating the amendment to Section 337, the Federal Circuit held that "in proper cases 'industry' may encompass more than the manufacturing of the patent item"). In *Certain Liquid Crystal Display Devices and Products Containing the Same*, the administrative law judge found that Samsung Electronics Co., Ltd. maintained a domestic industry pursuant to subsection (B) for significant domestic labor costs related to (i) "the support, service, repair and replacement regarding domestic products that allegedly practice the '311 patent"; (ii) "service and support with respect to domestic products allegedly practicing the '344 patent[,] [including] services provided by field engineers, authorized service centers, and retail store chains"; (iii) outside vendor "warranty, repair work and quality control, testing, and product validation of Samsung cellular phones that allegedly practice the '666 patent"; and (iv) "support, service, repair and replacement regarding domestic products that allegedly practice the '196 patent[.]" *Certain Liquid Crystal Display Devices and Products Containing the Same*, Inv. No. 337-TA-631, Order No. 18 at 7-8 (U.S.I.T.C., September 23, 2008) (unreviewed). Whether any domestic labor costs were devoted to the initial manufacture of the patented product (or whether such initial manufacture ever occurred domestically) was never a consideration. (*Id.*) Accordingly, the Administrative Law Judge rejects Samsung's argument that Murata cannot rely on subsections (A) or (B) of Section 337(a)(3) to establish an economic domestic industry with respect to a product manufactured overseas.

In addition, the Administrative Law Judge rejects Samsung's argument that Murata must establish domestic industry pursuant to subsection (C) in "absolute terms." Establishment of an economic domestic industry is not dependent on any "minimum monetary expenditure." *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 25-26 (U.S.I.T.C., December 2009) ("*Stringed Instruments*"). The Commission expressly stated during an economic domestic industry analysis with respect to subsection C that there is no "need to define or quantify the industry itself in absolute mathematical terms." (*Id.*) In the same vein, there is no need to show that large quantities of representative products must be involved to show an investment is "substantial." *Certain Video Displays, Components Thereof, and Products Containing the Same*, Inv. No. 337-TA-687, Order No. 20 at 5 (U.S.I.T.C., May 20, 2010) (unreviewed) ("*Video Displays*"). "A precise accounting is not necessary, as most people do not document their daily affairs in contemplation of possible litigation." *Stringed Instruments* at 26. Rather, a complainant must demonstrate a sufficiently focused and concentrated effort to lend support to a finding of a 'substantial investment.' *Id.*

Here, the relevant evidence with respect to Murata's economic domestic industry is as follows:

1. Approximately { } people work at Murata Electronics North America, Inc.'s ("MENA") Smyrna, Georgia facility, which is over { } square feet. (CFF 6.17 (undisputed); SFF 318 (undisputed); Tr. at 768 (McHargue).)
2. The entire Smyrna facility, including land, is estimated at { }. (Tr. at 768 (McHargue); CFF 6.17 (undisputed).)
3. MENA also has a Rockmart, Georgia facility of approximately { } square feet with an estimated value of { } (Tr. at 771 (McHargue); CFF 6.19-20 (undisputed).)
4. The equipment in use at the Rockmart facility has an estimated { } in value. (Tr. at 772-73 (McHargue); CX-392C; CX-454C; CFF 6.21 (undisputed).)
5. Approximately { } employees work at the Rockmart facility. (Tr. at 771-72 (McHargue).)
6. The Rockmart facility includes a logistics warehouse in which MENA's approximately { } square foot quality control laboratory is located. The lab has equipment valued at approximately { } all of which has been used to analyze domestic industry

products.[36] This lab handles electrical and physical tests of Murata's multilayer ceramic capacitors and has equipment that permits analysis of Murata's multilayer ceramic capacitors. The lab has at least a { } and a { } who handle multilayer ceramic capacitors. (Tr. at 766-767, 772-74, 781-82, 830 (McHargue); CX-454C; CX-389C; CFF 6.22-30 (undisputed).)

7. MENA's Quality Assurance Manager, Lanney McHargue, testified that an estimated { } percent of MENA's business { } relates to the products alleged to practice the asserted patents, based on a calculation by dollar volume of sales, and that approximately { } percent of the lab time at the Rockmart laboratory has been used for Murata's domestic industry products. (Tr. at 769-70, 773 (McHargue).)
8. Mr. McHargue's quality assurance department, or failure analysis group, consists of at least { } key technical people. They may conduct all or a portion of a failure analysis for a product. They also prepare technical reports to Murata customers relating to product failure. The office space of the quality assurance department is valued at approximately { } (Tr. at 775, 777-79 (McHargue); CX-416C; CX-417C; CX-419C; CX-443C; CX-444C; CX-388C; CX-492C; CX-356C; CFF 6.68-6.77 (undisputed in relevant part); CFF 6.114-126 (undisputed).)
9. The salaries for MENA's quality assurance department totaled { } in fiscal 2009. Mr. McHargue estimated that { } percent of his time, { } percent of Mr. Crew's time, and { } percent of Mr. Peek's time is spent on the domestic industry products. (Tr. at 783, 820-21 (McHargue); CFF 6.79 (undisputed).)
10. Mr. McHargue estimated that { } percent of capacitor claims from 2007 through 2009 involved the domestic industry products, although it includes a patent that has been withdrawn from the Investigation. Specifically, CX-393C identifies that { } percent of capacitor claims from 2007-2009 involved the '254 patent, { } involved the '309 patent, and { } involved the '229 patent. (Tr. at 783-84 (McHargue); CX-393C.)
11. Kazuyuki Kubota, MENA's former { } of capacitor products at the Smyrna facility, testified that the capacitor marketing group provided customer support and would ascertain the technical needs of customers, including design-in activities and product customization. He testified that "the primary responsibilities of the capacitor marketing group [were] to provide technical support as they relate to capacitors." (Tr. at 1332-35, 1338-39, 1341-43, 1347, 1360 (Kubota); CX-354C; CX-376C; CX-377C; CX-441C; RX-365C; CFF 6.143 (undisputed); CFF 6.147-150 (undisputed); CFF 6.180 (undisputed). *See also* Tr. at 239 (Yoshino).)
12. The MENA capacitor marketing group has about { } employees, including product engineers. (Tr. at 1333 (Kubota); RX-365C; CFF 6.80-82 (undisputed); CFF 6.87-88 (undisputed); CFF 6.94 (undisputed).)
13. Mr. Kubota estimated that he spent about { } to {} percent of his time on design-in work, and the other product engineers at MENA spent about {} percent of their time on design-in work. (Tr. at 1340 (Kubota); CFF 6.153 (undisputed).

[36] Staff argues that only { } of these lab tests relate to capacitors sold in the United States and that "products that do not enter the United States cannot be considered to practice a United States patent." (SBr. at 137.) The Administrative Law Judge disagrees with Staff's conclusion because it is understood these products entered the United States to be tested in the lab. Thus Staff's estimated allocations of { } for the Rockmart lab equipment relating to the '254, '309, and '229 patents (SBr. at 137) should not be further reduced.

14. The average engineer's time allocation for the MENA capacitor marketing group is estimated at { } percent for the '229 patent, { } percent for the '254 patent, and { } percent for the '309 patent. (RX-365C at 6. *See also* Tr. at 1341-43 (Kubota).)
15. According to the estimates provided in RX-365C, the Capacitor Marketing group members spend the following amounts of time doing technical work on products practicing each of the asserted patents: { } of her time; { } of his time; { } { } of his time; { } his time; { } his time; { } of his time; { } of his time; { } of his time; and { } of his time. (CFF 6.157-60; RX-365C at 6.)
16. The MENA capacitor marketing group space estimates, equipment estimates, and payroll are set forth in RX-365C and updated in RX-370C. (CX-59C; CX-473C; RX-365C; RX-370C; Tr. at 1345-46 (Kubota); CFF 6.36-37 (undisputed); CFF 6.99 (undisputed).)
17. { } at MENA, occupies a { } square foot cubicle in San Jose, CA. That space is valued at approximately { } per month. In addition, MENA has invested approximately { } in her office furniture and equipment and an additional { } in her computer and software. (CFF 6.40 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)
18. { } works from his { } in North Carolina. MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.41 (undisputed); RX- 370C.001; Tr. at 1344:6 – 1345:19 (Kubota).)
19. { } at MENA, formerly occupied a { } square foot office in Smyrna, GA. That space was valued at approximately { } per year. In addition, MENA had invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.42 (undisputed in relevant part); RX-370C; Tr. at 1344–45 (Kubota).)
20. { } at MENA, occupies a { } square foot cubicle in San Jose, CA. That space is valued at approximately { } per month. In addition, MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.43 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)
21. { } at MENA, occupies a { } square foot cubicle in San Jose, CA. That space is valued at approximately { } per month. In addition, MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.44 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)
22. { } at MENA, occupies a { } square foot office in Detroit, MI. That space is valued at approximately { } per month. In addition, MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.45 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)

23. { } at MENA, occupies a { } square foot cubicle in Smyrna, GA. That space is valued at approximately { } per year. In addition, MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.46 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)
24. { } at MENA, occupies a { } square foot cubicle in Smyrna, GA. That space is valued at approximately { } per year. In addition, MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.47 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)
25. { } at MENA, occupies a { } square foot cubicle in Smyrna, GA. That space is valued at approximately { } per year. In addition, MENA has invested approximately { } in his office furniture and equipment and an additional { } in his computer and software. (CFF 6.48 (undisputed); RX-370C; Tr. at 1344–45 (Kubota).)
26. On an annual basis, MENA invests approximately { } in office and cubicle space for the Product Engineers and Product Managers who work on multilayer ceramic capacitors, including the domestic industry products. (RX-370C.)
27. In addition, MENA has invested approximately { } in office equipment, furniture, computers and software for the Product Engineers and Product Managers who work on multilayer ceramic capacitors, including the domestic industry products. (RX-370C.)
28. A portion of the sales staff, particularly the sales engineers and technical sales managers, assists with design-in activities and provides technical support to customers. Mr. McHargue estimated that { } people in MENA's sales department provide technical support to customers. Salaries and benefits for the sales department in 2009 were approximately { } although it is not clear what portion of these are attributable to those sales staff providing technical support. CX-365C shows MENA's domestic investments in space and equipment for members of the sales group, including sales engineers and technical sales managers. (Tr. at 1339-40 (Kubota); Tr. at 792-95 (McHargue); RX-58C; CX-356C; CX-455C; CX-373C; CX-365C.)

The Administrative Law Judge finds that Murata has not set forth sufficient investments in plant and equipment, taken by themselves, to establish an economic domestic industry pursuant to 337(a)(3)(A). This is because only a small portion of these investments are attributable to the domestic industry products. However, the Administrative Law Judge finds that Murata has set forth a sufficiently focused and concentrated showing of a significant employment of labor with respect to Murata's domestic quality assurance and capacitor marketing groups, and to a more limited extent such members of the sales staff as sales engineers and technical sales managers, to establish an economic domestic industry in the asserted patents

pursuant to 337(a)(3)(B). The Administrative Law Judge also finds that Murata has demonstrated a substantial investment in the exploitation of the '254, '309, and '229 patents based on the engineering and research (and to a minor extent, { } activities of Murata's domestic quality assurance and capacitor marketing groups, which investments include domestic expenditures relating to the space and equipment necessary for these activities.

VIII. CONCLUSIONS OF LAW

1. The Commission has personal jurisdiction over the parties, subject-matter jurisdiction, and in rem jurisdiction over the Accused Products.
2. The importation or sale requirement of Section 337 is satisfied.
3. None of the Accused '254 Products identified in Appendix A literally infringe asserted claims 1, 2, 9, 11-14, and 19-20 of the '254 patent.
4. None of the Accused '309 Products identified in Section I.E. above literally infringe asserted claim 3 of the '309 patent.
5. All of the Accused '229 Products identified in Section I.E. above literally infringe asserted claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of the '229 patent.
6. The asserted claims 1, 2, 9, 11-14, and 19-20 of the '254 patent are not invalid under 35 U.S.C. § 102 for anticipation.
7. The asserted claim 3 of the '309 patent is not invalid under 35 U.S.C. § 102 for anticipation.
8. The asserted claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of the '229 patent are not invalid under 35 U.S.C. § 102 for anticipation.
9. The asserted claims 1, 2, 9, 11-14, and 19-20 of the '254 patent are not invalid under 35 U.S.C. § 103 for obviousness.

10. The asserted claim 3 of the '309 patent is not invalid under 35 U.S.C. § 103 for obviousness.

11. The asserted claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of the '229 patent are invalid under 35 U.S.C. § 103 for obviousness.

12. The asserted claims 11-14, and 19-20 of the '254 patent are invalid under 35 U.S.C. § 112 for lack of written description.

13. Asserted claim 3 of the '309 patent is not invalid under 35 U.S.C. § 112 for lack of written description.

14. The asserted claims 1, 2, 9, 11-14, and 19-20 of the '254 patent are not rendered unenforceable due to inequitable conduct.

15. The asserted claim 3 of the '309 patent is not rendered unenforceable due to inequitable conduct.

16. The asserted claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of the '229 patent are not rendered unenforceable due to inequitable conduct.

17. A domestic industry does exist with respect to the '254 patent, as required by Section 337.

18. A domestic industry does not exist with respect to the '309 patent, as required by Section 337.

19. A domestic industry exists with respect to the '229 patent, as required by Section 337.

20. With respect to Samsung, it has been established that no violation exists of Section 337 for claims 1, 2, 9, 11-14, 19-20 of the '254 patent.

21. With respect to Samsung, it has been established that no violation exists of Section 337 for claim 3 of the '309 patent.

22. With respect to Samsung, it has been established that no violation exists of Section 337 for claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of the '229 patent.

This Initial Determination's failure to discuss any matter raised by the parties, or any portion of the record, does not indicate that it has not been considered. Rather, any such matter(s) or portion(s) of the record has/have been determined to be irrelevant, immaterial or meritless. Arguments made on brief which were otherwise unsupported by record evidence or legal precedent have been accorded no weight.

IX. INITIAL DETERMINATION AND ORDER

Based on the foregoing, it is the INITIAL DETERMINATION ("ID") of this Administrative Law Judge that with respect to Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc., no violation of Section 337 of the Tariff Act of 1930, as amended, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain multi-layer ceramic capacitors by reason of infringement of one or more of claims 1, 2, 9, 11-14, and 19-20 of United States Patent No. 6,243,254.

The Administrative Law Judge further determines that with respect to Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc., no violation of Section 337 of the Tariff Act of 1930, as amended, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain multi-layer ceramic capacitors by reason of infringement of claim 3 of United States Patent No. 6,014,309.

The Administrative Law Judge further determines that that with respect to Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc., no violation of Section 337 of the Tariff Act of 1930, as amended, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain multi-layer ceramic capacitors by reason of infringement of one or more of claims 1-4, 7, 17-18, 23, 28-31, 34, 51-53 of United States Patent No. 6,266,229.

The Administrative Law Judge further determines that a domestic industry exists that practices U.S. Patent Nos. 6,243,254. A domestic industry does not exist that practices U.S. Patent No. 6,014,309. The Administrative Law Judge further determines that a domestic industry exists that practices U.S. Patent No. 6,266,229.

Further, this ID, together with the record of the hearing in this Investigation consisting of:

(1) the transcript of the hearing, with appropriate corrections as may hereafter be ordered, and

(2) the exhibits received into evidence in this Investigation, as listed in the attached exhibit lists in **Appendix B**,

are CERTIFIED to the Commission. In accordance with 19 C.F.R. § 210.39(c), all material found to be confidential by the undersigned under 19 C.F.R. § 210.5 is to be given *in camera* treatment.

The Secretary shall serve a public version of this ID upon all parties of record and the confidential version upon counsel who are signatories to the Protective Order (Order No. 1) issued in this Investigation, and upon the Commission Investigative Attorney.

RECOMMENDED DETERMINATION ON REMEDY AND BOND

I. REMEDY AND BONDING

The Commission's Rules provide that subsequent to an initial determination on the question of violation of Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, the Administrative Law Judge shall issue a recommended determination containing findings of fact and recommendations concerning: (1) the appropriate remedy in the event that the Commission finds a violation of Section 337, and (2) the amount of bond to be posted by respondents during Presidential review of Commission action under Section 337(j). *See* 19 C.F.R. § 210.42(a)(1)(ii).

A. Applicable Law.

The Commission may issue a remedial order excluding the goods of respondents found in violation of Section 337 (a limited exclusion order) or, if certain criteria are met, excluding all infringing goods regardless of the source (a general exclusion order). 19 U.S.C. § 1337(d); *Certain Hydraulic Excavators and Components Thereof*, Inv. No. 337-TA-582, Comm'n Op., at 15 (U.S.I.T.C., February 3, 2009) ("*Certain Excavators*"). Here, Murata requests a limited exclusion order if it prevails in the Investigation. A limited exclusion order instructs the U.S. Customs and Border Protection ("CBP") to exclude from entry all articles that are covered by the patents at issue and that originate from a named respondent in the investigation. *See* 19 U.S.C. § 1337(d).

B. Remedy with Respect to the '254, '309, and '229 patents.

As discussed above in the Initial Determination on Violation of Section 337, the Administrative Law Judge has found that no violation has occurred with Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc. with respect to the

'254, '309, and '229 patents. Therefore, remedy with respect to the '254, '309, and '229 patents is not warranted. In the event the Commission were to find a violation of the '254, '309, and '229 patents, the Administrative Law Judge's recommendation with respect to remedy follows.

Murata argues that a limited exclusion order should bar Samsung products found to infringe the asserted patent claims, as well as to downstream products imported by or behalf of Samsung. (CBr. at 143.) According to Murata, Samsung's downstream products and modules such as Bluetooth modules, motor modules, tuner modules, wall mounts, ISM modules for digital camera applications, power modules, and W-LANs should be excluded if they contain multilayer ceramic capacitors that infringe any asserted patent claims. (*Id.*) Murata also argues that "[i]t would be a negligible burden for Respondents to identify and certify to Customs those downstream products that do not contain infringing MLCCs." (*Id.* at 149.)

Samsung argues that products that are no longer accused of infringement in this Investigation should be expressly excluded from the scope of any limited exclusion order. (RBr. at 147.) Samsung further argues against any importation bar of downstream products containing infringing capacitors, but if such a bar is imposed, Samsung requests a certification provision. (*Id.* at 149.)

Staff "is of the view that the appropriate remedy will include a limited exclusion order directed at the Accused Products and directed at certain downstream modules imported by SEMCO or its affiliates, subsidiaries, successors, and assigns." (SBr. at 141.)

As an initial matter, with respect to the number of accused products that were initially asserted and pared down, the Administrative Law Judge does not agree that these products should be expressly excluded from a limited exclusion order. After being informed that approximately 4,600 products were in issue, the Administrative Law Judge directed the private

parties to reduce this number. (Pre-Hearing Conference Tr. at 57, March 24, 2010.) Thus, for purposes of engaging in expeditious proceedings (Commission Rule 210.2), Murata did not necessarily assert all Samsung products that potentially infringe. Furthermore, Commission remedial orders may cover all infringing products, not just specified products. *Certain Optical Disk Controller Chips and Chipsets and Products Containing Same, Including DVD Players and PC Optical Storage Devices*, Inv. No. 337-TA-506, Comm'n Op. at 56 (U.S.I.T.C., September 28, 2005) (finding no basis to exclude a specified product when no determination made as to that product, particularly in light of Commission's "long-standing practice" to direct remedial orders to all products covered by patent claims). Here, in light of the number of capacitors that Samsung makes, the Administrative Law Judge recommends that any limited exclusion order be directed to Samsung products found to infringe the asserted patent claims, rather than to specific enumerated product models, that are manufactured abroad or imported by or on behalf of Samsung, or any of its affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns.

Should infringement of any of the accused capacitors be found, the Administrative Law Judge further finds that a limited exclusion order against only infringing Samsung capacitors might be ineffective because the capacitors could be imported as a component of other Samsung products or product components. (CFF 7.6 (undisputed); CFF 7.9-7.37 (undisputed).) Therefore, the Administrative Law Judge finds that a review of the "EPROMs factors" is appropriate to determine if Samsung's downstream products containing infringing capacitors should be subject to a limited exclusion order. *See Certain Erasable Programmable Read-Only Memories, Components Thereof, Products Containing Such Memories, and Process for Making Such Memories*, Inv. No. 337-TA-276, Comm'n Op. at 125-26 (U.S.I.T.C., May 1989) ("*EPROM*").

These factors are designed to weigh a complainant's interest in protection from infringement against the potential to disrupt legitimate trade of products that were not themselves found to violate Section 337, and include the following:

> 1) the value of the infringing articles relative to the value of the downstream products in which they are incorporated;
>
> 2) the identity of the manufacturer of the downstream products in which they are incorporated, *i.e.*, whether it can be determined that the downstream products are manufactured by the respondent or by a third party;[37]
>
> 3) the incremental value to the complainant of the exclusion of the 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 the exclusion order;
>
> 8) the opportunity for evasion of an exclusion order that does not include downstream products; and
>
> 9) the enforceability of an order by Customs.

Id. The Commission in *EPROM* made clear that this is not an exhaustive list, and that other considerations may also play a role in determining whether remedial exclusion should be extended to downstream products. (*Id.*)

The evidence shows that the Accused Products are worth only a fraction of the downstream products. (*See e.g.,* CFF 7.15-16 (undisputed); RBr. at 148.) However, factor 1 is not just a cost consideration, but also a question of the importance of the accused components to the operation of the downstream products in which they are incorporated. *Certain Baseband Processor Chips and Chipsets, Transmitted and Receiver (Radio) Chips, Power Control Chips,*

[37] This factor has little relevance following the Federal Circuit opinion limiting downstream product relief to named respondents when a limited exclusion order is sought. *Kyocera Wireless Corp. v. International Trade Comm'n*, 545 F.3d 1340, 1358 (Fed. Cir. 2008).

and Products Containing Same, Including Cellular Telephone Handsets, Inv. No. 337-TA-543, Comm'n Op. at 36 (U.S.I.T.C., June 19, 2007) (rev'd on other grounds). Here, the accused capacitors are functionally significant to the downstream modules products because they would not operate without the capacitors. (CFF 7.13 (undisputed); CFF 7.17 (undisputed); CFF 7.22 (undisputed); CFF 7.26 (undisputed); CFF 7.30 (undisputed); CFF 7.37 (undisputed).) Thus, factor 1 weighs in favor of extending downstream relief.

With respect to factors 3 and 4, Murata argues that it would be denied effective relief if a limited exclusion order did not apply to downstream products because Samsung imports a substantial quantity of downstream products into the United States. (CBr. at 145.) Samsung does not directly refute this argument. Nor does Samsung argue that it would face any detriment if downstream products were excluded. (RBr. at 147-9; RRBr. at 72-73 (claiming U.S. customers will be harmed).) Murata argues that Samsung would not be adversely affected and has had an opportunity to make alternate plans to protect itself should such a remedy be implemented. (CBr. at 145-46.) The Administrative Law Judge finds that factors 3 and 4 also weigh in favor of extending downstream relief.

According to Murata and Staff, the evidence also indicates that alternate downstream products are available, thus factors 5 and 6 weigh in favor of downstream relief. (CBr. at 146; SBr. at 140.) Staff does not cite to any such supporting evidence. (SBr. at 140.) Murata's sole support is that Samsung has a number of competitors in the multi-layer ceramic capacitor market (CFF 1.192 (undisputed)), implying that alternative downstream products by Samsung containing competitors' capacitors would be readily available. The Administrative Law Judge finds that factor 6 also weighs in favor of extending downstream relief, but that the evidence is insufficient to make any determination with respect to factor 5.

Samsung argues, with respect to factor 7, that Murata has not presented any evidence that the Samsung downstream products actually contain accused capacitors, although, evidentiary objections aside, Samsung does not argue they do not. (RBr. at 148.) Samsung contradicts its own position with a number of admissions that a variety of downstream products contain at least one accused product. (CFF 7.3-7.4 (undisputed); CX-593C at 10-12; CX-545C.) Murata argues that as the only downstream products in dispute are those manufactured by Samsung, there is no question that they contain Samsung's capacitors. (CBr. at 147.) While Factor 7 has less relevance following the *Kyocera* opinion (*Kyocera*, 545 F.3d at 1358) because there is no issue as to whether there are infringing Samsung capacitors in nonparty downstream products, the Administrative Law Judge finds that factor 7 also weighs in favor of extending downstream relief.

With respect to factor 8, the Administrative Law Judge finds, based on the number of different downstream products containing Samsung capacitors, that Samsung has an ample opportunity to evade a limited exclusion order that does not include downstream products. (CFF 7.3-7.5 (undisputed).) Thus factor 8 also weighs in favor of downstream relief.

Samsung and Murata both recognize that a certification provision would minimize any burden on Customs and request the same. (RBr. at 149; CBr. at 148-49.) The Administrative Law Judge finds that factor 9 does not weigh against a limited exclusion order that includes downstream products.

The Administrative Law Judge finds, after considering the EPROM factors, that a limited exclusion order should extend to Samsung's downstream products containing infringing Samsung capacitors, including Samsung's Bluetooth modules, Motor modules, Wall Mount modules, Tuner modules, ISM modules, W-LAN modules, and Power modules, and that a

certification requirement should be imposed. The parties agree that downstream products manufactured by non-party Samsung Electronics, Co. Ltd. would be outside the scope of any limited exclusion order. (RFF 8.4 (undisputed).)

II. CEASE AND DESIST ORDER

Section 337 provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order as a remedy for violation of Section 337. *See* 19 U.S.C. § 1337(f)(1). The Commission generally issues a cease and desist order directed to a domestic respondent when there is a "commercially significant" amount of infringing, imported product in the United States that could be sold so as to undercut the remedy provided by an exclusion order. *See Certain Crystalline Cefadroxil Monohydrate*, Inv. No. 337-TA-293, Comm'n Op. on the Issue Under Review, and on Remedy, the Public Interest and Bonding at 37-42, Pub. No. 2391 (U.S.I.T.C., June 1991). Cease and desist orders have been declined when the record contains no evidence concerning infringing inventories in the United States. *Certain Condensers, Parts Thereof and Products Containing Same, Including Air Conditioners for Automobiles*, Inv. No. 337-TA-334, Comm'n Op. at 28 (U.S.I.T.C., Aug. 27, 1997).

Murata and Staff argue that a cease and desist order is warranted. (CBr. at 149; SBr. at 141.) Samsung relies on the fact that documents it incorporated by reference into its admitted interrogatory responses (CX-589C at 5-6) are not part of the record. (ROCFF 7.47-49.) The record evidence shows that Samsung Electro-Mechanics America, Inc. maintained more than { } units of at least one of the accused products in the United States in 2009. (CFF 7.45 (undisputed); CX-589C.) Furthermore, the Administrative Law Judge finds that because Samsung incorporated the pages bates labeled SEMCO00262774-SEMCO00262775 by reference into CX-589C and that document was admitted into the record, those underlying

documents are deemed part of CX-589C. Samsung was permitted to cite to these documents to avoid the burden of copying their contents into its interrogatory response, and may not obtain unfair advantage because the documents are physically located elsewhere. While the pages SEMCO00262774-SEMCO00262775 have not been supplied to the Administrative Law Judge, Samsung does not dispute that CFF 7.48, CFF 7.49, and CFF 7.50 accurately represent their contents. (ROCFF 7.48-50.) The Administrative Law Judge finds that it is Samsung Electro-Mechanics America, Inc.'s practice to maintain commercially significant amounts of its capacitors and thus a cease and desist order would be appropriate should the Commission find that a violation has occurred.

III. BOND DURING PRESIDENTIAL REVIEW PERIOD

The Administrative Law Judge and the Commission must determine the amount of bond to be required of a respondent, pursuant to Section 337(j)(3), during the 60-day Presidential review period following the issuance of permanent relief, in the event that the Commission determines to issue a remedy. 19 C.F.R. § 210.42(a)(1)(ii). The purpose of the bond is to protect the complainant from any injury. 19 C.F.R § 210.50(a)(3).

When reliable price information is available, the Commission has often set the bond by eliminating the differential between the domestic product and the imported, infringing product. *See Certain Microsphere Adhesives, Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op., at 24 (U.S.I.T.C., December 15, 1995). In circumstances where pricing information is unclear, or where variations in pricing make price comparisons complicated and difficult, the Commission typically has set a 100 percent bond. *Id.*, at 24-25; *Certain Digital Multimeters and Products with Multimeter Functionality*, Inv. No. 337-TA-588, Comm'n Op., at 12-13 (U.S.I.T.C., June 3, 2008) (finding

100 percent bond where each respondent set its price differently, preventing clear differentials between complainant's products and the infringing imports). When a pricing comparison is impossible, it is also appropriate to set the bond based on a reasonable royalty. *Certain Digital Televisions and Certain Products Containing Same and Methods of Using Same*, Inv. No. 337-TA-617, Commission Opinion at 18 (U.S.I.T.C., April 23, 2009).

Murata argues that Samsung's data regarding pricing is too varied to calculate a differential and therefore a bond of 100% should be set. (CBr. at 149-150.) Samsung argues that Murata did not make any effort to calculate a price differential analysis and therefore bond should be set at zero. (RBr. at 150.) Staff, relying on a license agreement, argues that bond should be set at 2.5 percent of the entered value of the infringing accused products. (SBr. at 143-44.)

The license agreement Staff relies on, Exhibit 949C, is a license by AVX Corporation to Murata Manufacturing Co., Ltd. for an AVX patent in exchange for a lump sum payment of { }and { } percent of the net sales price of licensed capacitors. (RX-949C at AVX00000534-36.) Staff does not factor in, or account for, the lump sum payment, which may have affected the royalty rate of the licensed capacitors. It is further noted that because the Samsung capacitors sell for as little as { } or even less, such a royalty rate would do little to protect Murata from injury. The Administrative Law Judge declines to set a royalty rate so small that it would be necessary to calculate amounts smaller than thousandths of a penny. Also, the license here is not for the asserted patents or any of Murata's other patents, and therefore does not demonstrate Murata's commercial bargaining power with respect to its intellectual property. In the same vein, one example of a license agreement is not enough to show a general trend in the industry. Additionally, as noted above, the license includes an up front payment which casts

the royalty rate in doubt. Accordingly, the Administrative Law Judge declines to implement Staff's proposed form of bond.

Samsung's modules that incorporate Samsung's capacitors range in average price from { } (CFF 7.8 (undisputed in relevant part).) Average selling prices for Samsung capacitors for these modules include { } per unit (CFF 7.12 (undisputed)), { } per unit (CFF 7.16 (undisputed)), { } per unit (CFF 7.21 (undisputed)), { } per unit (CFF 7.25 (undisputed), { } per unit (CFF 7.29 (undisputed)), { } per unit (CFF 7.33 (undisputed)), and { } per unit (CFF 7.36 (undisputed)). Thus, known prices range at least between { } a significant variation in pricing. Even though Murata has not cited to any evidence regarding the pricing for its own domestic products in the briefing on bond, Murata previously identified with respect to economic domestic industry that these can be located in RX-58C, Exhibit 2. A review of the average pricing for Murata products shows prices ranging from { } per unit. (RX-58C, Ex. 2.) Just as with the Samsung products, the Murata products have a significant variation in average price, preventing clear differentials between Murata and Samsung's products. Therefore, the Administrative Law Judge recommends that a 100% bond would be appropriate.

Accordingly, the Administrative Law Judge recommends a bond of one hundred percent, including one hundred percent of each infringing Samsung capacitor found in Samsung's downstream products.

IV. CONCLUSION

In accordance with the discussion of the issues contained herein, it is the RECOMMENDED DETERMINATION of the Administrative Law Judge that in the event the Commission finds a violation of Section 337, the Commission should issue a limited exclusion

order directed to Respondents and all of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns, and should apply to products that infringe the asserted claims of the '254, '309, and '229 patents, as well as Respondents' downstream products containing them. Should the Commission determine that a violation has occurred, the Administrative Law Judge recommends that the Commission issue a cease and desist order against Samsung Electro-Mechanics America, Inc. Furthermore, if the Commission imposes a remedy following a finding of violation, Respondents should be required to post a bond of a bond of one hundred percent of each infringing capacitor designated in the limited exclusion order imported during the Presidential review period. A bond of one hundred percent of each infringing capacitor contained in Respondents' downstream products should also be imposed.

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 by the aforementioned date. The parties' submission concerning the public version of this document need not be filed with the Commission Secretary.

SO ORDERED.

E. James Gildea
Administrative Law Judge

APPENDIX A

ACCUSED '254 PRODUCTS

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable E. James Gildea

In the Matter of:	
CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME	Investigation No. 337-TA-692

RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONICS NORTH AMERICA INC.'S SECOND SET OF INTERROGATORIES (65, 69-72, 76, 79, 80 AND 86)

Pursuant to Commission Rules of Practice and Procedure 210.27 and 210.29, Respondents Samsung Electro-Mechanics Co. Ltd. and Samsung Electro-Mechanics America, Inc. (collectively the "SEMCO Respondents") hereby provide their first supplemental responses to Interrogatory Nos. 65, 69-72, 76, 79, 80 and 86 of the Second Set of Interrogatories of Complainants Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc. (collectively "Murata" or "Complainants").

GENERAL OBJECTIONS

The following General Objections ("General Objections") apply to each interrogatory, whether or not separately repeated in each response:

1. The SEMCO Respondents object to each and every interrogatory to the extent that Complainants' "Definitions," "Instructions" and "Interrogatories" purport to impose burdens on the SEMCO Respondents that are inconsistent with, or not otherwise authorized by, the applicable rules of the International Trade Commission ("ITC") and/or the orders and Ground Rules of the Honorable E. James Gildea, the Administrative Law Judge assigned to this

ATTACHMENT C

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APPENDIX B

EXHIBIT LISTS

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable E. James Gildea
Administrative Law Judge

IN THE MATTER OF **CERTAIN CERAMIC CAPACITORS AND *PRODUCTS CONTAINING SAME***	**Investigation No. 337-TA-692**

COMPLAINANTS' CORRECTED FINAL EXHIBIT LIST

In accordance with Order No. 55, Complainants Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc. (collectively, "Murata") hereby submit the following Corrected Final Complainants' Exhibit List.

In the Matter of Certain Ceramic Capacitors And Products Containing Same, Inv. No. 337-TA-692
Before The Honorable E. James Gildea

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-1~~			11/10/1997	Certified translation of JP 9-306717; priority application for '229 patent (withdrawn as duplicate of JX-24)	Ulrich	Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
~~CX-2~~	Exh. 4 to '229 Ulrich Rebuttal Expert Report		12/27/1999	Certified translation of JP 11-370803; priority application for '229 patent (withdrawn as duplicate of JX-23)	Ulrich	Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
CX-3			8/11/1998	Certified translation of JP 10-227202; priority application for '254 patent (withdrawn as duplicate of JX-25)	Burn	Evidence of priority date as stated on face of patents-in-suit	**Admitted**
CX-4			8/11/1998	Certified translation of JP 10-227203; priority application for '254 patent (withdrawn as duplicate of JX-26)	Burn	Evidence of priority date as stated on face of patents-in-suit	**Admitted**
~~CX-5~~	Exh. 1 to '309 Ulrich Rebuttal Expert Report		5/9/1997	Certified translation of JP 9-135823; priority application for '309 patent (withdrawn as duplicate of JX-13)	Ulrich	Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
~~CX-6~~	Exh. 4 to '439 Ulrich Rebuttal Expert Report		7/15/1999	Certified translation of JP 11-202039; priority application for '439 patent (withdrawn as duplicate of JX-27)	Ulrich	Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
CX-7C	MM_301962	MM_302009	3/19/2010	List of Murata ceramic capacitor products that practice one or more claims of the '229 patent	Ulrich / Burn / Kawaguchi/Kubodera	Evidence of domestic industry w/r/t Tech. Prong for the '229 patent	**Admitted**
CX-8C	MM_302359	MM_302394	3/19/2010	List of Murata ceramic capacitor products that practice one or more claims of the '309 patent	Ulrich / Burn / Kubodera/Kawaguchi	Evidence of domestic industry w/r/t Tech. Prong for the '309 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-9C	MM_302124	MM_302358	3/19/2010	List of Murata ceramic capacitor products that practice one or more claims of the '439 patent; Murata DI Practice spreadsheets	Ulrich / Burn / Kubodera/Kawaguchi	Evidence of domestic industry w/r/t Tech. Prong for the '439 patent; Evidence of Murata's practice of the '439 patent	**Withdrawn**
CX-10C	MM_001678	MM_001690	11/17/2009	Spreadsheet of MENA expenses for fiscal years 2006 thru 2008	Kubota / McHargue / Wilder	Evidence of domestic industry re economic prong	**Withdrawn**
CX-11C	MM_301324	MM_301535	2006-2009	Examples of MENA Marketing and Promotion	Kubota / McHargue / Wilder	Evidence of domestic industry re economic prong	**Withdrawn**
CX-12C	MM_027158	MM_027160	Jan/Feb 2008	Murata's Summary and Outlook for Capacitors, by Mark Waugh of MENA	Burn / Ulrich / Kubota / McHargue / Wilder	Evidence of Secondary Indicia of Non-obviousness re '254, '229, '309, '439 patents, commercial success; Evidence of domestic industry, economic prong	**Withdrawn**
CX-13C	MM_027161	MM_027205	Jan/Feb 2009	2009 Capacitor Market Summary and Outlook, by Mark Waugh of MENA	Burn / Ulrich / Kubota / McHargue / Wilder	Evidence of Secondary Indicia of Non-obviousness re '254, '229, '309, '439 patents, commercial success	**Withdrawn**
CX-14C	SEMCO00314429	SEMCO00314496	3/21/2006	Macquarie Research Equities: Electronic components	Burn / Ulrich / Kubota / McHargue / Wilder	Evidence of Secondary Indicia of Non-obviousness re '254, '229, '309, '439 patents, commercial success	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-15C	MM_302639	MM_302650	4/20/2010	Spreadsheet of Murata Domestic Industry products for the '254 patent and sales data thereof	Burn / Sano / Kubota / McHargue / Wilder	Evidence of secondary Indicia of Non-obviousness re '254, commercial success; Evidence of domestic industry w/r/t Technical and Economic Prongs for the '254 patent	**Admitted**
CX-16C	MM_304531	MM_304944	4/22/2010	Spreadsheet of Murata Domestic Industry products for the '254 patent and sales data thereof	Burn / Sano / Kubota / McHargue / Wilder	Evidence of secondary Indicia of Non-obviousness re '254, commercial success; Evidence of domestic industry w/r/t Technical and Economic Prongs for the '254 patent	**Withdrawn**
CX-17C	Sano Deposition Ex. 3		4/1/2010	Set of data that correlates dielectric material codes to part numbers; chronology of development efforts at Murata	Burn / Sano	Evidence of secondary Indicia of Non-obviousness re '254, commercial success; Evidence of domestic industry w/r/t Technical and Economic Prongs for the '254 patent	**Admitted**
CX-18C	Sano Deposition Ex. 4		4/1/2010	Murata's Preliminary List of Murata Ceramic Capacitor Products that Practice One or More Claims of the '254 Patent	Burn / Sano	Evidence of secondary Indicia of Non-obviousness re '254, commercial success; Evidence of domestic industry w/r/t Technical and Economic Prongs for the '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-19C	SEMCO02308913	SEMCO02308918	2/24/2010	List of documents related to SEMCO's comparative studies on Murata's MLCCs	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-20C	SEMCO00050837	SEMCO00050878	1/25/2006	Problem Patent Review	Ulrich / Burn / Yoon, Seock-Hyun / Lee, Sang Kyun	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit; Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-21C	SEMCO01229283	SEMCO01229308	no date	Presentation re Y. Sakabe's Thesis, prepared by Suk Hyun Yoon	Ulrich / Burn / Yoon, Seock-Hyun	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-22C	SEMCO00023983	SEMCO00023989	no date	Technological Analysis (Focusing on muRata Line-up and Material Technology)	Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re '254 patent, SEMCO's copying of the inventions of the '254 patent	**Admitted**
CX-23C	SEMCO00079090	SEMCO00079099	no date	Spreadsheet showing chemical composition calculations and listing patent numbers	Burn / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '254 patent, SEMCO's copying of the inventions of the '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-24C	SEMCO00627613	SEMCO00627619	5/23/2006	Work Report of Material Development Group/Composition Team	Burn / Cho, Joon Yeob	Evidence of Secondary Indicia of Non-obviousness re '254 patent, SEMCO's copying of the inventions of the '254 patent	**Admitted**
CX-25C	SEMCO00249004	SEMCO00249066	6/29/2006	Complete DR Report Data, MLCC 150nm or under BCT powder	Burn / Cho, Joon Yeob	Evidence of Secondary Indicia of Non-obviousness re '254 patent, SEMCO's copying of the inventions of the '254 patent	**Admitted**
CX-26C	SEMCO02238562	SEMCO02238563	3/11/2004	SEMCO design review document re Barium Calcium Titanate dielectric material and citing "M" company	Burn / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '254 patent, SEMCO's copying of the inventions of the '254 patent	**Withdrawn**
CX-27	MM_001620	MM_001677	4/18/2000	U.S. Pat. No. 6,051,516	Burn	Evidence of Secondary Indicia of Non-obviousness re '254 patent; evidence re proper claim construction re the '254 patent	**Withdrawn**
CX-28	MM_001610	MM_001619	9/1/1998	U.S. Pat. No. 5,801,111	Burn	Evidence of Secondary Indicia of Non-obviousness re '254 patent	**Withdrawn**
~~CX-29~~	SEMCO00566810	SEMCO00566825	10/6/1998	U.S. Pat. No. 5,818,686 (withdrawn as duplicate of RX-0810)	Burn	Evidence of Secondary Indicia of Non-obviousness re '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-30~~	SEMCO00566333	SEMCO00566345	4/21/1998	U.S. Pat. No. 5,742,473 (withdrawn as duplicate of RX-0390)	Burn	Evidence of Secondary Indicia of Non-obviousness re '254 patent	**Withdrawn**
~~CX-31~~	SEMCO00566305	SEMCO00566317	3/31/1998	U.S. Pat. No. 5,734,545 (withdrawn as duplicate of RX-0806)	Burn	Evidence of Secondary Indicia of Non-obviousness re '254 patent	**Withdrawn**
CX-32C	SEMCO00078051	SEMCO00078064	no date	Design of Low ESL MLCC with controlled ESR for High Frequency Decoupling	Ulrich / Burn / Wi, Song Kwon / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness re '229 patent, commercial success; Evidence of SEMCO's infringement of the '229 patent; Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-33C	MM_302589	MM_302590	no date	Spreadsheet of Murata Domestic Industry products for the '229 patent and sales data thereof	Ulrich / Burn / Kawaguchi / Kubota / McHargue / Wilder	Evidence of domestic industry w/r/t Technical and Economic Prongs for the '229 patent; Evidence of Secondary Indicia of Non-obviousness re '229 patent, commercial success	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-34C	MM_302651	MM_302682	no date	Spreadsheet of Murata Domestic Industry products for the '229 patent and sales data thereof	Ulrich / Burn / Kawaguchi / Kubota / McHargue / Wilder	Evidence of domestic industry w/r/t Technical and Economic Prongs for the '229 patent; Evidence of Secondary Indicia of Non-obviousness re '229 patent, commercial success	**Withdrawn**
CX-35C	SEMCO00128249	SEMCO00128282	8/16/2004	SEMCO analysis of competitors' patents, including Murata '229 patent	Ulrich / Burn / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '229 patent, SEMCO's copying of the inventions of the '229 patent	**Withdrawn**
CX-36C	SEMCO00078829	SEMCO00078876	no date	Spreadsheet listing and analyzing multiple non-SEMCO patents	Ulrich / Burn / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '229 patent, SEMCO's copying of the inventions of the '229 patent	**Withdrawn**
~~CX-37C~~	SEMCO00314663	SEMCO00314696	8/16/2004	SEMCO analysis of competitors' patents, including Murata '229 patent [withdrawn because SEMCO 00314663 is duplicative of SEMCO00128249 (CX-248)]	Ulrich / Burn / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '229 patent, SEMCO's copying of the inventions of the '229 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-38C	SEMCO00110476	SEMCO00110775	Aug. 2006	Spreadsheet tracking competitor patent filings	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the '229 patent; Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
~~CX-39~~	SEMCO00567910	SEMCO00567916	2/20/2001	U.S. Pat. No. 6,191,932 (withdrawn as duplicate of RX-0828)	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '229 patent, long-felt need	**Withdrawn**
CX-40	MM_001472	MM_001482	3/9/1999	U.S. Pat. No. 5,880,925	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '229 patent, long-felt need	**Withdrawn**
CX-41	MM_001465	MM_001471	5/14/1996	U.S. Pat. No. 5,517,385	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '229 patent, long-felt need	**Withdrawn**
CX-42	MM_001425	MM_001437	5/16/1989	U.S. Pat. No. 4,831,494	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '229 patent, long-felt need	**Withdrawn**
CX-43	MM_001375	MM_001389	2/7/1984	U.S. Pat. No. 4,430,690	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '229 patent, long-felt need	**Withdrawn**
CX-44C	MM_302637	MM_302638	no date	Spreadsheet of Murata Domestic Industry products for the '309 patent and sales data thereof	Ulrich / Burn / Kubodera / Kubota / McHargue / Wilder	Evidence of domestic industry w/r/t Technical and Economic Prongs for the '309 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-45C	MM_304402	MM_304530	no date	Spreadsheet of Murata Domestic Industry products for the '309 patent and sales data thereof	Ulrich / Burn / Kubodera / Kubota / McHargue / Wilder	Evidence of domestic industry w/r/t Technical and Economic Prongs for the '309 patent; Evidence of Secondary Indicia of Non-obviousness re '309 patent, commercial success	**Withdrawn**
CX-46C	SEMCO01022749	SEMCO01022750	10/30/2007	Email re analysis of M company products	Burn / Ulrich / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '309 and '439 patents, commercial success	**Withdrawn**
CX-47C	SEMCO00534540	SEMCO00534652	no date	Spreadsheet of comparison and analysis of Murata products vs. SEMCO products	Burn / Ulrich / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '309 and '439 patents, commercial success	**Withdrawn**
CX-48	MM_001518	MM_001524	12/10/1991	U.S. Pat. No. 5,072,329	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '309 patent, long-felt need	**Withdrawn**
CX-49	MM_001495	MM_001509	5/7/1991	U.S. Pat. No. 5,014,158	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '309 patent, long-felt need	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-50C	MM_302591	MM_302636	no date	Spreadsheet of Murata Domestic Industry products for the '309 patent and sales data thereof	Ulrich / Burn / Kubodera / Kubota / McHargue / Wilder	Evidence of domestic industry w/r/t Technical and Economic Prongs for the '309 patent; Evidence of Secondary Indicia of Non-obviousness re '309 patent, commercial success	**Withdrawn**
CX-51C	MM_302683	MM_304401	no date	Spreadsheet of Murata Domestic Industry products for the '309 patent and sales data thereof	Ulrich / Burn / Kubodera / Kubota / McHargue / Wilder	Evidence of domestic industry w/r/t Technical and Economic Prongs for the '309 patent; Evidence of Secondary Indicia of Non-obviousness re '309 patent, commercial success	**Withdrawn**
CX-52C	SEMCO00321176	SEMCO00321179	no date	Charts analyzing Murata patent publications	Ulrich / Burn / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Withdrawn**
CX-53C	SEMCO00305707	native excel file	circa 2006-2007	Spreadsheet with multiple worksheets analyzing numerous non-SEMCO patents	Burn / Ulrich / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-54C~~	SEMCO01370574	native excel file	circa 2008	Spreadsheet with multiple worksheets analyzing numerous non-SEMCO patents (withdrawn as duplicate of RX-0962C)	Burn / Ulrich / SEMCO witness	Evidence of SEMCO's infringement of the '439 patent; Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Withdrawn**
CX-55C	SEMCO01370273	native excel file	circa 2008	Spreadsheet with multiple worksheets analyzing numerous non-SEMCO patents	Burn / Ulrich / SEMCO witness	Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Withdrawn**
CX-56	Ex. 22 to Response of SEMCO to Complaint and NOI		11/23/1999	U.S. Pat. No. 5,989,726	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '439 patent, long-felt need	**Withdrawn**
CX-57	MM_001586	MM_001590	10/3/2000	U.S. Pat. No. 6,128,177	Ulrich / Burn	Evidence of Secondary Indicia of Non-obviousness re '439 patent, long-felt need	**Withdrawn**
CX-58C	MM_302651	MM_304944	no date	Importation of DI Productions	Kubota /McHargue / Wilder	Evidence of domestic industry	**Withdrawn**
CX-59C	MM_301847	MM_301961	no date	Quality Assurance Engineers benefits and salary	Kubota /McHargue / Wilder	Evidence of domestic industry	**Admitted**
CX-60	Exh. 2 to expert report of Burn		11/12/2009	Ian Burn Curriculum Vitae	Burn	Establish qualifications of expert witness	**Admitted**
CX-61	Exh. 3 to expert report of Burn		7/2/1905	List of Ian Burn publications, 2000-2010	Burn	Establish qualifications of expert witness	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-62	Exh. 4 to expert report of Burn		11/18/1975	U.S. Patent No. 3,920,781	Burn	Evidence of knowledge of a person of ordinary skill in the art	**Admitted**
CX-63C	Exh. 5 to expert report of Burn		no date	SEMCO composition table	Burn / Youn, Hyuk Joon	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-64C	Exh. 6 to expert report of Burn		3/16/2010	March 16, 2010 Sang Hoon Kwon Deposition Transcript	Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-65C	Exh. 7 to expert report of Burn		4/6/2010	SEMCO produced chart of "other" capacitors received on April 6	Burn	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-66C	Exh. 9 to expert report of Burn		3/14/2010	Calculations of molar values in SEMCO compositions from Exhibit 5	Burn	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-67C	SEMCO00864907	SEMCO00864922	4/30/2010	NB322C' New X7R Additive MCCB	Burn / Youn, Hyuk Joon	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-68C	Exh. 14 to expert report of Burn		6/28/1905	Wu et al (J. Am. Ceram. Soc., 89, (9) 2702-2709, 2006)	Burn	Evidence of knowledge of a person of ordinary skill in the art	**Admitted**
CX-69C	SEMCO01447517	SEMCO01447528	no date	Core-Shell Structural Analysis, Shell Domain Analysis	Burn / SEMCO witness	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-70C	SEMCO01692072	SEMCO01692120	3/29/2007	Comparison and Analysis of Micro-structures According to MLCC Property [FE-TEM/EDS]	Burn / SEMCO witness	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-71C	Exh. 21 to expert report of Burn		3/19/2010	Handwritten chart titled BEADS (Ex. 39 to Hyuk Joon Youn deposition)	Burn / Youn, Hyuk Joon	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
~~CX-72C~~	MM_302395	MM_302400	no date	List of Murata capacitors made using the 11 Murata domestic industry compositions (withdrawn as duplicate of RX-0856C)	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-73C	MM_302401	MM_302402	12/24/2009	Inspection report of HJA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-74C	MM_302403	MM_302404	10/19/2009	Inspection report of HKC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-75C	MM_302405	MM_302406	8/20/2009	Inspection report of HQC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-76C	MM_302407	MM_302408	5/29/2007	Inspection report of HWC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-77C	MM_302409	MM_302410	7/12/2009	Inspection report of SKA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-78C	MM_302411	MM_302412	6/30/2009	Inspection report of XEA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-79C	MM_302413	MM_302414	9/3/2009	Inspection report of XEC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-80C	MM_302415	MM_302416	9/30/2009	Inspection report of XFA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-81C	MM_302417	MM_302420	10/21/2009	Inspection report of XFC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-82C	MM_302421	MM_302422	9/10/2009	Inspection report of XJC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-83C	MM_302423	MM_302423	1/29/2010	Mixing standard of HJV	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-84C	Exh. 34 to expert report of Burn		4/30/2010	Calculation of weight percentage values for Murata compositions based on inspection reports	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-85C~~	MM_302424	MM_302424	no date	Murata target compositions in mole ratios (withdrawn as duplicate of RX-0859C)	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-86C	Exh. 36 to expert report of Burn		4/30/2010	HJA calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-87C	Exh. 37 to expert report of Burn		4/30/2010	HKC calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-88C	Exh. 38 to expert report of Burn		4/30/2010	HQC calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-89C	Exh. 39 to expert report of Burn		4/30/2010	HWC calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-90C	Exh. 40 to expert report of Burn		4/30/2010	SKA calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-91C	Exh. 41 to expert report of Burn		4/30/2010	XEA calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-92C	Exh. 42 to expert report of Burn		4/30/2010	XEC calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-93C	Exh. 43 to expert report of Burn		4/30/2010	XFA calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-94C	Exh. 44 to expert report of Burn		4/30/2010	XJC calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-95C	Exh. 46 to expert report of Burn		4/30/2010	XFC calculation	Burn	Evidence of Murata's practice of the '254 patent	**Withdrawn**
CX-96C	Exh. 47 to expert report of Burn		4/30/2010	Results of Murata EDX-TEM testing of Murata capacitors	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-97C	Exh. 48 to expert report of Burn		4/30/2010	Calculations of values for Dy252C composition	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-98C	Exh. 49 to expert report of Burn		4/30/2010	Calculations of values for X7R262C composition	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-99C	Exh. 50 to expert report of Burn		4/30/2010	Calculations of values for NB232P001 composition	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-100C	Exh. 51 to expert report of Burn		4/30/2010	Calculations of values for NB332P001 composition	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-101C	SEMCO00450649	SEMCO00450676	9/29/2006	Specification of Array Type MLCC CL14A185MQ8SAKC	Burn / SEMCO witness	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-102C	Exh. 54 to expert report of Burn		3/17/2010	March 17, 2010 Youn Transcript (pp. 109-110)	Burn / Youn, Hyuk Joon	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-103C	Exh. 55 to expert report of Burn		3/21/2010	Declaration of Daniel Skamser, Ph.D in support of motion for summary determination of invalidity of U.S. Patent No. 6,243,254 patent, March 21, 2010	Skamser	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-104C	Exh. 56 to expert report of Burn		3/16/2010	Declaration of Michael S. Randall in support of motion for summary determination of invalidity of U.S. Patent No. 6,377,439, March 21, 2010	Randall	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-105C	Exh. 57 to expert report of Burn		4/23/2010	April 23, 2010 Dr. Seock Hyuk Joon Rough Deposition Transcript (corrected name: Yoon, Seock-Hyun)	Burn / Yoon, Seock-Hyun	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-106C	Exh. 58 to expert report of Burn		4/23/2010	April 22, 2010 Dr. Seock Hyuk Joon Rough Deposition Transcript (corrected name: Yoon, Seock-Hyun)	Burn / Yoon, Seock-Hyun	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-107C	SEMCO02309169	SEMCO02309176	1/30/2005 and 1/30/2006	Product Specification (2nd Edition); Material: High Purity Perovskite; Grade BT-05	Burn / Kwon, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-108C	Exh. 66 to expert report of Burn		no date	Murata target compositions (same information as in Exhibit 35)	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-109C	Exh. 68 to expert report of Burn		4/2/2010	Harunobu Sano deposition exhibit 14	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-110C	MM_273965	MM_273966	10/19/2009	Inspection Report of HKC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-111C	MM_273968	MM_274002	10/2/2009	Formula standard of HKC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-112C	MM_274005	MM_274006	8/20/2009	Inspection Report of HQC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-113C	MM_274008	MM_274041	2/23/2009	Formula standard of HQC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-114C	MM_274044	MM_274045	5/29/2007	Inspection Report of HWC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-115C	MM_274047	MM_274060	8/18/2008	Formula standard of HWC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-116C	MM_274064	MM_274065	6/30/2009	Inspection Report of XEA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-117C	MM_274067	MM_274092	3/2/2009	Formula standard of XEA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-118C	MM_274094	MM_274095	9/3/2009	Inspection Report of XEC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-119C	MM_274097	MM_274132	4/29/2008	Formula standard of XEC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-120C	MM_274136	MM_274137	9/30/2009	Inspection Report of XFA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-121C	MM_274139	MM_274160	3/2/2009	Formula standard of XFA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-122C	MM_274162	MM_274165	10/21/2009	Inspection Report of XFC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-123C	MM_274167	MM_274192	6/16/2008	Formula Standard of XFC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-124C	MM_274196	MM_274197	9/10/2009	Inspection Report of XJC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-125C	MM_274199	MM_274224	4/18/2008	Formula Standard of XJC	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-126C	MM_301554	MM_301555	12/29/2009	Inspection Report of HJA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-127C	MM_301566	MM_301566	9/12/2008	Formula Standard of HJZ	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-128C	MM_301567	MM_301567	1/29/2010	Mixing standard of HJV	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-129C	MM_301568	MM_301569	7/12/2009	Inspection Report of SKA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-130C	MM_301579	MM_301579	6/15/2009	Mixing standard of SKA	Burn / Sano	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-131C	SEMCO01086397	SEMCO01086402	no date	SEMCO performing ICP testing on a Murata capacitor	Burn / Kang, Sang-Hyung	Evidence of Murata's practice of the '254 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-132C	Exh. 95 to expert report of Burn		4/30/2010	Results of Evans Analytical Group EDS analysis of sample GRM155B30J105KE18D	Burn	Evidence of Murata's practice of the '254 patent	**Admitted**
CX-133C	Exh. 96 to expert report of Burn		4/30/2010	Results of Evans Analytical Group EDS analysis of sample CL05B104KP5NNNB	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-134C	Exh. 97 to expert report of Burn		4/30/2010	Results of Evans Analytical Group EDS analysis of sample CL21B106KQQNFNB	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-135C	Exh. 98 to expert report of Burn		4/30/2010	Results of Evans Analytical Group EDS analysis of sample CL31B475KOHNNNB	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-136C	SEMCO00320976	SEMCO00320980	no date	SEMCO capacitors (and capacitors made by other companies, including Murata) that show the internal electrode layers connected to the external electrodes	Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-137C	SEMCO00749679	SEMCO00749726	no date	SEMCO capacitors (and capacitors made by other companies, including Murata) that show the internal electrode layers connected to the external electrodes	Burn / SEMCO witness	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-138C	SEMCO00398564	SEMCO00398591	no date	SEMCO capacitors (and capacitors made by other companies, including Murata) that show the internal electrode layers connected to the external electrodes	Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-139C	SEMCO00083934	SEMCO00084035	11/9/2009	Control Plan, Document related to X7R262C composition	Burn / Kim, Sang Hoon / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-140C	SEMCO00975571	SEMCO00975595	8/16/2003	Document showing results of a TEM analysis on a Murata capacitor	Burn / Youn, Hyuk Joon Youn	Evidence of SEMCO's infringement of the '254 patent; Evidence of Secondary Indicia of Non-obviousness re '254 patent, SEMCO's copying of the inventions of the '254 patent	**Admitted**
CX-141C	SEMCO00010785	SEMCO00010787	12/15/2008	SEMCO Product Data Sheet BT-HP250S	Burn / SEMCO witness	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-142C	SEMCO01460114	SEMCO01460124	1/18/2006	HPBT-1AFS product specification	Burn / SEMCO witness	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-143C	SEMCO00050976	SEMCO00050977	no date	Document showing SEMCO chemical composition information	Burn / Kim, Sang Hoon / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-144C	Exh. 111 to expert report of Burn		4/30/2010	Calculations for BT-04 252C and BT-04 262C	Burn	Evidence of SEMCO's infringement of the '254 patent	**Withdrawn**
CX-145C	Exh. 112 to expert report of Burn		4/30/2010	Results of Evans Analytical Group EDS analysis of sample CL05J105KP5NNNB	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-146C	Exh. 2 to supplemental expert report of Burn		5/24/2010	STEM-EDS testing results by Evans Analytical Group of samples of CL10J105KO8N3NB capacitor	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-147C	Exh. 1 to supplemental expert report of Burn		5/24/2010	STEM-EDS testing results by Evans Analytical Group of samples of CL32B104KCFNNNB capacitor	Burn	Evidence of SEMCO's infringement of the '254 patent	**Admitted**
CX-148C	Exh. 4 to expert report of Ulrich		no date	Ulrich CV	Ulrich	Establish qualifications of expert witness	**Admitted**
CX-149C	Exh. 6 to expert report of Ulrich		3/25/2010	2010.03.25 Parties Joint Claim Construction Chart	N/A	Claim Construction	**Withdrawn**
CX-150C	SEMCO00313243	SEMCO00313243	no date	N10-BAM-SLIC-14 screen	Ulrich / Burn / Cho, Dong Soo / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-151C	SEMCO00313248	SEMCO00313248	no date	N21-BAM-SLIC-11, 12 Screen	Ulrich / Burn / Cho, Dong Soo / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-152C	SEMCO00313251	SEMCO00313251	no date	pattern layout for N21 BAM-SLIC-14 (21B104M05)	Ulrich / Burn / Cho, Dong Soo / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-153C	Exh. 11 to expert report of Ulrich		4/16/2010	Micron Inc - Analysis of Naito Samples	Ulrich / Burn	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-154C	SEMCO00200808	SEMCO00200877	no date	SEMCO technical document re low ESL capacitors	Ulrich / Burn / Lee, Byoung Hwa / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-155C	Exh. 15 to expert report of Ulrich		no date	'229 Screen Dimensions	Ulrich	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-156C	Exh. 16 to expert report of Ulrich		no date	'229 claim chart based upon SEMCO screen patterns for low ESL products	Ulrich	Evidence of SEMCO's infringement of the '229 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-157C	SEMCO00069492	SEMCO00069514	11/20/2007	SPIL CPU 1608 8T SLIC presentation, including competitor patent analyses	Ulrich / Burn / Wi, Song Kwon / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-158C	Exh. 19 to expert report of Ulrich		no date	'229 claim chart on SEMCO products	Ulrich	Evidence of SEMCO's infringement of the '229 patent	**Withdrawn**
CX-159C	Exh. 20 to expert report of Ulrich		no date	'229 list of Murata domestic industry products	Ulrich / Burn / Kubodera / Kawaguchi	Evidence of Murata's practice of the '229 patent	**Admitted**
CX-160C	Exh. 21 to expert report of Ulrich		no date	0C96A print screen pattern	Ulrich / Burn / Tahara / Kawaguchi / Kubodera	Evidence of Murata's practice of the '229 patent	**Admitted**
CX-161C	MM_302010	MM_302123	no date	Murata print screen patterns	Ulrich / Burn / Tahara-san	Evidence of Murata's practice of the '229 patent	**Admitted**
CX-162C	Exh. 23 to expert report of Ulrich		no date	0C96A Claim Chart	Ulrich	Evidence of Murata's practice of the '229 patent	**Withdrawn**
CX-163C	SEMCO00069505	SEMCO00069505	no date	Image of Current Flow (0603 8t SLIC) (image from SEMCO00069492, CX-157C)	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-164C	SEMCO00265456	SEMCO00265468	6/6/2005	Low ESL Presentation	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-165C	ITC30B6-SAM00001447	ITC30B6-SAM00001458	no date	Model Screen number and Pattern Document	Cho, Dong Soo; Youn, Hyuk-Joon; Richard Ulrich	Evidence of SEMCO's infringement of the '229 patent	**Admitted**
CX-166C	Exh. 27 to expert report of Ulrich		no date	439 Patent Merged Spreadsheet	Ulrich	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-167C	Exh. 28 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05B102KB5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-168C	Exh. 29 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL10B104KA8NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-169C	Exh. 30 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05C101JB5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-170C	Exh. 31 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05C330JB5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-171C	Exh. 32 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL10C101JB8NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-172C	Exh. 33 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05B103KB5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-173C	Exh. 34 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05C220JB5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-174C	Exh. 35 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05A104KO5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-175C	Exh. 36 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL05B222KB5NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-176C	Exh. 37 to expert report of Ulrich		no date	Analysis of SEMCO MLCC CL10B102KB8NNNB	Ulrich / Burn	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**
CX-177C	SEMCO00840376	SEMCO00840384	no date	SEMCO capacitors (and capacitors made by other companies, including Murata) that show the internal electrode layers connected to the external electrodes and internal dimensions	Ulrich / Burn / SEMCO witness	Evidence of SEMCO's infringement of the 'patents-in-suit	**Withdrawn**
CX-178C	Exh. 39 to expert report of Ulrich		no date	Calculations from SEMCO00840376	Ulrich	Evidence of SEMCO's infringement of the '439 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-179C	SEMCO01671697	SEMCO01671698	no date	Designing Margin to Reinforce Load Life in Humidity and Thermal Shock	Ulrich / Burn / Kim, Sujin / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '439 patent; Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Withdrawn**
CX-180C	SEMCO01032559	SEMCO01032588	no date	Document re Margin change experiment	Ulrich/ Burn / Cho, Dong Soo / Kim, Sujin	Evidence of SEMCO's infringement of the '439 patent; Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Admitted**
CX-181C	SEMCO02306657	SEMCO02306673	7/18/2007	Testing Results Report	Ulrich / Burn / Kim, Sujin / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the '439 patent; Evidence of Secondary Indicia of Non-obviousness re '439 patent, SEMCO's copying of the inventions of the '439 patent	**Withdrawn**
CX-182C	Exh. 45 to expert report of Ulrich		no date	Sekidou '439 list of Murata DI products with GPN's (MM_302124-MM_302358)	Ulrich / Burn / Kubodera	Evidence of Murata's practice of the '439 patent	**Withdrawn**
CX-183C	Exh. 46 to expert report of Ulrich		no date	Ueno demo for sheet 4 (combines data from sheet 4 of the SEMCO00154903.xls design table and the printing pattern specification of SEMCO02787860.xls)	Ulrich	Evidence of SEMCO's infringement of the '309 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-184C~~	SEMCO00154903	native file	no date	Design Table for SEMCO capacitors (withdrawn as duplicate of RX-0845)	Ulrich / Burn / Chang, Dong Ik / Cho, Dong Soo / Wi, Song Kwon	Evidence of SEMCO's infringement of the '309 patent	**Withdrawn**
CX-185C	SEMCO02787860	native file	no date	Native Excel file with multiple sheets -- SEMCO's current printing pattern specification (withdrawn as duplicate of RX-0849)	Ulrich / Burn / Chang, Dong Ik / Cho, Dong Soo / Wi, Song Kwon	Evidence of SEMCO's infringement of the '309 patent	**Admitted**
CX-186C	Exh. 47 to expert report of Ulrich		no date	309 Patent claim chart for SEMCO product	Ulrich	Evidence of SEMCO's infringement of the '309 patent	**Withdrawn**
CX-187C	Exh. 48 to expert report of Ulrich		2/12/2010	Micron Analysis of SEMCO MLCCs re '309 patent	Ulrich / Burn	Evidence of SEMCO's infringement of the '309 patent	**Admitted**
CX-188C	Exh. 49 to expert report of Ulrich		no date	Summary of Micron '309 analysis re SEMCO parts	Ulrich / Burn	Evidence of SEMCO's infringement of the '309 patent	**Admitted**
CX-189C	Exh. 50 to expert report of Ulrich		4/29/2010	Micron analysis of SEMCO MLCCs re '309 patent	Ulrich / Burn	Evidence of SEMCO's infringement of the '309 patent	**Admitted**
CX-190C	Exh. 51 to expert report of Ulrich		no date	309 list of Murata DI products	Ulrich / Burn / Kubodera	Evidence of Murata's practice of the '309 patent	**Admitted**
CX-191C	Exh. 52 to expert report of Ulrich		no date	Specifications sheet for CL31B106KAHNNNE-h	Ulrich / Burn / Kubodera	Evidence of SEMCO's infringement of the '309 patent	**Withdrawn**
CX-192C	SEMCO00022291	SEMCO00022320	9/11/2006	Document re X7R type SEMCO and competitor capacitors	Ulrich / Burn / Kubodera / SEMCO witness	Evidence of SEMCO's infringement of the '309 patent; Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-193C	Exh. 1 to supplemental expert report of Ulrich		5/24/2010	Micron Analysis of SEMCO MLCCs re '309 patent	Ulrich / Burn	Evidence of SEMCO's infringement of the '309 patent	**Admitted**
CX-194C	Exh. 2 to supplemental expert report of Ulrich		no date	Murata Testing Results for GRM40X5R475K16D520 -	Ulrich / Burn / Kubodera / SEMCO witness	Evidence of Murata's practice of the '309 patent	**Withdrawn**
CX-195C	SEMCO00313303	native excel file	no date	Spreadsheet re NJN capacitors including shrinkage data	Ulrich / Burn / Chang, Dong Ik	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-196C	SEMCO00744118	SEMCO00744124	6/21/2009	Email from Dong-Ik Chang to Hyung-Wook Lim, et al. re L/D measurements	Ulrich / Burn / Chang, Dong Ik	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-197C	SEMCO00176596	native excel file	no date	Spreadsheet re dimensions and data of low ESL SEMCO capacitors	Ulrich / Burn / Cho, Dong Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-198C	SEMCO000313264	native excel file	no date	21B104MO5 Screen pattern and stacking order	Ulrich / Burn / Cho, Dong Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-199C	SEMCO00308365	native excel file	no date	Spreadsheet re dimensions and data of low ESL SEMCO capacitors (withdrawn as duplicate of RX-0844)	Ulrich / Burn / Cho, Dong Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-200C	Exh. 12 to deposition of Cho, Dong Soo		4/22/2010	Hand written drawing by Cho, Dong Soo illustrating dimensional terminology	Ulrich / Burn / Cho, Dong Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-201C	SEMCO00583949	SEMCO00583951	9/27/2008	Email from Joon-yeob Cho to Han-sung Jung, et al. re: Regarding DY252C NG lot	Ulrich / Burn / Cho, Joon Yeob	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-202C	SEMCO00586638	SEMCO00586641	8/28/2008	Email from Joon-yeob Cho to Jae-yeol Choi re: This is a request regarding powder from Fine Chemicals and a competitor -10B104KB	Ulrich / Burn / Cho, Joon Yeob	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-203C	SEMCO00588931	SEMCO00588934	10/17/2008	Email from Joon-yeob Cho to Jk7503.lee@samsung.com re:DY252C	Ulrich / Burn / Cho, Joon Yeob	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-204C	SEMCO00577231	SEMCO00577233	12/10/2008	Email from Hyoungho Lee to Dennies0311.kim@samsung .com et al. re. DY252C including XRF analysis *thereof*	Ulrich / Burn / Cho, Joon Yeob / Yoon, *Seock-Hyun*	Evidence of SEMCO's infringement of the *patents-in-suit*	**Admitted**
CX-205C	SEMCO00722639	SEMCO00722644	4/6/2009	Email from Tae Young Kim to Do Hyeong Kim et al. re: Notification of Completed Distribution [Manufacture of additive solution and request for batch operation]	Ulrich / Burn / Cho, Joon Yeob	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-206C	SEMCO00083665	SEMCO00083688	11/18/2009	[POWDER Raw Materials Mixing] Control Plan & Process Standards	Ulrich / Burn / Cho, Joon Yeob / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-207C	Exh. 31 to deposition of Youn, Hyuk-Joon 30(b)(6) and Exh. 1 to deposition of Kang, Sung-Hyung		no date	Character comparison and proposal as to means of improvement in re 31B106KAH, competition and our company's characteristics	Ulrich / Burn / Kang, Sung-Hyung / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-208C	SEMCO00671690	SEMCO00671698	4/14/2008	212C Selection Background re dielectric material	Ulrich / Burn / Kang, Sung-Hyung	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-209C	SEMCO00589027	SEMCO00589041	no date	Experimental Result Report: Evaluation of dielectric material compositions for the development of LAN (Low Acoustic Noise) dielectrics	Ulrich / Burn / Kang, Sung-Hyung	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-210C	SEMCO00467553	SEMCO00467560	5/16/2007	Report Experiment Results re: Analysis of Competitor's Chips Guaranteeing 150 'C (Murata X8L, X8R)	Ulrich / Burn / Kang, Sung-Hyung	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-211C	SEMCO01277413	SEMCO01277418	7/10/2008	Email from Chi-Joon Choi to Kang-Hun Hur et al. Re: Comparison and evaluation in electrical characteristics and accelerated life of muRata 31A226KOH/32A226KAJ apparatuses (PL Sun-Chul Park, Senior Research Engineer)	Ulrich / Burn / Kim, Sang Hyuk / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
~~CX-212C~~	~~SEMCO00722639~~	~~SEMCO00722644~~	4/6/2009	Email from Tae Young Kim to Do Hyeong Kim, et al. Re: Notification of Completed Distribution [Manufacture of additive solution and request for batch operation] (duplicate of CX-205C)	Ulrich / Burn / Kim, Sang Hyuk	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-213C	SEMCO01052116	SEMCO01052118	6/19/2008	Email from Hyunwook Ho to Jaejoon Yu et al. Re: [weekly development meeting agenda request] Regarding weekly development meeting of this week	Ulrich / Burn / Kim, Sang Hyuk	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-214C	SEMCO01105644	SEMCO01105670	6/20/2007	X8R lineup	Ulrich / Burn / Kim, Sujin / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-215C			3/5/2010	COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTI-I AMERICA, INC.'S NOTICE OF 30(b)(6) DEPOSITION OF RESPONDENT SAMSUNG ELECTRO-MECHANICS CO., LTD.	N/A	Establish witness as corporate designee of SEMCO	**Admitted**
CX-216C	SEMCO00050964	SEMCO00050975	11/15/2005	Payment Specification for Product Name: SBT-03B	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-217C	SEMCO02309229	SEMCO02309231	6/20/2009	DELIVERY SPECIFICATION Product Name: HP CaC03 CF800	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-218C	SEMCO02309214	SEMCO02309228	12/8/2006	Payment Specification Product Name: SBT-045J	Burn / Kwon, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-219C	SEMCO02309199	SEMCO02309213	12/8/2006	Payment Specification Product Name: SBT-03B	Burn / Kwon, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-220C	SEMCO02309192	SEMCO02309198	6/20/2007	SUPPLY AGREEMENT Superamic™ 66FUF DY OXIDE LY 10Kg	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-221C	SEMCO02309187	SEMCO02309191	12/10/2003	Magnesium Carbonate Material Supply Specification Document Revision History	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-222C	SEMCO02309182	SEMCO02309186	6/15/2009	Material Supply Specification Document re: BT-HP300	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-223C	SEMCO02309177	SEMCO02309181	8/11/2009	Material Supply Specification Document re: Material name: BT-HP200S	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-224C	SEMCO02309153	SEMCO02309168	1/30/2005	Product Specification (2nd Edition); Material: High Purity Perovskite; Grade BT-01	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-225C	SEMCO02309157	SEMCO02309160	1/30/2006	Product Specification (2nd Edition); Material: Barium Zirconate Titanate; Grade: BTZ-01-8020	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-226C	SEMCO02309161	SEMCO02309164	1/30/2008	Product Specification (2nd Edition); Material: High Purity Perovskite; Grade BT-03B	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-227C	SEMCO02309163	SEMCO02309168	1/30/2006	Product Specification (2nd Edition); Material: High Purity Perovskite; Grade BT-04B	Burn / Kwon, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-228C	SEMCO02309139	SEMCO02309152	No date	Payment Specification Product Name: SBT-03M	Burn / Kwon, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-229C	SEMCO02309125	SEMCO02309138	No date	Payment Specification Product Name: SBT-015	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-230C	SEMCO02309124	SEMCO02309124	12/4/2007	Delivery specification that was prepared by High Purity Chemical Research Center and submitted to SEMCO as to a product which has a name of Mn3O4 which had been made by this High Purity Chemical Research Center and supplied to SEMCO.	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-231C	SEMCO02309117	SEMCO02309124	11/17/2009	Material Supply Specification Document November 17, 2009 Item name: Ultra pure calcium carbonate CS-3N-A	Burn / Kwon, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-232C	SEMCO02309112	SEMCO02309116	1/9/2006	Standard number N-3-1-1-ED ; powder documentation	Ulrich / Burn / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-233C	SEMCO00313265	native excel file	No Date	N21BAM-SLIC-17 screen and current flow	Ulrich / Burn / Lee, Byoung Hwa / Cho, Dong Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-234C	SEMCO00313419	SEMCO00313419	No Date	Concept design 8T HRC (High ES Capacitor & AMD SLIC 10Y105MR) shows Screen Pattern and Current Flows	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-235C	SEMCO00313264	SEMCO00313264	No Date	N21-BAM-SLIC-16 screen and current flows; Same as Cho, Dong Soo Exh. 5	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-236C	SEMCO00313252	SEMCO00313252	No Date	N21-BAM-SLIC-17 (w/ dummy) screen and current flow; Same as Cho, Dong Soo Exh. 8	Ulrich / Burn / Lee, Byoung Hwa / Cho, Dong Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-237C	SEMCO00317011	SEMCO00317011	No Date	Spreadsheet: 2012SLIC(Statschioak) and N21-BAM-SLIC-11, 12 Screen	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-238C	SEMCO00146117	SEMCO00146125	6/16/2005	SLIC pattern showing lead width and length testing	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-239C	SEMCO00152233	SEMCO00152254	No Date	Spreadsheet showing lead and L and R margins	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-240C	SEMCO00152255	SEMCO00152264	No Date	Spreadsheet showing lead and L and R margins	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-241C	SEMCO00152265	SEMCO00152274	No Date	Spreadsheet showing lead and L and R margins	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-242C	SEMCO00272651	SEMCO00272672	No Date	Spreadsheet showing lead and margins	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-243C	SEMCO00272530	SEMCO00272539	No Date	Spreadsheet showing 21Y225MR5 testing data using different screens	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-244C	SEMCO00308365	SEMCO00308365	No Date	Spreadsheet showing lead width and margins (withdrawn as duplicate of RX0844)	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-245C	SEMCO00313708	SEMCO00313708	No Date	Spreadsheet outer dimensions and delamination testing	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-246C	SEMCO00312907	SEMCO00312907	No Date	Presentation showing 21B104 alignment testing.	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-247C	SEMCO00868437	SEMCO00868438	No date	Spreadsheet showing comparison to Murata parts	Ulrich / Burn / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-248C	SEMCO00128249	SEMCO00128282	8/16/2004	Presentation on SLIC Road Map including competitor patent analysis	Ulrich / Burn / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-249C	SEMCO00020640	SEMCO00020707	4/29/2005	1608 SLIC ESL (define) presentation including competitor patent analyses	Ulrich / Burn / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-250C	SEMCO00019332	SEMCO00019367	5/26/2005	1608 SLIC ESL (measure) presentation	Ulrich / Burn / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-251C	SEMCO00094876	SEMCO00094882	7/13/2005	SLIC ESL lead presentation	Ulrich / Burn / Lee, Byoung Hwa	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-252C	SEMCO00317682	SEMCO00317826	2/20/2006	1608 High ESR SLIC (define) presentation showing comparison to Murata MLCC	Ulrich / Burn / Lee, Byoung Hwa	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-253C	SEMCO00069521	SEMCO00069543	1/7/2008	MS-X-Box 0805 (2012) 8T SLIC presentation, including competitor patent analyses	Ulrich / Burn / Lee, Byoung Hwa / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-254C	SEMCO00268474	SEMCO00268474	*no date*	Spreadsheet tracking competitor patent filings and comparing designs to some *claims*	Ulrich / Burn / Lee, Byoung *Hwa*	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the *patents-in-suit*	**Admitted**
CX-255C			2/9/2010	MURATA'S NOTICE OF DEPOSITION OF SEMCO	N/A	Establish knowledge of SEMCO testifying witnesses	**Withdrawn**
CX-256C	SEMCO00000289	SEMCO00000289	No Date	Chart - Organization of SEMCO	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO witnesses' knowledge of relevant facts and persons	**Admitted**
CX-257C	SEMCO00000288	SEMCO00000288	No Date	Chart - Organization of LCR Division	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO witnesses' knowledge of relevant facts and persons	**Admitted**
CX-258C	Exh. 5 to deposition of You, Dong-Gou		No Date	Chart - Name, start date, position, and role of SEMCO managers	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO witnesses' knowledge of relevant facts and persons	**Withdrawn**
CX-259C	SEMCO00000356	SEMCO00000357	10/6/2009	Letter to Mr. Tsuneo Murata (Rep. Director and President, from Chi Jun Choi	Ulrich / Burn / You, Dong-Gou	Evidence of domestic industry; Evidence of Secondary Indicia of Non-obviousness, commercial success	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-260C	SEMCO00000355	SEMCO00000355	10/21/2009	Letter to Mr. Jun Choi from Tsuneo Murata, Representative Director	Ulrich / Burn / You, Dong-Gou	Evidence of domestic industry; Evidence of Secondary Indicia of Non-obviousness, commercial success	**Withdrawn**
CX-261C	Exh. 9 to deposition of You, Dong-Gou		No Date	Chart of SEMCO's 2009 top 50 MLCC sales by amount and quantity	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-262C	Exh. 10 to deposition of You, Dong-Gou		Nov. 2009	SEMCO MLCC product catalog	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's infringement of patents-in-suit; Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-263C	Exh. 12 to deposition of You, Dong-Gou		No Date	Chart showing SEMCO MLCC composition rating and intended uses	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-264C	SEMCO00000194	SEMCO00000197	6/2/2008	SEMCO WLAN Module Naming Convention	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's sales or importation into the US	**Withdrawn**
CX-265C	SEMCO00000290	SEMCO00000300	No Date	MLCC 2008-09 Volume and Value chart by manufactured country and month	Ulrich / Burn / You, Dong-Gou / Kim, Sang-Hoon	Evidence of SEMCO's sales or importation into the US	**Withdrawn**
CX-266C	SEMCO00084217	SEMCO00084250	No Date	MLCC , Network and Tuner part number	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-267C	SEMCO00569115	SEMCO00569213	No Date	Chart - 4627 List of SEMCO MLCCs	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-268C	SEMCO00567089	SEMCO00567089	No Date	Chart - MLCCs identified by SEMCO as Multilead models	Ulrich / Burn / You, Dong-Gou / Youn, Hyuk-Joon	Evidence of SEMCO's sales or importation into the US; SEMCO's infringement of the patents-in-suit	**Admitted**
CX-269C	SEMCO00567090	SEMCO00567090	No Date	Chart - MLCCs identified by SEMCO as Multiterminal models	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US; SEMCO's infringement of the patents-in-suit	**Admitted**
CX-270C	SEMCO00567078	SEMCO00567088	No Date	Chart - MLCCs identified by SEMCO as Barium Titanate Capacitors	Ulrich / Burn / You, Dong-Gou / Youn, Hyuk-Joon	Evidence of SEMCO's sales or importation into the US; Evidence of SEMCO's infringement of the patents-in-suit;	**Admitted**
~~CX-271C~~	~~SEMCO00567126~~	~~SEMCO00567122~~	~~No Date~~	Chart - MLCCs identified by SEMCO as Barium Calcium Titanium Capacitors (withdrawn as duplicate of CX-296C)	~~Ulrich / Burn / You, Dong-Gou~~	~~Evidence of SEMCO's sales or importation into the US; SEMCO's infringement of the patents-in-suit~~	**Withdrawn**
CX-272C	SEMCO00567091	SEMCO00567118	No Date	Chart - MLCCs identified by SEMCO as Sintered Ceramic Capacitors	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US; SEMCO's infringement of the patents-in-suit	**Admitted**
CX-273C	SEMCO00567119	SEMCO00567121	No Date	Chart - MLCCs identified by SEMCO as High Density Capacitors	Ulrich / Burn / You, Dong-Gou / Youn, Hyuk-Joon	Evidence of SEMCO's sales or importation into the US; SEMCO's infringement of the patents-in-suit	**Admitted**
CX-274C	Exh. 25 to deposition of You, Dong-Gou		No Date	SEMCO sales directory	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-275C	Exh. 26 to deposition of You, Dong-Gou		No Date	SEMCO accounts handled by SEMAI in the US	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-276C	Exh. 27 to deposition of You, Dong-Gou		No Date	SEMCO SEMAI 2009 Sales information	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-277C	Exh. 28 to deposition of You, Dong-Gou		1/4/2010	SEMCO Distributor List	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Withdrawn**
CX-278C	Exh. 29 to deposition of You, Dong-Gou		No Date	SEMCO ex-Murata Employee start date and position	Ulrich / Burn / You, Dong-Gou	Evidence of Secondary Indicia of Non-obviousness, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-279C	SEMCO00084376	SEMCO00084786	No Date	Chart - US Purchase record and invoice list	Ulrich / Burn / You, Dong-Gou / Kim, Sang-Hoon	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-280C	SEMCO00084256	SEMCO00084375	No Date	Chart - MLCC sales Jan and Feb 2008	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-281C	SEMCO00111106	SEMCO00111133	No Date	Business strategy for RIM, AMD and Apple	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Withdrawn**
CX-282C	Exh. 33 to deposition of You, Dong-Gou		10/23/2009	Email string with AMD regarding Murata patent issue	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US; Evidence of harm to Murata's DI	**Admitted**
CX-283C	Exh. 34 to deposition of You, Dong-Gou		No Date	Chart - Index of correspondence in Ex. 33; Email attachment list with outside vendors	Ulrich / Burn / You, Dong-Gou	SEMCO knowledge and infringement of the patents-in-suit	**Admitted**
CX-284C	Exh. 35 to deposition of You, Dong-Gou		No Date	Chart - SEMCO Modules containing SEMCO MLCCs	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US; remedy	**Admitted**
CX-285C	Exh. 36 to deposition of You, Dong-Gou		No Date	Chart - SEMCO average sales information for modules containing SEMCO MLCCs	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-286C	Exh. 37 to deposition of You, Dong-Gou		No Date	Chart - Average Usage of MLCC with various products	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US; remedy	**Admitted**
CX-287C			2/9/2010	COMPLAINANTS MURATA'S NOTICE OF 30(b)(6) DEPOSITION OF RESPONDENT SAMSUNG ELECTRO-MECHANICS CO., LTD.	N/A	Establish witness as corporate designee of SEMCO	**Admitted**
CX-288C	SEMCO0084256	SEMCO0084375	No Date	MLCC and Part number with volume and value in Jan and Feb 2008; See You Exh. 31	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Withdrawn**
CX-289C	SEMCO000084251	SEMCO00084255	No Date	MLCC, Tuner and Network Part number sold in the US	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US; remedy	**Withdrawn**
CX-290C	Exh. 10 to deposition of You, Dong-Gou 30(b)(6)		No Date	Sales Information of Accused Products (Jan.2008 - Oc1.2009)	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-291C	Exh. 11 to deposition of You, Dong-Gou 30(b)(6)		No Date	Chart - Invoice; importation into the US	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-292C	Exh. 12 to deposition of You, Dong-Gou 30(b)(6)		No Date	Chart - Invoice; sales for importation into the US	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-293C	Exh. 13 to deposition of You, Dong-Gou 30(b)(6)		No Date	Chart - Invoice; sales after importation into the US	Ulrich / Burn / You, Dong-Gou	Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-294C	SEMCO00055126	SEMCO00055148	No Date	Technical and production data re SEMCO's NJN type capacitors	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-295C	SEMCO00084204	SEMCO00084216	10/30/2009	BaTiO3 (Basic Materials) Materials Standards	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-296C	SEMCO00567122	SEMCO00567126	No Date	List of Accused Product Model Numbers; Chart - MLCCs identified by SEMCO as Barium Calcium Titanium Capacitors	Ulrich / Burn / Youn, Hyuk-Joon / You, Dong-Gou	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's sales or importation into the US	**Admitted**
CX-297C	Exh. 35 to deposition of Youn, Hyuk-Joon		No Date	List of Documents Related with the Comparative Studies on Murata's MLCCs	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-298C	SEMCO00426246	SEMCO00426247	11/29/2007	W/S DR - technical document re X8R lineup	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-299C	SEMCO00486243	SEMCO00486247	No Date	SEMCO technical analysis of Murata capacitors	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-300C	SEMCO00499096	SEMCO00499100	1/1/2008	Quality Factor (Q) Improvement using a New Capacitor Design	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-301C	SEMCO00363422	SEMCO00363427	2/26/2004	MuRata v. Semco	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-302C	SEMCO00429413	SEMCO00429413	no date	Cross-section on grains	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-303C	ITC30B6-SAM00001387	ITC30B6-SAM00001403	3/6/2007	Samsungs' Leading Edge MLCCs	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit, long-felt need & prior failure; Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-304C	ITC30B6-SAM00001404	ITC30B6-SAM00001427	3/22/2007	Samsungs' Leading Edge MLCCs	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit, long-felt need & prior failure; Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-305C	ITC30B6-SAM00001428	ITC30B6-SAM00001446	2/1/2009	Samsungs' Technical Presentation	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit, long-felt need & prior failure; Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-306C	Exh. 104 of Deposition of Youn, Hyuk-Joon		No Date	X7R Documents	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-307C	Exh. 105 of Deposition of Youn, Hyuk-Joon		No Date	Model, Composition and power standard chart	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-308C	Exh. 106 of Deposition of Youn, Hyuk-Joon		No Date	Model and Composition Number Chart	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-309C	Exh. 107 of Deposition of Youn, Hyuk-Joon		No Date	List of Documents Related with the Comparative Studies on Murata's MLCCs	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-310C	Exh. 115 of Deposition of Youn, Hyuk-Joon		No Date	List of Documents Related with the Comparative Studies on Murata's MLCCs	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-311C	Exh. 128 of Deposition of Youn, Hyuk-Joon		No Date	Email communication and attachment details re investigation	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of harm to domestic industry; SEMCO's knowledge of the patents-in-suit and alleged infringement thereof	**Withdrawn**
CX-312C	SEMCO00109766	native excel file	No Date	Chart showing dimensions of SEMCO low ESL capacitors	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-313C	Exh. 6 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	Selected print-outs of screen tables and design tables	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-314C	Exh. 13 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	SEMCO composition table	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-315C	Exh. 15 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	318106 Capacitor Inspection data	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-316C	Exh. 16 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	Chart re 318106 production data	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's importation or sales in the US of accused products	**Admitted**
CX-317C	Exh. 17 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	Chart - 318106(TumbSize)	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's importation or sales in the US of accused products	**Admitted**
CX-318C	Exh. 20 to deposition of Youn, Hyuk-Joon 30(b)(6)		3/14/2010	Composition Table (revised_100314)	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-319C	Exh. 34 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	NB322C Dielectric Material Specification	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-320C	Exh. 39 to deposition of Youn, Hyuk-Joon 30(b)(6)		3/19/2010	SEMCO Composition and compounds table	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-321C	Exh. 42 to deposition of Youn, Hyuk-Joon 30(b)(6)		No Date	Notes re deposition topics	Ulrich / Burn / Youn, Hyuk-Joon	Evidence of SEMCO's infringement of the patents-in-suit; evidence of SEMCO persons with knowledge *re patents-in-suit* or accused products; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-322C	SEMCO01492876	SEMCO01492890	4/4/2008	Experiment Report: Comparative Analysis of properties A vs. B; SEMCO Technical paper showing detailed destructive analysis of capacitors using various techniques	Ulrich / Burn / Yoon, Seock-Hyun	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit	**Admitted**
CX-323C	SEMCO00052717	SEMCO00052749	9/6/2006	*Temporary Work Instruction* re X7RSBT03-Dy252C type capacitor	*Ulrich / Burn /* Yoon, Seock-Hyun	*Evidence of* SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-324C	SEMCO00577071	SEMCO00577086	No Date	Effect of Sintering Atmosphere on the Properties of the X7R Products of SBT03-Dy252C System (Explanation of the difference in the Properties of the Products Sintered between Batch (Tokai) Furnace and PLK Furnace)	Ulrich / Burn / Yoon, Seock-Hyun / Kwon, Sang Hoon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-325C	SEMCO01479712	SEMCO01479720	11/10/2003	05A105KQN - Analysis of various capacitors and dielectric materials	Ulrich / Burn / Wi, Song Kwon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit.	**Admitted**
CX-326C	SEMCO01479821	SEMCO01479828	11/14/2003	05A105KQN - Analysis of various capacitors and dielectric materials	Ulrich / Burn / Wi, Song Kwon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit.	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-327C	SEMCO01479854	SEMCO01479866	12/11/2003	05A105KQN - Analysis of various capacitors and dielectric materials	Ulrich / Burn / Wi, Song Kwon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit.	**Admitted**
CX-328C	SEMCO00095071	SEMCO00095085	2/1/2006	Low Inductance Ceramic Capacitor	Ulrich / Burn / Wi, Song Kwon	Evidence of Secondary Indicia of Non-obviousness re patents-in-suit	**Admitted**
CX-329C	SEMCO00750617	native file	no date	Chart showing technical data and images of 31B106KAHNNN capacitors	Ulrich / Burn / Wi, Song Kwon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-330C	Exh. 1 to deposition of Kim, Sang-Hoon		11/27/2009	Notice of 30(b)(6) Deposition	N/A	Establish witness as corporate designee of SEMCO	**Admitted**
CX-331C	Exh. 3 to deposition of Kim, Sang-Hoon		Nov. 2009	Multilayer Ceramic Capacitors Manual	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's importation or sale of accused products	**Withdrawn**
CX-332C	Exh. 5 to deposition of Kim, Sang-Hoon		Jun. 09	Multilayer Ceramic Capacitors Manual	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of SEMCO's importation or sale of accused products	**Withdrawn**
CX-333C	SEMCO00054759	SEMCO00054761	No date	SEMCO document showing internal dimensions of capacitor	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-334C	SEMCO0033454	SEMCO0033462	3/4/2009	Presentation: Inner Structure Dimension	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-335C	SEMCO00005973	SEMCO00005985	9/1/2007	Meeting Agenda: Electronic Devices Sales Division	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's importation or sale of accused products	**Admitted**
CX-336C	Exh. 30 to deposition of Kang, Sang-Koo		1/4/2010	Samsung Electro-Mechanics Distributors [15 Distributors Found]	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's importation or sale of accused products	**Withdrawn**
CX-337C	SEMCO00000304	SEMCO00000324	No date	SEMCO produced sales or importation related data for SEMCO MLCCs and Modules	Ulrich / Burn / Kim, Sang-Hoon / You, Dong-Gou	Evidence of SEMCO's importation or sale of accused products	**Withdrawn**
CX-338C	SEMCO00060633	SEMCO00060634	No date	Documents listing information on SEMCO competitors and their products	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's importation or sale of accused products	**Withdrawn**
CX-339C	SEMCO00070560	SEMCO00070567	5/8/2006	Spreadsheet showing applications for various models of capacitors and customers therefore	Ulrich / Burn / Kim, Sang-Hoon	Evidence of SEMCO's importation or sale of accused products	**Withdrawn**
CX-340C	SEMCO00320374	native excel file	no date	MLC09-017CGCGI: Document showing technical data for 31B106 capacitor, including shrinkage data	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-341C	SEMCO00312604	SEMCO00312605	5/2/2009	Email re approval and changes to SLIC pattern N10BAM-SLIC14 (*Same as* Chang, Dong Ik Exh. 6)	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-342C	SEMCO00312606	SEMCO00312606	no date	Attachment to SEMCO--312604, showing SLIC patter N10BAM-SLIC14	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-343C	SEMCO00000042	SEMCO00000045	8/15/2008	Email re Sakabe-san of Murata	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-344C	SEMCO02191580	SEMCO02191580	5/28/2007	Email from Kang, Byung Sung to Lee, Jung Soo re: Seminar by Sakabe - May 28th	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-345C	SEMCO02191581	SEMCO02191594	5/28/2007	*Calcium-Doped barium* Titanate Ceramics For Nickel Electrode Multilayer Capacitors	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-346C	SEMCO02283399	SEMCO02283400	6/4/2007	Email re another Sakabe-san seminar to be held at SEMCO	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-347C	SEMCO02283401	SEMCO02283413	6/4/2007	Calcium-Doped barium Titanate Ceramics For Nickel Electrode Multilayer Capacitors	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**
CX-348C	SEMCO02285196	SEMCO02285197	6/11/2007	Email re another Sakabe-san seminar to be held at SEMCO	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-349C	SEMCO02285198	SEMCO02285225	6/11/2007	Effects of Rare-Earth Oxides on the Reliability of X7R Dielectrics	Ulrich / Burn / Lee, Jung-Soo	Evidence of SEMCO's infringement of the patents-in-suit; Evidence of Secondary Indicia of Non-obviousness re patents-in-suit, SEMCO's copying of the inventions of the patents-in-suit	**Withdrawn**
CX-350C			5/26/2010	2010.05.26 Murata's Final List of Accused Products	N/A	Murata's final list of accused products	**Withdrawn**
CX-351C			5/26/2010	2010.05.26 Responses to Murata's 1st RFAs	Moon, Bo K	Admission of SEMCO's importation or sales of accused products	**Admitted**
CX-352C	SEMCO02309864	SEMCO02310484	no date	Document cited in SEMCO's 2nd Supp. Resp. to ROG No. 9	Lee, Byoung-Hwa	Admission of SEMCO's importation or sales of accused products	**Admitted**
CX-353C			no date	McHargue Depo, Exh. 10	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-354C	MM_002024	MM_002025	6/27/2005	MENA Product Engineer job description; Kubota Depo, Exh. 11	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-355C			5/24/2010	MENA employee allocation per patent; Kubota Depo, Exh. 3	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-356C			no date	MENA Sales and Quality Assurance Group information; Kubota Depo, Exh. 10	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-357C	MM_307215	MM_307217	5/21/2010	MENA Technical Sales Manager job description	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-358C	MM_006406	MM_006407	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: GE Lighting - Ohio	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-359C	MM_006408	MM_006426	no date	Presentation by MENA re *Fluorescent Lamp* applications	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-360C	MM_006427	MM_006436	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: spec for 100570338 etc.	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-361C	MM_006437	MM_006441	no date	Murata Specification Sheet	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-362C	MM_006458	MM_006459	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: TTI Power Management Solutions - Murata Update	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-363C	MM_006460	MM_006462	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: New TTI Vertical Power Management Campaign	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-364C	MM_006463	MM_006464	no date	Attachments from MM_006460	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-365C	MM_006465	MM_006468	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: New FOS test requirement	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-366C	MM_006469	MM_006469	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: WD Branded Products Presentation Material	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-367C	MM_006470	MM_006473	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: Murata Product Training Lunch Feb 25 at WD	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-368C	MM_006474	MM_006556	12/1/2008	Murata MLCC Capacitor Product Updates Dec. 2008	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-369C	MM_006557	MM_006587	no date	Presentation by Murata Product Engineering	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-370C	MM_006588	MM_006604	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: WD new Capacitor	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-371C	MM_006606	MM_006612	10/21/2009	Email from Woody Wilder to Kesuke Kotani, FW: Murata cap technical questions	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-372C	MM_006614	MM_006614	no date	Attachment to MM_006614	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-373C	MM_002018	MM_002019	6/19/2009	MENA Job Description - Associate Product Engineer	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-374C	MM_002020	MM_002020	6/19/2009	MENA Job Description - Capacitor Planning Analyst	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-375C	MM_002021	MM_002022	6/19/2009	MENA Job Description - Group Product Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-376C	MM_002023	MM_002023	6/19/2009	MENA Job Description - Marketing Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-377C	MM_002026	MM_002027	6/19/2009	MENA Job Description - Product Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-378C	MM_002028	MM_002029	6/19/2009	MENA Job Description - Senior Product Engineer	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-379C	MM_002030	MM_002031	6/19/2009	MENA Job Description - Senior Product Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-380C	MM_002033	MM_002033	no date	MENA employee cost center assignments	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-381C	MM_002034	MM_002035	6/27/2005	MENA Job Description - Global Account Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-382C	MM_002036	MM_002037	8/1/2007	Key Account Manager - Distribution I	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-383C	MM_002038	MM_002039	8/1/2007	Key Account Manager - Distribution II	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-384C	MM_002040	MM_002041	4/12/2007	Key Account Manager/Sales Engineer EMS	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-385C	MM_002042	MM_002043	4/12/2007	Key Account Manager/Sales Engineer GFE	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-386C	MM_002044	MM_002045	6/27/2005	Key Account Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-387C	MM_002046	MM_002047	6/19/2009	MENA Job Description - National Account Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-388C	MM_002048	MM_002050	10/22/2009	MENA Job Description - Corporate Quality Assurance Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-389C	MM_002051	MM_002052	10/22/2009	MENA Job Description - Quality Control Engineer - MERK	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-390C	MM_002053	MM_002054	6/27/2005	MENA Job Description - Quality Systems Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-391C	MM_002055	MM_002056	10/22/2009	MENA Job Description - Warehouse Operator	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-392C	MM_308123	MM_308123	no date	Rockmart QC Lab Equipment	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-393C	MM_308124	MM_308124	no date	Chart re capacitor claims covered by patents	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-394C	MM_307218	MM_307295	no date	MENA QC Claim Summaries for the Sekidou File	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-395C	MM_307296	MM_307300	no date	MENA QC Claim Summaries for the Naito File	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-396C	MM_307301	MM_307309	no date	MENA QC Claim Summaries for the Ueno File	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-397C	MM_307310	MM_307544	6/30/1905	MENA QC Claim Summaries for the Wada File	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-398C	MM_307929	MM_308000	no date	MENA QC Claim Summaries for the Sekidou File	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-399C	MM_301526	MM_301535	7/1/1905	Murata 2009 Market Summary and Outlook	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-400C	MM_301433	MM_301437	6/30/1905	Summary by Capacitor Product Marketing	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-401C	MM_301379	MM_301422	Jan/Feb 2007	Passive Component Magazine	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-402C	MM_301432	MM_301432	no date	MLCC for Power Electronics	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-403C	MM_301503	MM_301504	no date	Murata Hi-Cap MLCC's	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-404C	MM_301505	MM_301506	no date	Automotive Capacitors for Powertrain/Safety Applications	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-405C	MM_301464	MM_301465	no date	Murata's Low ESL Capacitors for High-Speed Applications	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-406C	MM_301462	MM_301462	no date	Murata's HF, High Q Capacitors	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-407C	MM_301368	MM_301370	10/1/2009	Controlling DC Bias Characteristics in High Capacitance Piezoelectric/Ferroelectric Ceramics	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-408C	MM_026862	MM_026862	no date	Capacitor Promotional Tools Fall 2006-Present	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-409C	MM_026887	MM_026982	no date	Application Specific Capacitors	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-410C	MM_027081	MM_027122	no date	2009 Design Engineering Kits	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-411C	MM_027123	MM_027157	no date	2007 Design Engineering Kits	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
~~CX-412C~~	~~MM_027158~~	~~MM_027160~~	~~Jan/Feb 2008~~	Murata's Summary and Outlook for Capacitors, Passive Component Industry (duplicate of CX-12C)	~~Kubota / McHargue / Wilder~~	~~Evidence of domestic industry, economic prong~~	**Withdrawn**
CX-413C	MM_020040	MM_020041	4/12/2007	MENA Job Descriptions: Key Account Manager/Sales Engineer EMS	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-414C	MM_020042	MM_020043	4/12/2007	MENA Job Descriptions: Key Account Manager/Sales Engineer GFE	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-415C	MM_002058	MM_002076	no date	Capacitance and Dissipation Factor Measurement of Chip MLCC's	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-416C	MM_002085	MM_002091	9/1/2005	Subject: Measure of High Capacitance Capacitors	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-417C	MM_002104	MM_002104	12/30/2008	Technical Information: MLCC Design Basics	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-418C	MM_002112	MM_002173	no date	Ceramic capacitor application manual	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-419C	MM_002174	MM_002179	12/30/2008	Technical Information: MLCC Tiger striped electrode pattern	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-420C	MM_002203	MM_002220	no date	Cap Group Internal Training	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-421C	MM_002221	MM_002228	no date	Murata Web Information - Design Tools	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-422C	MM_002264	MM_002287	no date	Chip Capacitor Part Number Training	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-423C	MM_002410	MM_002416	6/1/2009	0201, 1uF Analysis report	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-424C	MM_002521	MM_002540	1/1/2009	Embedded Multilayer Capacitor	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-425C	MM_002593	MM_002649	9/19/2008	AMD-Murata F2F Meeting	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-426C	MM_002658	MM_002701	1/1/2009	MLCC BroadBand Decoupling Capacitor	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-427C	MM_002702	MM_002724	no date	Capacitor Array	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-428C	MM_002751	MM_002767	circa 2009	Capacitor Engineering Department #3 Session	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-429C	MM_002798	MM_002820	9/1/2008	Murata MLCC Capacitor Product Updates for Motorola Sep. 2008	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-430C	MM_003271	MM_003283	10/15/2008	IBM-Murata Conference Call	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-431C	MM_003284	MM_003290	10/30/2008	IBM-Murata meeting	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-432C	MM_003291	MM_003300	11/12/2008	IBM-Murata meeting	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-433C	MM_003301	MM_003306	1/15/2009	IBM-Murata meeting	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-434C	MM_003307	MM_003330	3/10/2009	IBM-Murata meeting	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-435C	MM_003331	MM_003340	5/15/2009	8D Problem Solving Summary	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-436C	MM_003495	MM_003517	3/1/2009	Embedded Multilayer Capacitor	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-437C	MM_003747	MM_003777	6/1/2009	Murata Low ESL Capacitors	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-438C	MM_003942	MM_003955	1/1/2008	Murata Website Information	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-439C	MM_003956	MM_004010	6/1/2008	Chip Monolithic Ceramic Capacitor	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-440C	MM_004185	MM_004301	11/1/2008	Chip Monolithic Ceramic Capacitor	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-441C	MM_005517	MM_005580	4/1/2008	MENA Cap Marketing Group: Product Offering and Direction	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-442C	MM_005933	MM_005956	6/1/2008	Murata's Business Presentation	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-443C	MM_006097	MM_006107	no date	Technical Information: MLCC Termination and Plating Processes	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-444C	MM_006108	MM_006111	no date	Technical Information: IR Failure Mechanism for Cracked Capacitors	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-445C	MM_006241	MM_006244	2/9/2009	Market Topics: Visteon	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-446C	MM_006248	MM_006252	7/16/2009	Market Topics: KCM Series	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-447C	MM_006256	MM_006259	9/17/2009	Market Topics: Fujitsu Networks	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-448C	MM_006615	MM_006628	no date	09F1 development Request	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-449C	MM_009826	MM_009855	12/1/2008	Hi-Cap Update	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-450C	MM_010104	MM_010241	no date	Passive Electronics: Still in the Stone Age?	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-451C	MM_011120	MM_011125	no date	Low ESL Capacitor Technology Road Map	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-452C	MM_012620	MM_012624	11/8/2007	Report concerning your inquiry (Phillips Lighting Electronics)	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-453C	MM_012636	MM_012639	10/16/2007	Report concerning your inquiry (Phillips Lighting Electronics)	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-454C	MM_012651	MM_012655	4/30/2008	Lab Scope	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-455C	MM_307215	MM_307217	5/21/2010	MENA Job Descriptions - Technical Sales Manager	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-456C	MM_001836	MM_001851	4/10/2007	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-457C	MM_001852	MM_001866	2/13/2007	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-458C	MM_001867	MM_001881	11/12006	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-459C	MM_001882	MM_001898	4/13/2009	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-460C	MM_001899	MM_001915	9/2/2008	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-461C	MM_001916	MM_001932	2/2/2009	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-462C	MM_001933	MM_001949	1/4/2008	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-463C	MM_001950	MM_001967	4/13/2009	MENA Organization Chart	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-464C	MM_001968	MM_001972	10/2/2007	MENA Employee List	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-465C	MM_001973	MM_001977	10/1/2008	MENA Employee List	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-466C	MM_001978	MM_001987	10/9/2009	MENA Employee List	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn
CX-467C	MM_001988	MM_002002	7/1/1905	MENA Employee List	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Admitted
CX-468C	MM_002003	MM_002004	3/1/2009	Capacitor Marketing, 2008F MENA CAP GROUP	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	Withdrawn

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-469C	MM_026386	MM_026403	8/31/2007	MENA Financial Statements as of Years Ended March 31, 2007 and 2006 and Independent Auditors' Report	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-470C	MM_026404	MM_026420	1/12/2009	MENA Financial Statements as of Years Ended March 31, 2008 and 2007 and Independent Auditors' Report	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-471C	MM_026421	MM_026538	11/3/2009	MENA 2006 Payroll Register	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-472C	MM_026539	MM_026658	11/3/2009	MENA 2007 Payroll Register	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-473C	MM_026659	MM_0266776	11/3/2009	MENA 2008 Payroll Register	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-474C	MM_026821	MM_026833	no date	2006F-2008F Actual Expenses	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-475C	MM_029088	MM_029088	12/27/2005	Email re Bose	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-476C	MM_065210	MM_065210	3/31/2008	Conference call re crack	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-477C	MM_065211	MM_065215	no date	Crack Appendix	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-478C	MM_064889	MM_064890	3/24/2008	Email from M. Lauri of IBM to F. Yang of MENA	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-479C	MM_028538	MM_028543	11/23/2005	Email from A. Tung of MENA re ATI Xbox 360 update	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-480C	MM_028544	MM_028546	9/23/2005	Murata ATI Sept 19-20 Meeting Summary	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-481C	MM_031717	MM_031721	6/21/2006	Email from F. Yang re Cap array for Motorola	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-482C	MM_027710	MM_027711	8/23/2005	Email from F. Brock to F. Yang et al	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-483C	MM_027712	MM_027713	6/27/1905	05F Customer Objective & Action plan for IBM	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-484C	MM_035849	MM_035840	1/25/2007	Email from IBM requesting phone discussion re roadmap	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-485C	MM_036356	MM_036359	2/13/2007	Email from M. Galante of IBM to L. McHargue re failures	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**
CX-486C	MM_036894	MM_036895	2/27/2007	Email from M. Lauri of IBM to F. Yang of MENA re custom support	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-487C	MM_037463	MM_037463	3/22/2007	Email from M. Galante of IBM to F. Yang re new applications	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-488C	MM_062542	MM_062543	2/23/2008	Email from M. Galante of IBM cc'ing F. Yang re Murata agenda	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-489C	MM_069193	MM_069194	6/13/2008	Email from M. Lauri of IBM cc'ing F. Yang of MENA re GRM product	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-490C	MM_093088	MM_093090	7/28/2009	Email from M. Lauri of IBM to F. Yang of MENA re Murata info	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-491C	MM_127252	MM_127256	9/27/2008	Fwd of email from McHargue re IBM issues	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-492C	MM_190766	MM_190793	1/29/2009	MENA Control Documentation - Quality Policy Manual	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-493C	MM_129737	MM_129739	2/7/2009	Email string re Continental Component Analysis	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-494C	Exh 4 of deposition of Wilder or Exh. 2 of deposition of Kubota	n/a	5/19/2009	Sasaki-san Handwritten notes	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-495C	MM_179408	MM_179412	7/29/2008	Email re troubleshooting QC issues (Wilder Depo, Exh. 9)	Kubota / McHargue / Wilder	Evidence of domestic industry, economic prong	**Withdrawn**
CX-496	Dougherty Deposition Exhibit 13		no date	Article titled "Role of yttrium and magnesium in the formation of core-shell structure of BaTiO3 grains in MLCC	Burn	Evidence of infringement	**Withdrawn**
CX-497	Burn Rebuttal Report Exhibit 4		1/1/2003	Kishi, et al. "Base-Metal Electrode-Multilayer Ceramic Capacitors: Past, Present, and Future Perspectives	Burn	Evidence that supports Complainants' claim construction; secondary consideration of non-obviousness	**Admitted**
CX-498	MM_001604	MM_001609	7/30/1991	U.S. Pat. No. 5,036,424	Burn	Evidence re proper claim construction re the '254 patent	**Withdrawn**
CX-499			4/29/2003	U.S. Pat. No. 6,556,422	Burn	Evidence re proper claim construction re the '254 patent; secondary consideration of non-obviousness	**Withdrawn**
CX-500			11/18/2003	U.S. Pat. No. 6,649,554	Burn	Evidence re proper claim construction re the '254 patent	**Withdrawn**
CX-501			7/12/2005	U.S. Pat. No. 6,917,513	Burn	Evidence re proper claim construction re the '254 patent	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-502			6/11/1905	OED Definition of interdigitate	Burn / Ulrich	Evidence re proper claim construction re the '229 patent	**Withdrawn**
CX-503			6/11/1905	OED Definition of interleave	Burn / Ulrich	Evidence re proper claim construction re the '229 patent	**Withdrawn**
CX-504			7/2/1905	OED Definition of about	Burn / Ulrich	Evidence re proper claim construction re the '254 patent	**Withdrawn**
CX-505			7/1/2001	Developing the Most Competitive Products, SEMCO Investor Relations	Tahara / Yoshino / SEMCO witness	Evidence of harm to Murata	**Admitted**
CX-506C			1/5/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' SEC SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-507C			1/12/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S SECOND SUPPLEMENTAL RESPONSES TO RESPONDENTS' FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-508C			2/1/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S THIRD SUPPLEMENTAL RESPONSES TO RESPONDENTS SECOND SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-509C			2/1/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FOURTH SUPPLEMENTAL RESPONSES TO RESPONDENTS FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-510C			2/1/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS FOURTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-511C			2/5/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS FIFTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-512C			2/16/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS FIFTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-513C			2/19/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES TO RESPONDENTS' FOURTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-514C			2/19/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES TO RESPONDENTS' SIXTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-515C			2/19/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FOURTH SUPPLEMENTAL RESPONSES TO RESPONDENTS' SECOND SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-516C			2/19/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIFTH SUPPLEMENTAL RESPONSES TO RESPONDENTS' FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-517C			3/2/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' SEVENTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-518C			3/17/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' EIGHTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-519C			3/17/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO COMMISSION INVESTIGATIVE STAFF'S FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-520C			3/23/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S THIRD SUPPLEMENTAL RESPONSES TO RESPONDENTS' FOURTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-521C			4/20/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' NINTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-522C			4/20/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' TENTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-523C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES TO STAFF'S FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-524C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES TO RESPONDENTS' THIRD SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-525C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES TO RESPONDENTS' NINTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-526C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES TO RESPONDENTS' TENTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-527C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO STAFF'S SECOND SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-528C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S SECOND SUPPLEMENTAL RESPONSES TO STAFF'S FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-529C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S THIRD SUPPLEMENTAL RESPONSES TO RESPONDENTS' FOURTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-530C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S SEVENTH SUPPLEMENTAL RESPONSES TO RESPONDENTS' FIRST SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-531C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA. INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' ELEVENTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-532C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' TWELFTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**
CX-533C			5/28/2010	VERIFICATION FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., AND MURATA ELECTRONICS NORTH AMERICA, INC.'S OBJECTIONS AND RESPONSES TO RESPONDENTS' THIRTEENTH SET OF INTERROGATORIES	Tahara / Kubodera / Sano	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-534C			1/10/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FIRST SET OF INTERROGATORIES (NOS. 1, 2, 4-9, 23, 24, 26, 29-32, 43-45, 47, AND 55-58)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-535C			1/14/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S SECOND SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FIRST SET OF INTERROGATORIES (NOS. 13-28)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Admitted**
CX-536C			2/27/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S THIRD SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FIRST SET OF INTERROGATORIES (NOS. 1 AND 64)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-537C			2/27/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S OBJECTIONS AND RESPONSES TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S THIRD SET OF INTERROGATORIES (NO. 87)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**
CX-538C			2/27/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S RESPONSES AND OBJECTIONS TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S SECOND SET OF INTERROGATORIES (NOS. 65-86)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-539C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES AND OBJECTIONS TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S THIRD SET OF INTERROGATORIES (NO. 87)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**
CX-540C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S RESPONSES AND OBJECTIONS TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FOURTH SET OF INTERROGATORIES (NOS. 88-92)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-541C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S SECOND SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S SECOND SET OF INTERROGATORIES (NOS. 66-88, 70, 78-79 AND 86)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**
CX-542C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S OBJECTIONS AND RESPONSES TO COMMISSION INVESTIGATIVE STAFF'S FIRST SET OF INTERROGATORIES (NO. 87)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-543C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S RESPONSES TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FOURTH SET OF INTERROGATORIES (NOS. 88-92)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**
CX-544C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FIFTH SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FIRST SET OF INTERROGATORIES (NOS. 6, 8-9, 16-18, 20-22, AND 57-61)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-545C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FOURTH SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S FIRST SET OF INTERROGATORIES (NOS. 2, 7, 11, 14, 25-27, AND 64)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-546C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S SECOND SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S SECOND SET OF INTERROGATORIES (NOS. 66-68, 78-79, AND 86)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-547C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSES AND OBJECTIONS TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S THIRD SET OF INTERROGATORIES (NO. 87)	Dr. Byoung Hwa Lee	Verification of discovery responses	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-548C			3/24/2010	VERIFICATION OF RESPONSES TO INTERROGATORIES - RESPONDENTS SAMSUNG ELECTRO-MECHANICS CO. LTD. & SAMSUNG ELECTRO-MECHANICS AMERICA, INC.'S FIRST SUPPLEMENTAL RESPONSE TO COMPLAINANTS MURATA MANUFACTURING CO. LTD. & MURATA ELECTRONIC NORTH AMERICA INC.'S SECOND SET OF INTERROGATORIES (NOS. 65, 69-72, 76, 79, 80 AND 86)	Dr. Byoung Hwa Lee	Verification of discovery responses	Withdrawn
~~CX-549C~~			11/23/2009	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (Nos. 1-49) (withdrawn as duplicate of RX-0075C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit	Withdrawn

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-550C~~			12/24/2009	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Second Set Of Interrogatories (withdrawn as duplicate of RX-0080C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
~~CX-551C~~			1/6/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (withdrawn as duplicate of RX-0062C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-552C~~			1/8/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Second Set Of Interrogatories (withdrawn as duplicate of RX-0065C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-553C~~			1/10/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Second Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (withdrawn as duplicate of RX-0091C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-554C~~			1/20/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Second Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Second Set Of Interrogatories (withdrawn as duplicate of RX-0093C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-555C~~			1/20/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Third Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (withdrawn as duplicate of RX-0096C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-556C~~			1/20/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Third Set Of Interrogatories (withdrawn as duplicate of RX-0086C)	Tahara / Kubodera / Sano	Evidence of appropriate remedy and bond	**Withdrawn**
~~CX-557C~~			1/29/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Third Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Second Set Of Interrogatories (withdrawn as duplicate of RX-0099C)	Tahara / Kubodera / Sano	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-558C			1/29/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Fourth Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (withdrawn as duplicate of RX-0069C)	Tahara / Kubodera / Sano	Evidence of SEMCO's infringement of the patents-in-suit	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-559C~~			1/29/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fourth Set Of Interrogatories (withdrawn as duplicate of RX-0078C)	Tahara / Kubodera / Sano	Evidence re conception & reduction to practice of the inventions of the patents-in-suit; date of priority of the inventions of the patents-in-suit; evidence re proper claim construction; evidence of validity of patents-in-suit; evidence re prosecution, licensing or litigation related to patents-in-suit; evidence of Secondary Indicia of Non-obviousness; evidence re alleged inequitable conduct	**Withdrawn**
~~CX-560C~~			2/4/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fifth Set Of Interrogatories (withdrawn as duplicate of RX-0074C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-561C~~			2/12/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Sixth Set Of Interrogatories (withdrawn as duplicate of RX-0083C)	Tahara / Kubodera / Sano	Evidence re conception & reduction to practice of the inventions of the patents-in-suit	**Withdrawn**
~~CX-562C~~			2/16/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fourth Set Of Interrogatories (withdrawn as duplicate of RX-0063C)	Tahara / Kubodera / Sano	Evidence re prosecution, licensing or litigation related to patents-in-suit; evidence re validity of patents-in-suit; evidence re alleged inequitable conduct	**Withdrawn**
~~CX-563C~~			2/16/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Sixth Set Of Interrogatories (withdrawn as duplicate of RX-0067C)	Tahara / Kubodera / Sano	Evidence re conception & reduction to practice of the inventions of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-564C~~			2/16/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Fourth Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Second Set Of Interrogatories	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-565C~~			2/16/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Fifth Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories	Tahara / Kubodera / Sano	Evidence of document retention policy; evidence of Murata's patenting policies	**Withdrawn**
~~CX-566C~~			3/1/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Seventh Set Of Interrogatories (withdrawn as duplicate of RX-0082C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit; Murata data custodians	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-567C~~			3/12/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Eighth Set Of Interrogatories (withdrawn as duplicate of RX-0072C)	Tahara / Kubodera / Sano	Former SEMCO employees; evidence re validity of patents-in-suit	**Withdrawn**
~~CX-568C~~			3/15/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Commission Investigative Staff's First Set Of Interrogatories (withdrawn as duplicate of RX-0058C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence re proper claim construction of the patents-in-suit; evidence re prosecution, licensing or litigation related to patents-in-suit; evidence of Secondary Indicia of Non-obviousness	**Withdrawn**
~~CX-569C~~			3/19/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fifth Set Of Interrogatories (withdrawn as duplicate of RX-0061C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence of SEMCO's infringement of the patents-in-suit; evidence re proper remedy and bond; expected witnesses at hearing; evidence re conception and reduction to practice of the inventions of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-570C~~			3/19/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Seventh Set Of Interrogatories (withdrawn as duplicate of RX-0066C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-571C~~			3/19/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Second Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fourth Set Of Interrogatories (withdrawn as duplicate of RX-0092C)	Tahara / Kubodera / Sano	Evidence re prosecution, licensing or litigation related to patents-in-suit	**Withdrawn**
~~CX-572C~~			3/19/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Sixth Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (withdrawn as duplicate of RX-0095C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-573C~~			3/22/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Third Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fourth Set Of Interrogatories (withdrawn as duplicate of RX-0097C)	Tahara / Kubodera / Sano	Evidence re prosecution, licensing or litigation related to patents-in-suit	**Withdrawn**
~~CX-574C~~			3/26/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Ninth Set Of Interrogatories (withdrawn as duplicate of RX-0079C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-575C~~			4/16/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Tenth Set Of Interrogatories (withdrawn as duplicate of RX-0085C)	Tahara / Kubodera / Sano	Evidence of SEMCO's violation of Ground Rule 3.5, limiting parties to 175 interrogatories	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-576C~~			4/27/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Ninth Set Of Interrogatories (withdrawn as duplicate of RX-0103C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
CX-577C			5/3/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Supplemental Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Tenth Set Of Interrogatories (not listed on RX list)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**
~~CX-578C~~			5/5/2010	Complainants Murata Manufacturing Co., Ltd. And Murata Electronics North America, Inc.'s First Supplemental Responses To Commission Investigative Staff's First Set Of Interrogatories (withdrawn as duplicate of RX-0060C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-579C~~			5/10/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s First Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Third Set Of Interrogatories (withdrawn as duplicate of RX-0068C)	Tahara / Kubodera / Sano	Evidence of appropriate remedy and bond	**Withdrawn**
~~CX-580C~~			5/10/2010	Complainants Murata Manufacturing Co., Ltd. And Murata Electronics North America, Inc.'s Second Supplemental Responses To Commission Investigative Staff's First Set Of Interrogatories (withdrawn as duplicate of RX-0090C)	Tahara / Kubodera / Sano	Evidence of domestic industry, technical and economic prongs; evidence re proper claim construction of the patents-in-suit; evidence re prosecution, licensing or litigation related to patents-in-suit; evidence of Secondary Indicia of Non-obviousness	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-581C~~			5/10/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Third Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Fourth Set Of Interrogatories (withdrawn as duplicate of RX-0098C)	Tahara / Kubodera / Sano	Evidence re conception & reduction to practice of the inventions of the patents-in-suit; date of priority of the inventions of the patents-in-suit; evidence re proper claim construction; evidence of validity of patents-in-suit; evidence re prosecution, licensing or litigation related to patents-in-suit; evidence of Secondary Indicia of Non-obviousness; evidence re alleged inequitable conduct	**Withdrawn**
~~CX-582C~~			5/10/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Seventh Supplemental Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s First Set Of Interrogatories (withdrawn as duplicate of RX-0094C)	Tahara / Kubodera / Sano	Evidence of domestic industry, economic prong; evidence of Murata's proposed claim construction for '254 patent	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-583C~~			5/20/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Eleventh Set Of Interrogatories (withdrawn as duplicate of RX-0073C)	Tahara / Kubodera / Sano	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**
~~CX-584C~~			5/24/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Commission Investigative Staff's Second Set Of Interrogatories (withdrawn as duplicate of RX-0368C)	Tahara / Kubodera / Sano	Evidence of domestic industry, economic prong; evidence re SEMCO's infringement of the patents-in-suit	**Withdrawn**
~~CX-585C~~			5/26/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Twelfth Set Of Interrogatories (withdrawn as duplicate of RX-0089C)	Tahara / Kubodera / Sano	Evidence re identification or characteristics of accused products and downstream products and entities barred from importing or selling thereof.	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
~~CX-586C~~			5/26/2010	Complainants Murata Manufacturing Co., Ltd., And Murata Electronics North America, Inc.'s Objections And Responses To Samsung Electro-Mechanics Co., Ltd. And Samsung Electro-Mechanics America, Inc.'s Thirteenth Set Of Interrogatories (withdrawn as duplicate of RX-0088C)	Tahara / Kubodera / Sano	Evidence re identification or characteristics of accused products and *downstream products* and entities barred from importing or selling thereof.	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-587C			11/16/2009	Respondents Samsung Electro-Mechanics Co. Ltd. And Samsung Electro-Mechanics America, Inc.'s First Response To Complainants Murata Manufacturing Co. Ltd. And Murata Electronics North America Inc.'s First Set Of Interrogatories (1-64)	Sang Koo Kang	Evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of importation or sale of accused products; evidence of Secondary Indicia of Non-obviousness, including inter alia prior failure, copying, long felt need; evidence re proper claim construction of the patents-in-suit; evidence re validity or enforceability of the patents-in-suit; evidence of alleged obviousness of the patents-in-suit; evidence disputing existence of domestic industry; evidence re proper remedy and bonding; evidence re former Murata employees employed with SEMCO	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-588C			1/6/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s First Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 1, 2, 4-9, 23, 24, 26, 29-32, 43-45, 47, And 55-58)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of importation or sale of accused products; evidence of Secondary Indicia of Non-obviousness, including inter alia prior failure, copying, long felt need	**Admitted**
CX-589C			1/13/2010	Respondents Samsung Electro-Mechanics Co. Ltd.& Samsung Electro-Mechanics America, Inc.'s Second Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 13 And 28)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence re document retention policy; evidence re proper remedy and bond	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-590C			2/4/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Responses And Objections To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Second Set Of Interrogatories (65-86)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of Secondary Indicia of Non-obviousness, including inter alia prior failure, copying, long felt need; evidence re documentation procedures and policy at SEMCO; evidence re proper claim construction of the patents-in-suit; evidence re validity or enforceability of the patents-in-suit	**Admitted**
CX-591C			2/12/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Third Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 1 And 64)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence re document retention policy; evidence re proper remedy and bond	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-592C			2/16/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Responses And Objections To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Third Set Of Interrogatories (No. 87)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products	**Withdrawn**
CX-593C			3/3/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Fourth Supplemental Response To Complainants Murata Manufacturing Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 2, 7, 11, 14, 25-27 And 64)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of importation or sale of accused products; evidence re former Murata employees employed with SEMCO	**Admitted**
CX-594C			3/11/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s First Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Second Set Of Interrogatories (65, 69-72, 76, 79, 80 And 86)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of communications re this Investigation	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-595C			3/12/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Fourth Set Of Interrogatories (88-92)	Dr. Byoung Hwa Lee	Evidence of SEMCO's infringement of the patents-in-suit; evidence re persons with knowledge re SEMCO's infringement of the patents-in-suit	**Withdrawn**
CX-596C			3/15/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Fifth Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 6, 8-9, 16-18, 20-22 And 57-61)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of importation or sale of accused products; evidence of Secondary Indicia of Non-obviousness, including inter alia prior failure, copying, long felt need	**Admitted**
CX-597C			3/15/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s First Supplemental Responses And Objections To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Third Set Of Interrogatories (No. 87)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-598C			3/15/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Objections And Responses To Commission Investigative Staff's First Set Of Interrogatories To Respondents	Dr. Byoung Hwa Lee	Evidence of importation or sale of accused products; evidence re proper remedy and bonding; evidence re proper claim construction of the patents-in-suit; evidence re identification or characteristics of accused products and downstream products; evidence supporting SEMCO's affirmative defenses; evidence disputing existence of domestic industry; evidence re infringement of the patents-in-suit; evidence of alleged obviousness of the patents-in-suit; evidence re prosecution, licensing or litigation related to patents-in-suit; expected witnesses at hearing	**Withdrawn**
CX-599C			4/12/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Fifth Set Of Interrogatories (93)	Dr. Byoung Hwa Lee	Evidence re validity or enforceability of the patents-in-suit; evidence of alleged obviousness of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-600C			5/10/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s First Supplemental Responses To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Fifth Set Of Interrogatories (No. 93)	Dr. Byoung Hwa Lee	Evidence re validity or enforceability of the patents-in-suit; evidence of alleged obviousness of the patents-in-suit	**Withdrawn**
CX-601C			5/10/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s First Supplemental Responses To Staff's First Set Of Interrogatories To Respondents (Nos. 1, 6-15, And 17-19)	Dr. Byoung Hwa Lee	Evidence of importation or sale of accused products; evidence re proper remedy and bonding; evidence re proper claim construction of the patents-in-suit; evidence re identification or characteristics of accused products and downstream products; evidence supporting SEMCO's affirmative defenses; evidence disputing existence of domestic industry; evidence re infringement of the patents-in-suit; evidence of alleged obviousness of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-602C			5/10/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Sixth Supplemental Responses To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 33-39, 41-42, 50-54)	Dr. Byoung Hwa Lee	evidence re identification or characteristics of accused products; evidence of SEMCO's infringement of the patents-in-suit; evidence of importation or sale of accused products; evidence re proper claim construction of the patents-in-suit; evidence re validity or enforceability of the patents-in-suit; evidence of alleged obviousness of the patents-in-suit; evidence disputing existence of domestic industry; evidence re proper remedy and bonding	**Admitted**
CX-603C			5/10/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Third Supplemental Responses To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Second Set Of Interrogatories (Nos. 84-85)	Dr. Byoung Hwa Lee	Evidence re proper claim construction of the patents-in-suit; evidence re validity or enforceability of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-604C			5/12/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Seventh Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (Nos. 1 And 9)	Dr. Byoung Hwa Lee	Evidence re identification or characteristics of accused products; evidence of importation or sale of accused products	**Admitted**
CX-605C			5/13/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Responses And Objections To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Sixth Set Of Interrogatories (Nos. 94 And 95)	Dr. Byoung Hwa Lee	Evidence of SEMCO's infringement of the patents-in-suit; evidence of SEMCO's design-around activities	**Withdrawn**
CX-606C			5/17/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Responses And Objections To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Seventh Set Of Interrogatories (Nos. 96 And 97)	Dr. Byoung Hwa Lee	Evidence of SEMCO's infringement of the patents-in-suit	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-607C			5/26/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Eighth Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s First Set Of Interrogatories (No. 9)	Dr. Byoung Hwa Lee	Evidence of importation or sale of accused products	**Withdrawn**
CX-608C			5/26/2010	Respondents Samsung Electro-Mechanics Co. Ltd. & Samsung Electro-Mechanics America, Inc.'s Responses And Objections To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Eighth Set Of Interrogatories (Nos. 98-133)	Dr. Byoung Hwa Lee	Evidence of importation or sale of accused products; evidence re validity or enforceability of the patents-in-suit; evidence re proper remedy and bonding; evidence re identification or characteristics of accused products and downstream products; evidence of SEMCO's infringement of the patents-in-suit	**Admitted**
CX-609C			5/25/2010	Capacitor Group Statistics; Kubota Dep. Exh. 9	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-610C	MM_002005	MM_002017	no date	Design Responsibilities for Cap Marketing (EDP Market)	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Admitted**
CX-611C	MM_002079	MM_002084	1/8/2009	Design FMEA	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-612C	MM_002417	MM_002422	no date	IBM Discussion	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-613C	MM_002821	MM_002890	Aug. 2008	Ceramic Capacitors for Automotive Market	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-614C	MM_002961	MM_003040	Feb. 2009	Ceramic Capacitors for Automotive Market	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-615C	MM_003815	MM_003830	4/16/2008	April 16, 2008 Meeting with Skyworks	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-616C	MM_006824	MM_006920	no date	2007F MENA Cap Group	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-617C	MM_009494	MM_009507	6/1/2005	Distribution Agreement with Arrow Electronics, Inc.	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-618C	MM_009508	MM_009523	12/9/2004	Distribution Agreement with Avnet Electronics	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-619C	MM_009524	MM_009530	10/14/2004	Appendix 1 to Distribution Agreement with Digi-Key Corp.	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-620C	MM_009531	MM_009537	12/15/2004	Distribution Agreement with Digi-Key Corp.	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-621C	MM_009538	MM_009544	12/22/2004	Appendix 1 to Distribution Agreement with Future Electronics	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-622C	MM_009545	MM_009551	12/22/2004	Distribution Agreement with Future Electronics	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-623C	MM_010638	MM_010708	April 2005	Murata Multilayer Ceramic Capacitors	Kubota / Wilder / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**
CX-624C	MM_012521	MM_012521	1/19/2008	Expense Report for Lanney McHargue	Kubota / McHargue	Evidence of domestic industry, economic prong	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-625C			4/23/2010	Deposition transcript for Dong Ik Chang, 4/23/2010	Dong Ik Chang	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-626C			4/22/2010	Deposition transcript for Dong Soo Cho, 4/22/2010	Dong Soo Cho	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-627C			4/19/2010	Deposition transcript for Joon Yeob Cho, 4/19/2010	Joon Yeob Cho	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-628C			4/20/2010	Deposition transcript for Joon Yeob Cho, 4/20/2010	Joon Yeob Cho	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-629C			4/27/2010	Deposition transcript for Sung-Hyung Kang, 4/27/2010	Sung-Hyung Kang	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-630C			4/21/2010	Deposition transcript for Sang Hyuk Kim, 4/21/2010	Sang Hyuk Kim	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-631C			4/22/2010	Deposition transcript for Sang Hyuk Kim, 4/22/2010	Sang Hyuk Kim	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-632C			4/19/2010	Deposition transcript for Sujin Kim 4/19/2010	Sujin Kim	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-633C			3/15/2010	Deposition transcript for Sang Hoon Kwon, 3/15/2010	Sang Hoon Kwon	Evidence of infringement; validity; enforceability; claim construction	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-634C			3/16/2010	Deposition transcript for Sang Hoon Kwon, 3/16/2010	Sang Hoon Kwon	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-635C			4/19/2010	Deposition transcript for Byoung Hwa Lee, 4/19/2010	Byoung Hwa Lee	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-636C			4/20/2010	Deposition transcript for Byoung Hwa Lee, 4/20/2010	Byoung Hwa Lee	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-637C			4/22/2010	Deposition transcript for Jong Min Lee, 4/22/2010	Jong Min Lee	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-638C			4/28/2010	Deposition transcript for Jung-Soo Lee, 4/28/2010	Jung-Soo Lee	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-639C			4/29/2010	Deposition transcript for Jung-Soo Lee, 4/29/2010	Jung-Soo Lee	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-640C			4/21/2010	Deposition transcript for Sang Kyun Lee, 4/21/2010	Sang Kyun Lee	Evidence of infringement; validity; enforceability; claim construction	**Withdrawn**
CX-641C			1/7/2010	Deposition transcript for Sang Hoon Kim, 1/7/2010	Sang Hoon Kim	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-642C			1/7/2010	Deposition transcript for Sang Koo Kang, 1/7/2010	Sang Koo Kang	Evidence of infringement; validity; enforceability; claim construction	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-643C			4/26/2010	Deposition transcript for Song Kwon Wi, 4/26/2010	Song Kwon Wi	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-644C			4/22/2010	Deposition transcript for Seock-Hyun Yoon, 4/22/2010	Seock-Hyun Yoon	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-645C			4/23/2010	Deposition transcript for Seock-Hyun Yoon, 4/23/2010	Seock-Hyun Yoon	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-646C			2/23/2010	Deposition transcript for Donggou You, 2/23/2010	Donggou You	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-647C			2/24/2010	Deposition transcript for Donggou You, 2/24/2010	Donggou You	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-648C			2/25/2010	Deposition transcript for Donggou You, 2/25/2010	Donggou You	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-649C			3/15/2010	Deposition transcript for Donggou You, 3/15/2010	Donggou You	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-650C			2/23/2010	Deposition transcript for Hyukjoon Youn, 2/23/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-651C			2/24/2010	Deposition transcript for Hyukjoon Youn, 2/24/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-652C			2/25/2010	Deposition transcript for Hyukjoon Youn, 2/25/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-653C			2/26/2010	Deposition transcript for Hyukjoon Youn, 2/26/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-654C			3/16/2010	Deposition transcript for Hyukjoon Youn, 3/16/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-655C			3/17/2010	Deposition transcript for Hyukjoon Youn, 3/17/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-656C			3/18/2010	Deposition transcript for Hyukjoon Youn, 3/18/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-657C			3/19/2010	Deposition transcript for Hyukjoon Youn, 3/19/2010	Hyukjoon Youn	Evidence of infringement; validity; enforceability; claim construction	**Admitted**
CX-658C			5/28/2010	Deposition Transcript of Joseph Dougherty, 5-28-2010	Burn / Ulrich / Dougherty	Evidence that supports Complainants' claim construction; secondary consideration of non-obviousness; evidence of infringement	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-659C			4/5/2010	Deposition Transcript of Daniel Skamser, 4-5-2010	Burn / Ulrich / Dougherty / Randall / Skamser	Evidence that supports Complainants' claim construction; secondary consideration of non-obviousness; evidence of infringement	**Withdrawn**
CX-660C			4/2/2010	Deposition Transcript of Michael Randall, 4-2-2010	Burn / Ulrich / Randall	Evidence that supports Complainants' claim construction; secondary consideration of non-obviousness; evidence of infringement	**Withdrawn**
CX-661C			5/31/2010	Deposition Transcript of Michael Randall, 5-31-2010	Burn / Ulrich / Randall	Evidence that supports Complainants' claim construction; secondary consideration of non-obviousness; evidence of infringement	**Withdrawn**
CX-662C			6/1/2010	Deposition Transcript of Michael Randall, 6-1-2010	Burn / Ulrich / Randall	Evidence that supports Complainants' claim construction; secondary consideration of non-obviousness; evidence of infringement	**Withdrawn**
CX-663			5/4/2010	E-mail from J. Kappos to S. Routh and S. Jensen Re. Burn Report	Burn / Ulrich / Randall / Dougherty	Infringement	**Withdrawn**
CX-664			5/4/2010	Letter from J. Kappos to S. Routh Re. Burn Report	Burn / Ulrich / Randall / Dougherty	Infringement	**Withdrawn**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-665			4/20/2010	E-mail from J. Kappos to Murata's counsel Re. documents regarding new composition and electrode pattern	Burn / Ulrich / Randall / Dougherty	Infringement; validity	**Withdrawn**
CX-666C	SEMCO02788406	SEMCO02788418	4/20/2010	Compositions 1-14 identified in 4/20/2010 e-mail from J. Kappos to Murata's counsel	Burn / Ulrich / Randall / Dougherty	Infringement; validity	**Withdrawn**
CX-667C	SEMCO02788419	SEMCO02788437	4/20/2010	Compositions 15-28 identified in 4/20/2010 e-mail from J. Kappos to Murata's counsel	Burn / Ulrich / Randall / Dougherty	Infringement; validity	**Withdrawn**
CX-668			5/13/2010	E-mail from M. Myers to S. Routh and S. Jensen Re. Burn Report and attaching SEMCO02791023 (RX-1253C)	Burn / Ulrich / Randall / Dougherty	Infringement; validity	**Withdrawn**
CX-669C			3/14/2010	Respondents Samsung Electro-Mechanics Co. Ltd.& Samsung Electro-Mechanics America, Inc.'s Second Supplemental Response To Complainants Murata Manufacturing Co. Ltd. & Murata Electronics North America Inc.'s Second Set of Interrogatories (66-68, 70, 78-79 and 86)	Dr. Byoung Hwa Lee	Infringement; claim construction; validity; enforceability; remedy	**Admitted**
CX-670C	SEMCO00398918	SEMCO00398924	5/31/2007	Specification for HQBT-15 barium titanate powder	Burn / SEMCO witness	Infringement; validity	**Withdrawn**
CX-671C			10/1/2010	Exhibit 9 to the Declaration of Dr. Ian Burn (Complaint Exhibit 15), data on SEMCO capacitor CL05B104KP5NNNC	Burn	Infringement; validity	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-672C			10/1/2010	Exhibit 11 to the Declaration of Dr. Ian Burn (Complaint Exhibit 15), data on Murata capacitor GRM155B30J105KE18D	Burn	Infringement; validity	**Admitted**
CX-673C			6/23/2010	Results of Evans Analytical Group EDS analysis of sample GRM155B30J105KE18D	Burn	Infringement; validity	**Rejected**
CX-674C			6/23/2010	Results of Evans Analytical Group EDS analysis of sample CL05B104KP5NNNB	Burn	Infringement; validity	**Rejected**
CX-675C			6/23/2010	Results of Evans Analytical Group EDS analysis of sample CL21B106KQQNFNB (first set)	Burn	Infringement; validity	**Rejected**
CX-676C			6/23/2010	Results of Evans Analytical Group EDS analysis of sample CL21B106KQQNFNB (second set)	Burn	Infringement; validity	**Rejected**
CX-677C			6/23/2010	Results of Evans Analytical Group EDS analysis of sample CL21J106KOFN3NB	Burn	Infringement; validity	**Rejected**
CX-678C			6/23/2010	Results of Evans Analytical Group EDS analysis of sample CL43B334KBFNNNB	Burn	Infringement; validity	**Rejected**
CX-679C	SEMCO00021979	SEMCO00022012	no date	W/S DR Project for Development of Composition for High-Capacity X7R Line-Up [MLC05-038TECBZ]	Youn	Infringement; validity	**Admitted**
CX-680C	SEMCO00001856	SEMCO00001871		Work Report: Material Development Group/ Composition	Youn	Infringement; validity	**Admitted**

CX No.	Beginning Bates	Ending Bates	Date	Description & Title	Sponsoring Witness	Purpose	Admitted/ Withdrawn/ Rejected
CX-681				Zhibin Tian, "Formation of Core-Shell Structure in Ultrafine-Grained Barium Titanate-Based Ceramics Through Nanodopant Method," 93 J. Am. Ceramics Society 171-175 (2010)	Youn	Infringement; validity	**Admitted**
CX-682C				Deposition of Joseph Dougherty, May 28, 2010		Infringement; validity	**Admitted**
CX-683				T. Wang, et al., Microstructures and Dielectric Characteristics of Ultrafine-Grained Barium Titanate-Based Ceramics for Base-Metal-Electrode Multilayer Ceramic Capacitor Applications, Jpn. J. Appl. Phys., Vol. 46, No. 10A (2007) pp. 6751-6754			**Admitted**

Dated: September 27, 2010

Respectfully submitted,

/s/ Steven J. Routh

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Counsel for Complainants Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc.

IN THE MATTER OF CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME

337-TA-692

PUBLIC CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **ORDER** has been served by hand upon, the Commission Investigative Attorney, **Aarti Shah, Esq.**, and the following parties as indicated on **2011.**

_____
Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112A
Washington, D.C. 20436

FOR COMPLAINANTS MURATA MANUFACTURING CO., LTD., MURATA ELECTRONICS NORTH AMERICA, INC.

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Washington, DC 20005
P: 202-339-8400

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FOR RESPONDENT SAMSUNG ELECTRO-MECHANICS CO., LTD.,; SAMSUNG ELECTRO-MECHANICS AMERICA, INC.

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IN THE MATTER OF CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME

337-TA-692

PUBLIC CERTIFICATE OF SERVICE – PAGE TWO

PUBLIC MAILING LIST

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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, DC

Before The Honorable E. James Gildea
Administrative Law Judge

IN THE MATTER OF	
CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME	Inv. No. 337-TA-692

RESPONDENTS' CORRECTED FINAL EXHIBIT LIST

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0001							WITHDRAWN
RX-0002							WITHDRAWN
RX-0003							WITHDRAWN
RX-0004							WITHDRAWN
RX-0005							WITHDRAWN
RX-0006							WITHDRAWN
RX-0007							WITHDRAWN
RX-0008							WITHDRAWN
RX-0009							WITHDRAWN
RX-0010	C						WITHDRAWN
RX-0011	C						WITHDRAWN
RX-0012	C						WITHDRAWN
RX-0013	C						WITHDRAWN
RX-0014	C						WITHDRAWN
RX-0015	C	Deposition Transcript for Harunobu Sano, April 1 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0016	C	Deposition Transcript for Harunobu Sano, April 2 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0017	C	Deposition Transcript for Harunobu Sano, May 13, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0018							WITHDRAWN
RX-0019							WITHDRAWN
RX-0020							WITHDRAWN
RX-0021	C						WITHDRAWN
RX-0022	C	Deposition Transcript for John Galvagni, April 13, 2010	n/a	n/a	invalidity, claim construction		Rejected

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0023	C						WITHDRAWN
RX-0024	C						WITHDRAWN
RX-0025	C	Deposition Transcript for Kazuyuki Kubota, May 24, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry		7/27/2010
RX-0026	C	Deposition Transcript for Kazuyuki Kubota, May 25, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry		7/27/2010
RX-0027	C	Deposition Transcript for Lanney McHargue, May 18, 2010	n/a	n/a	domestic industry		7/27/2010
RX-0028	C	Deposition Transcript for Lanney McHargue, May 26, 2010	n/a	n/a	domestic industry		7/27/2010
RX-0029	C						WITHDRAWN
RX-0030	C	Deposition Transcript for Masamitsu Shibata, March 16, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0031	C	Deposition Transcript for Masamitsu Shibata, March 17, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0032	C						WITHDRAWN
RX-0033	C	Deposition Transcript for Noriyuki Kubodera, April 1, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0034	C	Deposition Transcript for Noriyuki Kubodera, March 31, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0035	C	Deposition Transcript for Noriyuki Kubodera, May 12, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0036							WITHDRAWN
RX-0037							WITHDRAWN
RX-0038	C	Deposition Transcript for Satoshi Tahara, April 26, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, unenforceability		7/27/2010
RX-0039	C	Deposition Transcript for Satoshi Tahara, April 27, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, unenforceability		7/27/2010
RX-0040	C	Deposition Transcript for Satoshi Tahara, March 23, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, unenforceability		7/27/2010
RX-0041	C	Deposition Transcript for Satoshi Tahara, March 24, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, unenforceability		7/27/2010

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List
Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692
DIRECT EXHIBITS LIST

RX-0042	C	Deposition Transcript for Satoshi Tahara, March 25, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, unenforceability		7/27/2010
RX-0043	C	Deposition Transcript for Steve Shipman, May 20, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		Rejected
RX-0044	C						WITHDRAWN
RX-0045	C	Deposition Transcript for Woody Wilder, May 19, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, unenforceability		7/27/2010
RX-0046	C	Deposition Transcript for Yasayuki Naito, March 23, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0047	C	Deposition Transcript for Yasayuki Naito, March 24, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0048	C	Deposition Transcript for Yasushi Ueno, February 19, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0049	C	Deposition Transcript for Yasushi Ueno, February 22, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010

Respondents Final Exhibit List
Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692
DIRECT EXHIBITS LIST

RX-0050	C	Deposition Transcript for Yasushi Ueno, February 23, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0051	C						WITHDRAWN
RX-0052	C						WITHDRAWN
RX-0053	C	Deposition Transcript for Yoshio Kawaguchi, April 2, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0054	C	Deposition Transcript for Yoshio Kawaguchi, May 11, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0055	C	Deposition Transcript for Yoshitaka Tanino, March 30, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0056	C	Deposition Transcript for Takashi Hiramatsu, March 18, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0057	C	Deposition Transcript for Takashi Hiramatsu, March 19, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0058	C	Murata's Objections and Responses to Commission Investigative Staff's First Set of Interrogatories, dated March 15, 2010	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Wilder; Kunotsubo, Tsuyoshi; Murata witness	7/27/2010
RX-0059	C						WITHDRAWN

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0060	C						WITHDRAWN
RX-0061	C						WITHDRAWN
RX-0062	C						WITHDRAWN
RX-0063	C						WITHDRAWN
RX-0064	C						WITHDRAWN
RX-0065	C						WITHDRAWN
RX-0066	C	Murata's First Supplemental Responses to SEMCO's Seventh Set of Interrogatories, dated March 19, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Murata Corporate Representative	7/27/2010
RX-0067	C						WITHDRAWN
RX-0068	C						WITHDRAWN
RX-0069	C						WITHDRAWN
RX-0070	C						WITHDRAWN
RX-0071	C	Murata's Objections and Responses to Commission Investigative Staff's Second Set of Interrogatories, dated May 24, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Kunotsubo, Tsuyoshi; Murata Corporate Representative	7/30/2010
RX-0072	C						WITHDRAWN
RX-0073	C						WITHDRAWN
RX-0074							WITHDRAWN
RX-0075	C						WITHDRAWN
RX-0076	C	Murata's Objections and Responses to SEMCO's First Set of Requests for Admission, dated March 1, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Murata Corporate Representative	7/6/2010

[1]Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List
Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692
DIRECT EXHIBITS LIST

RX-0077	C	Murata's Objections and Responses to SEMCO's Fourth Set of Requests for Admission, dated May 26, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Murata Corporate Representative	7/6/2010
RX-0078	C						WITHDRAWN
RX-0079	C						WITHDRAWN
RX-0080	C						WITHDRAWN
RX-0081	C	Murata's Objections and Responses to SEMCO's Second Set of Requests for Admission, dated March 15, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Murata Corporate Representative	7/6/2010
RX-0082	C						WITHDRAWN
RX-0083	C						WITHDRAWN
RX-0084	C						WITHDRAWN
RX-0085	C						WITHDRAWN
RX-0086	C						WITHDRAWN
RX-0087	C	Murata's Objections and Responses to SEMCO's Third Set of Requests for Admission, dated May 3, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Murata Corporate Representative	7/6/2010
RX-0088	C						WITHDRAWN
RX-0089	C						WITHDRAWN
RX-0090	C						WITHDRAWN
RX-0091	C						WITHDRAWN
RX-0092	C						WITHDRAWN
RX-0093	C						WITHDRAWN

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0094	C	Murata's Seventh Supplemental Responses to SEMCO's First Set of Interrogatories, dated May 10, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Kunotsubo, Tsuyoshi; Murata Corporate Representative	7/30/2010
RX-0095	C						WITHDRAWN
RX-0096	C						WITHDRAWN
RX-0097	C	Murata's Third Supplemental Responses to SEMCO's Fourth Set of Interrogatories, dated March 22, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability, domestic industry	Kunotsubo, Tsuyoshi; Murata Corporate Representative	7/27/2010
RX-0098	C						WITHDRAWN
RX-0099	C						WITHDRAWN
RX-0100	C						WITHDRAWN
RX-0101	C						WITHDRAWN
RX-0102	C						WITHDRAWN
RX-0103	C						WITHDRAWN
RX-0104	C						WITHDRAWN
RX-0105	C	Deposition Transcript for Yukio Hamaji, April 2, 2010	SEMCO0	SEMCO0	invalidity, claim construction, non-infringement, technical background		7/27/2010
RX-0106	C	Deposition Transcript for Nobuyuki Wada, March 16, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-0107	C						WITHDRAWN
RX-0108		Japanese Patent Application Publication No. H8-31232 with certified translation	SEMCO00566232	SEMCO00566254	invalidity, non-infringement, claim construction	Dougherty, Sang Hyuk Kim; Randall	7/28/2010
RX-0109	C						WITHDRAWN

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0110	C						WITHDRAWN
RX-0111	C						WITHDRAWN
RX-0112							WITHDRAWN
RX-0113		U.S. Patent No. 5,880,925	SEMCOOO263024	SEMCOOO263035	invalidity	Randall,	7/30/2010*
RX-0114							WITHDRAWN
RX-0115							WITHDRAWN
RX-0116							WITHDRAWN
RX-0117							WITHDRAWN
RX-0118							WITHDRAWN
RX-0119		Bin et al. 2008, "Effect of Mn2+ Doping on the Temperature Coefficient of Capacitance of TiO2/Sinx-Doped BaTiO3 Ceramics," Inorganic Materials, Vol. 44, pp. 669-672	n/a	n/a	non-infringement, claim construction, technical background, invalidity	Dougherty, Burn	7/28/2010
RX-0120							WITHDRAWN
RX-0121		Japanese Application No. H06-342736 ("Nakano Application") with a certified English translation	SEMCO00079767	SEMCO00079808	invalidity	Randall	7/30/2010*
RX-0122							WITHDRAWN
RX-0123							WITHDRAWN
RX-0124							WITHDRAWN
RX-0125							WITHDRAWN
RX-0126							WITHDRAWN
RX-0127							WITHDRAWN
RX-0128							WITHDRAWN
RX-0129							WITHDRAWN
RX-0130							WITHDRAWN
RX-0131							WITHDRAWN
RX-0132							WITHDRAWN
RX-0133							WITHDRAWN
RX-0134							WITHDRAWN

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0135							WITHDRAWN
RX-0136		Exhibit 1 to Dougherty Opening Expert Report - Curriculum vitae			background	Dougherty	7/30/2010
RX-0137							WITHDRAWN
RX-0138							WITHDRAWN
RX-0139							WITHDRAWN
RX-0140							WITHDRAWN
RX-0141							WITHDRAWN
RX-0142							WITHDRAWN
RX-0143	C						WITHDRAWN
RX-0144		Complaint Under Section 337 Of The Tariff Act of 1930, As Amended	n/a	n/a	claim construction, invalidity, non-infringement, unenforceability	Dougherty	7/29/2010
RX-0145							WITHDRAWN
RX-0146							WITHDRAWN
RX-0147							WITHDRAWN
RX-0148							WITHDRAWN
RX-0149							WITHDRAWN
RX-0150		Declaration of Andreas Glaeser in Support of Complainants' OppositionTo Respondents' Motion For Summary Determination Of Invalidity Of U.S. Patent No. 6,243,254	n/a	n/a	invalidity, claim construction, non-infringement, technical background	Dougherty	7/27/2010
RX-0151							WITHDRAWN
RX-0152	C	Declaration of Harunobu Sano submitted in opposition to SEMCO's motion for summary determination of invalidity of U.S. Patent No. 6,243,254	n/a	n/a	invalidity, claim construction, non-infringement, technical background	Dougherty and Sano	7/27/2010

*Subject of an Unopposed Motion to Reopen the Evidentiary Record filed on August 4, 2010

RX-0153	C	Declaration of Ian Burn submitted with Complaint	n/a	n/a	invalidity, claim construction, non-infringement, technical background	Dougherty	7/28/2010
RX-0154							WITHDRAWN
RX-0155							WITHDRAWN
RX-0156							WITHDRAWN
RX-0157							WITHDRAWN
RX-0158							WITHDRAWN
RX-0159							WITHDRAWN
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RX-0161							WITHDRAWN
RX-0162							WITHDRAWN
RX-0163							WITHDRAWN
RX-0164							WITHDRAWN
RX-0165							WITHDRAWN
RX-0166							WITHDRAWN
RX-0167							WITHDRAWN
RX-0168							WITHDRAWN
RX-0169	intentionally left blank [duplicate of RX-0385]						
RX-0170							WITHDRAWN
RX-0171							WITHDRAWN
RX-0172							WITHDRAWN
RX-0173							WITHDRAWN
RX-0174							WITHDRAWN
RX-0175							WITHDRAWN
RX-0176		Rotenberg et al., Electrical and Radiospectroscopic Investigations of Barium Titanate With Admixtures of Oxides of Trivalent Elements, Soviet Physics-Solid State, Vol. 7, No. 10 (April 1966)	SEMCO02790762	SEMCO02790766	invalidity, claim construction, non-infringement, technical background	Dougherty	7/30/2010

Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-0177							WITHDRAWN
RX-0178							WITHDRAWN
RX-0179							WITHDRAWN
RX-0180							WITHDRAWN
RX-0181							WITHDRAWN
RX-0182							WITHDRAWN
RX-0183							WITHDRAWN
RX-0184							WITHDRAWN
RX-0185							WITHDRAWN
RX-0186							WITHDRAWN
RX-0187							WITHDRAWN
RX-0188							WITHDRAWN
RX-0189							WITHDRAWN
RX-0190							WITHDRAWN
RX-0191							WITHDRAWN
RX-0192							WITHDRAWN
RX-0193							WITHDRAWN
RX-0194							WITHDRAWN
RX-0195							WITHDRAWN
RX-0196							WITHDRAWN
RX-0197							WITHDRAWN
RX-0198							WITHDRAWN
RX-0199							WITHDRAWN
RX-0200							WITHDRAWN
RX-0201							WITHDRAWN
RX-0202							WITHDRAWN
RX-0203							WITHDRAWN
RX-0204							WITHDRAWN
RX-0205							WITHDRAWN
RX-0206							WITHDRAWN
RX-0207							WITHDRAWN
RX-0208							WITHDRAWN

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RX-0209							WITHDRAWN
RX-0210							WITHDRAWN
RX-0211							WITHDRAWN
RX-0212							WITHDRAWN
RX-0213							WITHDRAWN
RX-0214		WO 97/47567	SEMCO00566359	SEMCO00566374	invalidity, claim construction, non-infringement, technical background	Dougherty and Randall	7/28/2010
RX-0215		Y. Wu and S. Wang, Dielectric Behavior and Second Phases in X7R-Formulated BaTiO3 Sintered in Low-Oxygen Partial Pressures, J. Am. Soc. 90[9] 2926-2934 (2007)	SEMCO02790728	SEMCO02790736	invalidity, claim construction, non-infringement, technical background	Dougherty	7/30/2010
RX-0216		Exhibit 3 to Dougherty Opening Expert Report - Claim chart regarding '232 publication			invalidity	Dougherty	7/30/2010
RX-0217							WITHDRAWN
RX-0218							WITHDRAWN
RX-0219							WITHDRAWN
RX-0220							WITHDRAWN
RX-0221		Exhibit 9 to Dougherty Opening Expert Report - Excel Spreadsheet containing calculations			invalidity	Dougherty	7/30/2010
RX-0222		Exhibit 10 to Dougherty Opening Expert Report - Ferro Corporation specification			invalidity, claim construction, non-infringement, technical background	Dougherty, Burn, and Sang Hyuk Kim	7/28/2010
RX-0223							WITHDRAWN
RX-0224							WITHDRAWN
RX-0225							WITHDRAWN

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RX-0226							WITHDRAWN
RX-0227							WITHDRAWN
RX-0228							WITHDRAWN
RX-0229							WITHDRAWN
RX-0230		Article, Ian Burn, Mn-doped polycrystalline BaTiO3, Journal of Materials Science 14 (1979) 2453-2438	SEMCO002212987	SEMCO002212992	invalidity, claim construction, non-infringement, technical background	Dougherty	7/28/2010
RX-0231							WITHDRAWN
RX-0232							WITHDRAWN
RX-0233							WITHDRAWN
RX-0234							WITHDRAWN
RX-0235							WITHDRAWN
RX-0236							WITHDRAWN
RX-0237							WITHDRAWN
RX-0238		Exhibit 3 to Dougherty Rebuttal Expert Report - U.S. Patent No. 3,987,347	SEMCO02790720	SEMCO02790727	invalidity, claim construction, non-infringement, technical background	Dougherty, Sang Hyuk Kim	7/28/2010
RX-0239							WITHDRAWN
RX-0240							WITHDRAWN
RX-0241							WITHDRAWN
RX-0242							WITHDRAWN
RX-0243							WITHDRAWN
RX-0244							WITHDRAWN
RX-0245							WITHDRAWN
RX-0246							WITHDRAWN
RX-0247	C						WITHDRAWN
RX-0248							WITHDRAWN

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RX-0249	C	Exhibit 17 to Dougherty Rebuttal Expert Reprt - Declaration of Harunobu Sano			invalidity, non-infringement, claim construction, technical background	Dougherty	7/30/2010
RX-0250	C						WITHDRAWN
RX-0251	C						WITHDRAWN
RX-0252	C						WITHDRAWN
RX-0253	C						WITHDRAWN
RX-0254	C						WITHDRAWN
RX-0255	C						WITHDRAWN
RX-0256	C						WITHDRAWN
RX-0257	C						WITHDRAWN
RX-0258	C						WITHDRAWN
RX-0259	C						WITHDRAWN
RX-0260	C						WITHDRAWN
RX-0261	C						WITHDRAWN
RX-0262	C						WITHDRAWN
RX-0263	C						WITHDRAWN
RX-0264	C						WITHDRAWN
RX-0265	C						WITHDRAWN
RX-0266							WITHDRAWN
RX-0267	C	Exhibit 35 to Dougherty Rebuttal Expert Report - EDS Analyses, Dougherty Rebuttal Ex. 35	n/a	n/a	non-infringement, technical background	Dougherty	7/30/2010
RX-0268							WITHDRAWN
RX-0269							WITHDRAWN
RX-0270							WITHDRAWN
RX-0271	C						WITHDRAWN
RX-0272	C						WITHDRAWN
RX-0273	C						WITHDRAWN
RX-0274							WITHDRAWN

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RX-0275		C.A. Randall et al., Structure property relationships in core-shell BaTi03-LiF ceramics, J. Mater. Res., Vol. 8, No. 4, Apr. 1993			invalidity, claim construction, non-infringement, technical background	Dougherty	7/30/2010
RX-0276							WITHDRAWN
RX-0277		D.F.K., Hennings, Cu-acceptors in Dielectric Ceramics Sintered in Reducive Atmospheres, J. Eur. Cer. Soc. 15 (1995) 795-800	SEMCO0319254	SEMCO0319259	invalidity, claim construction, non-infringement, technical background	Dougherty	7/28/2010
RX-0278							WITHDRAWN
RX-0279							WITHDRAWN
RX-0280	C						WITHDRAWN
RX-0281							WITHDRAWN
RX-0282		Y.H. Han et al., Calcium As An Acceptor Impurity in BaTi03, J. Am. Ceram. Soc., 70, 96-100 (1987)	SEMCO002213873	SEMCO002213878	invalidity, claim construction, non-infringement, technical background	Dougherty	7/28/2010
RX-0283		Z.Q. Zhuang, Effect of Octahedrally-coordinated Calcium on the Ferroelectric Transition of BaTi03, Mat. Res. Bull., Vol. 22, pp. 1329-1335 (1987)			invalidity, claim construction, non-infringement, technical background	Dougherty	7/28/2010
RX-0284							WITHDRAWN
RX-0285		Toshiba Declaration	SEMCO02792297	SEMCO2792299	invalidity	Toshiba Corporate Representative, Robert Van Eck	Rejected
RX-0286							WITHDRAWN
RX-0287							WITHDRAWN
RX-0288	C						WITHDRAWN
RX-0289	C						WITHDRAWN
RX-0290	C						WITHDRAWN

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RX-0291	C						WITHDRAWN
RX-0292	C						WITHDRAWN
RX-0293	C	AVX Memorandum re DCAP Agreement - OEM	AVX00000596	AVX00000600	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0294	C	AVX Memorandum re AVX DCAP/LICA 1997-8 Price Proposal	AVX00000585	AVX00000587	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0295	C	AVX Publication: Catalog for AVX Multilayer Ceramic Chip Capacitor	AVX00000269	AVX00000315	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0296	C	AVX Publication: DCAP Low Inductance Decoupling Capacitor Arrays from AVX	AVX00000229	AVX00000232	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0297	C	IBM New Procurement Agreement between IBM and AVX	AVX00000590	AVX00000595	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0298	C	Photo: 1982 Metronome Rejects	AVX00000342	AVX00000342	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0299		Drawing of DCAP/LICA Structure drawn by witness			invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0300							WITHDRAWN

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RX-0301	C	Excerpt from Lab Notebook No. 193.	AVX00000060	AVX00000064	invalidity, claim construction	Galvagni, Randall, AVX corporate representative	Rejected
RX-0302	C	Letter re: Development Agreement dated August 5, 1983	AVX00000137	AVX00000160	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0303	C	Letter re: Term Extension to Agreement dated March 29, 1984	AVX00000161	AVX00000199	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0304	C	Letter re: Term Extension and Provision Amendment dated November 1, 1984	AVX00000071	AVX00000111	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0305	C	AVX Corporation Drawing, 32 Position Screen	AVX00000065	AVX00000065	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0306	C	Letter from Phil Troup to John Galvagni, regarding Proposed LICA Design For Intel, February 1994	AVX00000114	AVX00000117	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0307	C	Intel Purchase Order	AVX00000112	AVX00000113	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0308	C	Engineering Specification Issue	AVX00000201	AVX00000219	invalidity	Galvagni, Randall, AVX corporate representative	Rejected

RX-0309	C	Power Point Re Document Reference A4	AVX00000221	AVX00000228	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0310	C	AVX Drawing, 32 Position Screen	AVX00000067	AVX00000067	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0311	C	AVX Drawing. Entitled 32 position screen LICA 3T324M7--1	AVX00000066	AVX00000066	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0312	C	AVX Drawing, DCAP 32 Position Screen	AVX00000068	AVX00000068	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0313	C	AVX Drawing, Towne Labs Screen	AVX00000069	AVX00000069	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0314	C	AVX Drawing, Positive for Metronome Electrode, AVX 200	AVX00000200	AVX00000200	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0315	C	Technical Information, Low Inductance Capacitors for Digital Circuits	AVX00000233	AVX00000240	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0316	C	Low Inductance Capacitor Arrays Catalog	AVX00000263	AVX00000268	invalidity	Galvagni, Randall, AVX corporate representative	Rejected

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RX-0317	C	AVX Standard Operating Procedure Comparator Inspection. Document describes how to measure the D-CAP unit using Kion V-12 profile Projector	AVX00000118	AVX00000136	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0318	C	AVX Low Inductance Capacitors Catalog	AVX00000319	AVX00000326	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0319	C	Preliminary Specifications Bulletin, DCAP	AVX00000316	AVX00000318	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0320	C	Description of AVX Low Inductance Capacitors depicting the physical attributes and functions	AVX00000327	AVX00000336	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0321	C	Owner's manual for the AVX Multilayer Ceramic Chip Capacitor	AVX00000427	AVX00000465	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0322	C	W3L1 Configuration	AVX00000672	AVX00000674	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0323	C	Spreadsheet concerning internal dimensions and construction for AVX IDC products	AVX00000676	AVX00000676	invalidity	Galvagni, Randall, Shipman, AVX corporate representative	Rejected
RX-0324	C						WITHDRAWN
RX-0325							WITHDRAWN

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RX-0326	C	Email string re Samsung-Murata matter W3L1	AVX00000667	AVX00000674	invalidity	Galvagni, Randall, AVX corporate representative	Rejected
RX-0327							WITHDRAWN
RX-0328	C						WITHDRAWN
RX-0329		Certified translation of claims 1, 11, and 13 of Exhibit 1 of the '254 patent	SEMCO00566385	SEMCO00566407	invalidity, non-infringement, claim construction, technical background	Hiramatsu	7/27/2010
RX-0330							WITHDRAWN
RX-0331							WITHDRAWN
RX-0332							WITHDRAWN
RX-0333	C						WITHDRAWN
RX-0334	C						WITHDRAWN
RX-0335							WITHDRAWN
RX-0336							WITHDRAWN
RX-0337	INTENTIONALLY LEFT BLANK (Duplicate of JX-18)						
RX-0338	C						WITHDRAWN
RX-0339							WITHDRAWN
RX-0340		SEMCO's Notice of Deposition of Murata, dated March 19, 2010	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Kawaguchi	7/27/2010
RX-0341	C	Design Review Application and Approval Form with translation	MM_300027	MM_300109	invalidity, non-infringement, claim construction, technical background	Kawaguchi	7/27/2010
RX-0342							WITHDRAWN

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RX-0343	C	Design Review Concerning a Change in the Materials for the External Electrodes with certified translation	MM_300100	MM_300180	invalidity, non-infringement, claim construction, technical background	Kawaguchi	7/27/2010
RX-0344							WITHDRAWN
RX-0345		U.S. Patent No. 5,430,605	SEMCO00567540	SEMCO00567553	invalidity, non-infringement, claim construction, technical background	Kawaguchi	7/30/2010
RX-0346	C	Document Relating to the LLA 1206 2.2 Micro Farad Product with certified translation	MM_021763	MM_021774	invalidity, non-infringement, claim construction, technical background	Kawaguchi	7/27/2010
RX-0347							WITHDRAWN
RX-0348							WITHDRAWN
RX-0349							WITHDRAWN
RX-0350							WITHDRAWN
RX-0351							WITHDRAWN
RX-0352	C						WITHDRAWN
RX-0353	C						WITHDRAWN
RX-0354							WITHDRAWN
RX-0355	C						WITHDRAWN
RX-0356	C						WITHDRAWN
RX-0357							WITHDRAWN
RX-0358							WITHDRAWN
RX-0359		Document written in Japanese explaining the way Murata considers its model names	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Kubodera	7/27/2010

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RX-0360	C	Murata's Second Supplemental Responses and SEMCO's First Set of Interrogatories, dated January 10, 2010	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Kubodera	7/27/2010
RX-0361							WITHDRAWN
RX-0362		Data Sheet, Monolithic Ceramic Capacitors	SEMCO02788005	SEMCO02788005	invalidity, non-infringement, claim construction, technical background	Kubodera	7/27/2010
RX-0363	C	Design inspections for the GRM42-6X5R475K10U530	MM_296882	MM_297032	invalidity, non-infringement, claim construction, technical background	Kubodera	7/27/2010
RX-0364	C	Handwritten document showing percentage of hours invested by the technical support of each of the patents by members of the marketing group and hours invested in product customization	n/a	n/a	domestic industry	Kubota	7/27/2010
RX-0365	C	Various tables, "Cap Group Member List," "Product Customization," "Technical Support Examples,"Capacitor Group Statistics," and "Technical Support Estimates"	n/a	n/a	domestic industry	Kubota	7/27/2010
RX-0366	C	Job Description for Technical Sales Manager	MM_307215	MM_307217	domestic industry	Kubota	7/27/2010
RX-0367							WITHDRAWN
RX-0368	C						WITHDRAWN
RX-0369	C	Capacitor Marketing organizational chart of the planning group as it existed on March 1, 2009	MM_002003	MM_002004	domestic industry	Kubota	7/27/2010

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RX-0370	C	Table, "Capacitor Group Statistics"	n/a	n/a	domestic industry	Kubota	7/27/2010
RX-0371	C	Table, "Sales and Quality Assurance Group Biographical Information"	n/a	n/a	domestic industry	Kubota	7/27/2010
RX-0372	C						WITHDRAWN
RX-0373	C	Job Description for Key Account Manager/Sales Engineer GFE	MM_002042	MM_002043	domestic industry	Kubota	7/27/2010
RX-0374	C						WITHDRAWN
RX-0375	C	Confidential Exhibit 16 to Complaint - Declaration of Lanney McHargue	n/a	n/a	domestic industry	Kubota	7/27/2010
RX-0376	C						WITHDRAWN
RX-0377		SEMCO's' Second Notice of Deposition of Murata	n/a	n/a	domestic industry	McHargue	7/27/2010
RX-0378		Notice of Deposition of Lanney McHargue	n/a	n/a	domestic industry	McHargue	7/27/2010
RX-0379	C	Table of Total capacitor claims	n/a	n/a	domestic industry	McHargue	7/27/2010
RX-0380	C						WITHDRAWN
RX-0381	C	Rockmart QC Lab Equipment	MM_308123	MM_308123	domestic industry	McHargue	7/27/2010
RX-0382	C	Table, Total Capacitor Claims	MM_308124	MM_308124	domestic industry	McHargue	7/27/2010
RX-0383							WITHDRAWN
RX-0384							WITHDRAWN
RX-0385							WITHDRAWN
RX-0386	C						WITHDRAWN
RX-0387		Published Japanese Patent Application No. 10-172857	SEMCO00566211	SEMCO00566231	invalidity, claim construction, non-infringement, technical background	Dougherty; Kim, S.H.; Randall	7/27/2010
RX-0388	INTENTIONALLY LEFT BLANK (Duplicate of JX-22)						
RX-0389	INTENTIONALLY LEFT BLANK (Duplicate of JX-21)						

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RX-0390		U.S. Patent No. 5,742,473	SEMCO00566333	SEMCO00566345	invalidity, claim construction, non-infringement, technical background	Dougherty; Kim, S.H.; Randall	7/27/2010
RX-0391							WITHDRAWN
RX-0392							WITHDRAWN
RX-0393							WITHDRAWN
RX-0394							WITHDRAWN
RX-0395							WITHDRAWN
RX-0396							WITHDRAWN
RX-0397							WITHDRAWN
RX-0398							WITHDRAWN
RX-0399							WITHDRAWN
RX-0400							WITHDRAWN
RX-0401							WITHDRAWN
RX-0402							WITHDRAWN
RX-0403							WITHDRAWN
RX-0404							WITHDRAWN
RX-0405							WITHDRAWN
RX-0406							WITHDRAWN
RX-0407							WITHDRAWN
RX-0408							WITHDRAWN
RX-0409	C						WITHDRAWN
RX-0410	C	Murata Technical Report, Low ESL Capacitor Circuit Models>Equivalent Circuit Modeling of LL & LLA Types for AMD, September 17, 1999 [Tahara Exhibit 28] with certified translation	MM_022285	MM_022288	domestic industry, invalidity, non-infringement, claim construction, technical background	Randall, Murata witness	7/27/2010
RX-0411							WITHDRAWN
RX-0412							WITHDRAWN

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RX-0413		Nagakari H11-214249 (H10-017058), translation and certification	SEMCO00081159 SEMCO00081160	SEMCO00081165 SEMCO00081173	invalidity	Randall, Byounghwa Lee	7/30/2010*
RX-0414							WITHDRAWN
RX-0415							WITHDRAWN
RX-0416							WITHDRAWN
RX-0417		Sakabe 2002, Jpn. J. Appl. Phys. "Nonreducible Mechanism of {(Ba1-xCax)O}m TiO2 (m > 1) Ceramics," Vol. 41, Part I, No. 11A, pp. 6461-6465	MM_298799	MM_298803	Invalidity	Randall, Dougherty, Byounghwa Lee, Sang Hyuk Kim, Youn	7/28/2010
RX-0418							WITHDRAWN
RX-0419							WITHDRAWN
RX-0420							WITHDRAWN
RX-0421							WITHDRAWN
RX-0422							WITHDRAWN
RX-0423							WITHDRAWN
RX-0424							WITHDRAWN
RX-0425							WITHDRAWN
RX-0426							WITHDRAWN
RX-0427		Burn 1994, CARTS, "Dielectric and Electrode Systems for Multilayer Ceramic Capacitors with Layer Thickness Below 10 μm", 130-131	SEMCO00318954	SEMCO00318959	invalidity	Randall, Byounghwa Lee, Burn, Dougherty	7/28/2010
RX-0428							WITHDRAWN
RX-0429							WITHDRAWN
RX-0430							WITHDRAWN
RX-0431	INTENTIONALLY LEFT BLANK						
RX-0432							WITHDRAWN
RX-0433							WITHDRAWN
RX-0434							WITHDRAWN

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RX-0435							WITHDRAWN
RX-0436							WITHDRAWN
RX-0437							WITHDRAWN
RX-0438		Sano Japanese Published Patent Application H7-074047, translation and certification	SEMCO00079878 SEMCO00079885	SEMCO00079884 SEMCO00079905	invalidity	Randall, Byounghwa Lee, Dougherty, Sang Hyuk Kim	7/30/2010*
RX-0439							WITHDRAWN
RX-0440		U.S. Patent No. 6,160,472	SEMCO00567875	SEMCO00567883	invalidity	Randall, Byounghwa Lee	7/30/2010*
RX-0441							WITHDRAWN
RX-0442							WITHDRAWN
RX-0443							WITHDRAWN
RX-0444							WITHDRAWN
RX-0445							WITHDRAWN
RX-0446							WITHDRAWN
RX-0447							WITHDRAWN
RX-0448							WITHDRAWN
RX-0449							WITHDRAWN
RX-0450							WITHDRAWN
RX-0451		Handwritten document made by Naito depicting the shape of the internal electrode designed for the microwave-supporting capacitor	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Naito, Randall, Murata witness	7/27/2010
RX-0452		Handwritten document made by Naito depicting the shapes of electrodes designed as part of the development work on the microwave-supporting capacitor	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Naito, Randall, Murata witness	7/27/2010

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RX-0453		Handwritten document made by Naito representing the LLA internal electrode design as it existed when he was transferred to Fukui Murata the second time	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Naito, Randall, Murata witness	7/27/2010
RX-0454		Handwritten document made by Naito representing the LLA design as it exists currently	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Naito, Randall, Murata witness	7/27/2010
RX-0455		Handwritten document made by Naito representing the LLM design	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Naito, Randall, Murata witness	7/27/2010
RX-0456		Naito JP H9-306717 (H11-144996), (1999-144996) , translation and certification	SEMCO00262752 SEMCO02213143	SEMCO002627644 SEMCO002213189	invalidity, non-infringement, claim construction, technical background	Naito, Keating, Murata witness, and Randall	7/27/2010
RX-0457							WITHDRAWN
RX-0458	C	Murata document, "Low ESL Capacitor Technology Road Map"	MM_011120	MM_011125	invalidity, non-infringement, claim construction, technical background	Naito, Keating, Murata witness, and Randall	7/27/2010
RX-0459		Yoneda et al. 1996, CARTS-EUROPE '96: 10th European Passive Components Symposium, "Relationship Between Microstructure and Characteristics of Multilayer Capacitors Having 'Core-Shell' Structure", 11-16	SEMCO00319048	SEMCO00319054	invalidity, non-infringement, claim construction, technical background	Omori, Murata witness, and Randall	7/30/2010*
RX-0460		Exhibit 1 to Randall '229 Opening Expert Report - Curriculum vitae and articles and presentations			invalidity	Randall	7/30/2010*

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Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

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RX-0461							WITHDRAWN
RX-0462		Exhibit 6 to Randall '229 Opening Expert Report - DPA Mount Sample #13: AVX IDC MLCC Analysis for '229 (W3L1ZC224MAT1A)			invalidity	Randall	Rejected
RX-0463		Exhibit 7 to Randall '229 Opening Expert Report - DPA Mount Sample #14: AVX IDC MLCC Analysis for '229 (W3L1YC105MAT1A)			invalidity	Randall	Rejected
RX-0464		Exhibit 8 to Randall '229 Opening Expert Report - DPA Mount Sample #15: AVX IDC MLCC Analysis for '229 (W2L16D105MAT1A)			invalidity	Randall	Rejected
RX-0465		Exhibit 9 to Randall '229 Opening Expert Report - DPA Mount Sample #16: AVX IDC MLCC Analysis for '229 (W2L14Z225MAT1S)			invalidity	Randall	Rejected
RX-0466							WITHDRAWN
RX-0467							WITHDRAWN
RX-0468							WITHDRAWN
RX-0469							WITHDRAWN
RX-0470							WITHDRAWN
RX-0471							WITHDRAWN
RX-0472							WITHDRAWN
RX-0473		Exhibit 17 to Randall '229 Opening Expert Report - Claim Chart comparing deNeuf to claims 51, 52 and 55 of the '229 patent1			invalidity	Randall	7/30/2010

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RX-0474							WITHDRAWN
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RX-0479							WITHDRAWN
RX-0480	C						WITHDRAWN
RX-0481							WITHDRAWN
RX-0482							WITHDRAWN
RX-0483		Exhibit 3 to Randall '309 Opening Expert Report - Reports on destructive analysis of 1206 2.2 µF Capacitors from Toshiba Portege 660CDT Laptop Computers			invalidity	Randall	Rejected
RX-0484		Exhibit 4 to Randall '309 Opening Expert Report - Reports on destructive analysis of 1206 2.2 µF capacitor from an Apple PowerBook 1400C			invalidity	Randall	Rejected
RX-0485							WITHDRAWN
RX-0486							WITHDRAWN
RX-0487							WITHDRAWN
RX-0488							WITHDRAWN
RX-0489							WITHDRAWN
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RX-0492							WITHDRAWN
RX-0493							WITHDRAWN
RX-0494							WITHDRAWN
RX-0495							WITHDRAWN
RX-0496							WITHDRAWN

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RX-0497							WITHDRAWN
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RX-0528							WITHDRAWN

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RX-0529							WITHDRAWN
RX-0530							WITHDRAWN
RX-0531							WITHDRAWN
RX-0532		AVX Technical Bulletin – Technical Information: Advanced Decoupling Using Ceramic MLC Capacitors (3/1994; Prymak, pp. 1-12)	SEMCO00263238	SEMCO00263249	invalidity	Randall	7/30/2010*
RX-0533							WITHDRAWN
RX-0534							WITHDRAWN
RX-0535							WITHDRAWN
RX-0536							WITHDRAWN
RX-0537		AVX Technical Bulletin – Technical Information: Low Inductance Capacitors for Digital Circuits (1992; Galvagni, pp. 1-8)	SEMCO00263036	SEMCO00263043	invalidity	Randall	7/30/2010
RX-0538		AVX Technical Bulletin – Technical Information: Parasitic Inductance of Multilayer Ceramic Capacitors (1997; Cain, pp. 1-4)	SEMCO00263014	SEMCO00263017	invalidity	Randall	7/30/2010*
RX-0539							WITHDRAWN
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RX-0549							WITHDRAWN
RX-0550							WITHDRAWN

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RX-0551							WITHDRAWN
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RX-0565							WITHDRAWN
RX-0566							WITHDRAWN
RX-0567							WITHDRAWN
RX-0568							WITHDRAWN
RX-0569		CARTS-Europe '99: 13th European Passive Components Symposium – Electrical Characteristics and Physical Structure of MLCC with Ultra-high Capacitance (1999; Yoneda, et al., pp. 187-192 and Table of Contents)	SEMCO00568534 SEMCO00565966	SEMCO00568536 SEMCO00565971	invalidity	Randall	7/28/2010
RX-0570							WITHDRAWN
RX-0571							WITHDRAWN
RX-0572							WITHDRAWN
RX-0573							WITHDRAWN
RX-0574							WITHDRAWN
RX-0575							WITHDRAWN

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RX-0576							WITHDRAWN
RX-0577							WITHDRAWN
RX-0578							WITHDRAWN
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RX-0608							WITHDRAWN
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RX-0618							WITHDRAWN
RX-0619							WITHDRAWN
RX-0620		IEEE 44th Electronic Components and Technology Conference – So Many Electrons, So Little Time… (Galvagni, pp. 234-238)	SEMCO00263044	SEMCO00263051	invalidity	Randall	7/30/2010
RX-0621							WITHDRAWN
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RX-0633							WITHDRAWN
RX-0634							WITHDRAWN
RX-0635							WITHDRAWN

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RX-0636		Japanese Patent No. 02-256216 with translation	SEMCO00567401	SEMCO00567411	invalidity	Randall	7/30/2010*
RX-0637							WITHDRAWN
RX-0638							WITHDRAWN
RX-0639							WITHDRAWN
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RX-0650							WITHDRAWN
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RX-0652							WITHDRAWN
RX-0653							WITHDRAWN
RX-0654		Japanese Patent No. 09-082558 with translation	SEMCO00567473	SEMCO00567478	invalidity	Randall	7/27/2010
RX-0655							WITHDRAWN
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RX-0662							WITHDRAWN
RX-0663	intentionally left blank [duplicate of RX-0385]						
RX-0664	intentionally left blank [duplicate of RX-0385]						
RX-0665							WITHDRAWN

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DIRECT EXHIBITS LIST

RX-0666	INTENTIONALLY LEFT BLANK [duplicate of JX-21]						
RX-0667							WITHDRAWN
RX-0668		Japanese Patent No. 2001-185441	SEMCO00567305	SEMCO00567313	invalidity	Randall	7/27/2010
RX-0669							WITHDRAWN
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RX-0696							WITHDRAWN
RX-0697							WITHDRAWN

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DIRECT EXHIBITS LIST

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RX-0729							WITHDRAWN

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RX-0747	Intentionally left blank [duplicate of RX-0182]						
RX-0748							WITHDRAWN
RX-0749		U.S. Patent No. 2,991,175	SEMCO00567292	SEMCO00567304	invalidity	Randall, Byounghwa Lee	7/27/2010
RX-0750							WITHDRAWN
RX-0751							WITHDRAWN
RX-0752		U.S. Patent No. 3,514,195	SEMCO00567305	SEMCO00567313	invalidity	Randall, Byounghwa Lee	7/27/2010
RX-0753							WITHDRAWN
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RX-0756							WITHDRAWN
RX-0757							WITHDRAWN
RX-0758							WITHDRAWN
RX-0759							WITHDRAWN

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RX-0790							WITHDRAWN
RX-0791							WITHDRAWN

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RX-0792							WITHDRAWN
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RX-0822		U.S. Patent No. 6,072,687	SEMCO00567842	SEMCO00567860	invalidity	Randall, Byounghwa Lee	7/29/2010

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RX-0843							WITHDRAWN
RX-0844	C						WITHDRAWN
RX-0845	INTENTIONALLY LEFT BLANK [duplicate of RX-1002]						
RX-0846	C						WITHDRAWN
RX-0847	C						WITHDRAWN
RX-0848	C						WITHDRAWN
RX-0849	C	Screen Pattern Standard (native file)	SEMCO02787860	SEMCO02787860	Non-Infringement	Randall, Byounghwa Lee, Youn, Sang Hyuk Kim	7/29/2010
RX-0850	C						WITHDRAWN
RX-0851	C						WITHDRAWN

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RX-0852	intentionally left blank [duplicate of RX-0425]						
RX-0853	intentionally left blank [duplicate of RX-0828]						
RX-0854							WITHDRAWN
RX-0855	C	Murata's Preliminary List of Murata Ceramic Capacitor Products that Practice One or More Claims of the '254 Patent	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0856	C	List of products that use the dielectric materials that correspond to Exhibit 1	MM_302395	MM_302400	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0857	C	Laminated Material Internal Control Standard	MM_273930	MM_273964	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0858	C						WITHDRAWN
RX-0859	C	Data that indicates the ratio of the elements that are used in the material that uses a composition that is in Exhibit 1	MM_302424	MM_302424	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0860	C						WITHDRAWN
RX-0861		Japanese Patent No. 2993425	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0862	intentionally left blank [duplicate of RX-0329]						
RX-0863	C	Wada, "Development Section IV development Dept. I Developmen Group IV" (abstract)	MM_022367	MM_022367	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010

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RX-0864	C	Document written in Japanese, mixing and inspection standard	MM_274067	MM_274092	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0865	C	Spreadsheet produced by Murata, listing Bates numbers identifying mixing specifications	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0866	intentionally left blank [duplicate of RX-0390]						
RX-0867		Hand-drawing representing the Perovskite structure	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0868		Japanese Patent No. 3450903 (Application No. 8-31232) and translation	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Dougherty, Kim, Youn	7/27/2010
RX-0869	C	Document written in Japanese relating to lithium scattering	MM_024722	MM_024723	invalidity, non-infringement, claim construction, technical background	Sano, Murata witness, Dougherty	7/27/2010
RX-0870							WITHDRAWN
RX-0871							WITHDRAWN
RX-0872		Galvagni et al. 1994, IEEE, 44th Electronic Components & Technology Conference, "So Many Electrons, So Little Time	SEMCO00263044	SEMCO00263051	invalidity	Galvagni, Randall, Byounghwa Lee	7/30/2010*
RX-0873	C						WITHDRAWN
RX-0874	C	IBM Declaration (Frank Barrese)	n/a	n/a	invalidity	Barrese, Randall, IBM corporate representative	Rejected

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RX-0875		Randall '229 Opening Expert Report Exhibit 3 DPA Mount Sample #70: AVX LICA (Low Inductance Capacitor Array) for '229	n/a	n/a	invalidity	Barrese, Randall, IBM corporate representative, AVX corporate representative	Rejected
RX-0876		Randall '229 Opening Expert Report Exhibit 4 DPA Mount Sample #69: AVX LICA (Low Inductance Capacitor Array) for '229	n/a	n/a	invalidity	Barrese, Randall, IBM corporate representative, AVX corporate representative	Rejected
RX-0877		Randall '229 Opening Expert Report Exhibit 5 DPA Mount Sample #20: AVX LICA (Low Inductance Capacitor Array) for '229	n/a	n/a	invalidity	Barrese, Randall, IBM corporate representative, AVX corporate representative	Rejected
RX-0878	C	AVX Low Inductance Capacitors Guide	AVX00000241	AVX00000248	invalidity	Shipman Randall, AVX Corporate	Rejected
RX-0879	C	Two Signature copies of subject Agreement between AVX and IBM with contract adjutments for Agreement #1439	AVX00000601	AVX00000646	invalidity	Shipman Randall, AVX Corporate	Rejected
RX-0880							WITHDRAWN
RX-0881	C						WITHDRAWN
RX-0882							WITHDRAWN
RX-0883	C						WITHDRAWN
RX-0884	Intentionally left blank [duplicate of RX-0153]						
RX-0885	C						WITHDRAWN
RX-0886							WITHDRAWN
RX-0887							WITHDRAWN

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RX-0888	C	Development history of the eight-terminal type low ESL capacitor [with certified translation]	MM_300036	MM_30038	invalidity	Randall, Murata witness	7/27/2010
RX-0889							WITHDRAWN
RX-0890							WITHDRAWN
RX-0891		Term sheet for '439, '254, '229, and '309 patents	n/a	n/a	invalidity, non-infringement, claim construction, technical background	Shibata, Randall, Dougherty, Murata witness	7/27/2010
RX-0892							WITHDRAWN
RX-0893							WITHDRAWN
RX-0894	C	Document written in Japanese, "The Maintenance Standard for Quality Related Documents and Quality Record"	MM_001740	MM_001749	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0895	C	Document written in Japanese, "Retention Standard for Quality Records"	MM_001750	MM_001757	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0896	C	Document written in Japanese pertaining to types of records, time limits, storage methods and storage department	MM_001826	MM_001828	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0897	C	Document written in Japanese pertaining the the group called "First Ceramic Manufacturing Department"	MM_001819	MM_001821	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010

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RX-0898	C	Document written in Japanese, heading of first column "ISO 9001 Number"	MM_001794	MM_001798	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0899							WITHDRAWN
RX-0900	C	Document written in Japanese pertaining to a plan to reduce the paper consumption at the intellectual property department	MM_001778	MM_001779	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Kubota, Murata witness, and Randall	7/27/2010
RX-0901	C	Murata's Privilege Log List (2)	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness, and Randall	7/27/2010
RX-0902							WITHDRAWN
RX-0903							WITHDRAWN
RX-0904							WITHDRAWN
RX-0905	C						WITHDRAWN
RX-0906	C						WITHDRAWN
RX-0907	C						WITHDRAWN
RX-0908	C						WITHDRAWN
RX-0909	C						WITHDRAWN
RX-0910		Chip Monolithic Ceramic Capacitors Catalog	MM_011618	MM_011837	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/29/2010
RX-0911							WITHDRAWN
RX-0912	C						WITHDRAWN

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RX-0913	C	Document written in Japanese pertaining to an MLCC LLA 1206 capacitor. A Pattern Creation request.	MM_300160	MM_300180	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0914	C	A Murata technical report. Document written in Japanese, "Counter Measurement of LLA Surface Unevenness"	MM_021763	MM_021763	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0915	C	Murata's Confidential Business Information. Action Report and Notice of Decision. Document written in Japanese with stamps (Inventors Naito, Kondo, Murata)	MM_273385	MM_273389	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0916	C	Document written in Japanese, "The Summary of Business Review of the 05FQ1 Large Accounts."	MM_027550	MM_027584	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0917	C	Table summarizing the response to questions (from last deposition) regarding products with certain part numbers	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0918	C	Set of documents belonging to the last box under the DR column shown in Exhibit 35	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010

RX-0919	C	Set of documents belonging to the last box under the DR column shown in Exhibit 36	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0920	C	Set of documents belonging to the first box under the DR column designated as 232 in Exhibit 34	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0921	C	Set of documents belonging to the fourth box under the DR column shown in Exhibit 34	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0922	C	Set of documents corresponding to the seventeenth row from the bottom under the fourth column designated as TDD in Exhibit 34	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0923	C	Corresponds to eight boxes of the fourth column, TDD, of Exhibit 34 in the sixteen boxes from the bottom of the same column of the same column of Exhibit 34	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0924	C	Corresponds to the boxes from the ninth of the twenty-second of the fourth column of Exhibit 34	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010

RX-0925	C	Murata's Confidential Business information. Customer Status Marketing action plan	MM_027714	MM_027717	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0926	C	E-mails between people at Murata and John Fullem, Dec. 11, 2006	MM_034561	MM_034565	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0927	C	E-mails to make a conference call to discuss sales and travel. 12/21/2006	MM_035024	MM_035027	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0928	C	E-mails regarding sales to Go Maruyama,Jan. 16, 2007	MM_035767	MM_035772	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0929	C	Murata e-mails from S. Kang to S. Kou regarding Amkor lowering prices, Dec. 3, 2008	MM_080162	MM_080163	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0930	C	Murata e-mails regarding IBM technical requirements for MLCCs	MM_091047	MM_091048	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010

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RX-0931	C	Murata e-mail regarding standard lead time for X8	MM_038534	MM_038540	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0932	C	Document relating to the development and first commercialization history of Murata's LLM1206 product	MM_300216	MM_300218	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0933	C	Internal Murata e-mails pertaining to TDK's technical information, specifically relating to TDK low ESL MLCC	MM_290767	MM_290767	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0934	C	Murata emails dated 1999 re Hitachi/negotiation with AVX	MM_291562	MM_291563	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0935	C	Internal Murata intellectual property document indicating that Murata had taken a license from IBM for at least one basic patent relating to low ESL capacitor technology	MM_273518	MM_273538	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0936	C	Notice, sent to Carl Eggerding from Julian Dority, that a copy of a letter was enclosed. No letter contained. Sent 6/18/1999	AVX00000504	AVX00000504	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010

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RX-0937	C	Fax/Letter from Julian W. Dority to Dr. Carl Eggerding, dated 6/21/1999 re Letter sent to Mr. Iishi 6/18/1999	AVX00000506	AVX00000508	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0938	C	Fax/Letter from Julian W. Dority to Dr. Carl L. Eggerding, dated 5/4/2000 re 5/3/2000 Letter from Murata	AVX00000515	AVX00000517	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0939	C	Letter from Dr. Carl L. Eggerding to Michihiro Murata, Ph.D., dated 5/26/2000 re AVX/Murata License Negotiation	AVX00000531	AVX00000532	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0940	C	Letter from Dr. Carl L. Eggerding to Michihiro Murata, Ph.D., dated 6/5/2000 re Enclosing AVX Executed License Agreement	AVX00000522	AVX00000530	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0941	C	Letter from Julian W. Dority to Dr. Carl Eggerding, dated 6/18/1999 re Letter sent to Mr. Iishi re U.S. Patent No. 5,880,925	AVX00000504	AVX00000541	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0942	C	Letter from Julian W. Dority to Joseph R. Keating, dated 2/24/2000 re filing of foreign applications related to U.S. Patent No. 5,880,925	AVX00000509	AVX00000509	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010

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RX-0943	C	Letter from Julian W. Dority to Joseph R. Keating, dated 3/16/2000 re Murata's intention of licensing the '925 patent	AVX00000510	AVX00000510	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0944	C	Letter from Julian W. Dority to Joseph R. Keating, dated 4/27/2000 re meeting between Murata and AVX	AVX00000511	AVX00000512	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0945	C	Letter from Julian W. Dority to Takeshi Iishi, dated 6/18/1999 re U.S. Patent No. 5,880,925	AVX00000505	AVX00000505	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0946	C	Letter from Michihira Murata, Ph.D. to Dr. Carl Eggerding, dated 5/26/2000 re Patent License Negotiation Meeting of 5/22/2000	AVX00000519	AVX00000521	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0947	C	Letter from Michihiro Murata, Ph.D. to Dr. Carl Eggerding, dated 5/8/2000 re cross-license negotiation	AVX00000513	AVX00000514	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0948	C	Letter from Michihiro Murata, Ph.D. to Dr. Carl L. Eggerding, dated 5/15/2000 re license negotiations	AVX00000518	AVX00000518	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010

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RX-0949	C	Letter from Michihiro Murata, Ph.D. to Julian W. Dority, dated 6/7/2000 re Enclosing Executed License Agreement between AVX and Murata	AVX00000533	AVX00000541	invalidity, claim construction, technical background	Tahara, Murata Witness, Galvagni, AVX Corporate Representative	7/27/2010
RX-0950	C	Internal Murata intellectual property document relating to the AVX negotation	MM_273506	MM_273517	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0951	C	Murata e-mails regarding claim construction of LLM	MM_290758	MM_290761	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0952	C	Emails from Murata to John Fullem and/or Toshiya Kumada regarding LLA industry, Nov. 2008	MM_080179	MM_080185	domestic industry, invalidity, non-infringement, claim construction, technical background	Tahara, Murata witness	7/27/2010
RX-0953							WITHDRAWN
RX-0954	C						WITHDRAWN
RX-0955							WITHDRAWN
RX-0956							WITHDRAWN
RX-0957							WITHDRAWN
RX-0958	C						WITHDRAWN
RX-0959		U.S. Patent No. 4,831,494	SEMCO00318888	SEMCO00318900	invalidity, non-infringement, claim construction	Taniguchi, Murata witness and Randall	7/27/2010
RX-0960	C	Document written in Japanese, "PSR" (Patent Strategic Review)	MM_273385	MM_273452	invalidity, non-infringement, claim construction	Tanino, Murata witness	7/27/2010

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RX-0961		Diagram drawng by Ueno-san at the deposition depicting electrodes	n/a	n/a	invalidity, non-infringement, claim construction	Ueno, Murata witness	7/27/2010
RX-0962	C						WITHDRAWN
RX-0963							WITHDRAWN
RX-0964							WITHDRAWN
RX-0965							WITHDRAWN
RX-0966	INTENTIONALLY LEFT BLANK (Duplicate of JX-21)						
RX-0967	C	Translation of Claim 1 of the '254 patent			invalidity, non-infringement, claim construction	Wada, Hiramatsu, Shibata, Hamaji, Dougherty	7/27/2010
RX-0968							WITHDRAWN
RX-0969							WITHDRAWN
RX-0970		Wada, Unidentified article regarding the Development of Laminated Ceramic Condensor, 97-105	n/a	n/a	invalidity, non-infringement, claim construction	Wada, Hiramatsu, Shibata, Hamaji, Dougherty	7/27/2010
RX-0971							WITHDRAWN
RX-0972							WITHDRAWN
RX-0973							WITHDRAWN
RX-0974		Japanese Published Patent Application No. 53-24600	n/a	n/a	invalidity, non-infringement, claim construction	Wada, Hiramatsu, Shibata, Hamaji, Dougherty	7/27/2010
RX-0975							WITHDRAWN
RX-0976							WITHDRAWN
RX-0977							WITHDRAWN
RX-0978							WITHDRAWN
RX-0979		Certified English translation of the notice of rejection for Application No. H 09-135823	n/a	n/a	invalidity, non-infringement, claim construction	Randall, Weisburd	7/30/2010*

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RX-0980							WITHDRAWN
RX-0981							WITHDRAWN
RX-0982		SEMCO's' Second Notice of Deposition of Murata	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Wilder, Murata witness	7/27/2010
RX-0983							WITHDRAWN
RX-0984	C						WITHDRAWN
RX-0985	C	Confidential Exhibit 16 to Complaint - Declaration of Woody Wilder	n/a	n/a	domestic industry, invalidity, non-infringement, claim construction, technical background	Wilder, Murata witness	7/27/2010
RX-0986	C	Murata MENA Control Documentation	MM_190766	MM_190793	domestic industry, invalidity, non-infringement, claim construction, technical background	Wilder, Murata witness	7/27/2010
RX-0987	C	Murata chain of e-mails regarding complaints about the capacitor product	MM_179408	MM_179412	domestic industry, invalidity, non-infringement, claim construction, technical background	Wilder, Murata witness	7/27/2010
RX-0988							WITHDRAWN
RX-0989							WITHDRAWN
RX-0990							WITHDRAWN
RX-0991							WITHDRAWN
RX-0992							WITHDRAWN
RX-0993	C						WITHDRAWN
RX-0994	C	127.5 X 127.5 Glass Ceramic Substrate Requirements	IBM 000102	IBM 000133	invalidity	Barrese, IBM witness, Randall	Rejected

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RX-0995		Burn, "The Role of Anion Impurities in Barium Titanate, "	n/a	n/a	non-infringement, claim construction, technical background, invalidity	Dougherty and Burn	7/28/2010
RX-0996							WITHDRAWN
RX-0997	C						WITHDRAWN
RX-0998	C						WITHDRAWN
RX-0999	C						WITHDRAWN
RX-1000	C						WITHDRAWN
RX-1001	C						WITHDRAWN
RX-1002	C	Design Table, with Certified Translation (Native File)	SEMCO00154903	SEMCO00155203	Technical background; non-infringement	Youn; Lee, B.H.; Kim, S.H.; Randall; Dougherty	7/29/2010
RX-1003	C						WITHDRAWN
RX-1004	C						WITHDRAWN
RX-1005	C						WITHDRAWN
RX-1006	C						WITHDRAWN
RX-1007	C						WITHDRAWN
RX-1008	C						WITHDRAWN
RX-1009	C						WITHDRAWN
RX-1010	C						WITHDRAWN
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RX-1014	C						WITHDRAWN
RX-1015	C						WITHDRAWN
RX-1016	C						WITHDRAWN
RX-1017	C						WITHDRAWN
RX-1018	C						WITHDRAWN
RX-1019	C						WITHDRAWN
RX-1020	C						WITHDRAWN

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RX-1021	C						WITHDRAWN
RX-1022	C						WITHDRAWN
RX-1023	C						WITHDRAWN
RX-1024	C						WITHDRAWN
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RX-1050	C						WITHDRAWN
RX-1051	C						WITHDRAWN
RX-1052							WITHDRAWN

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RX-1054							WITHDRAWN
RX-1055	C						WITHDRAWN
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RX-1057							WITHDRAWN
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RX-1080							WITHDRAWN
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RX-1082							WITHDRAWN
RX-1083	C						WITHDRAWN
RX-1084							WITHDRAWN

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RX-1087							WITHDRAWN
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RX-1115	C						WITHDRAWN
RX-1116	C						WITHDRAWN

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RX-1121	C						WITHDRAWN
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RX-1125	C						WITHDRAWN
RX-1126							WITHDRAWN
RX-1127	C						WITHDRAWN
RX-1128	C						WITHDRAWN
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RX-1147	C						WITHDRAWN
RX-1148	C						WITHDRAWN

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RX-1168							WITHDRAWN
RX-1169							WITHDRAWN
RX-1170	C						WITHDRAWN
RX-1171	C						WITHDRAWN
RX-1172	C						WITHDRAWN
RX-1173	C						WITHDRAWN
RX-1174	C						WITHDRAWN
RX-1175							WITHDRAWN
RX-1176	C						WITHDRAWN
RX-1177							WITHDRAWN
RX-1178	C						WITHDRAWN
RX-1179	C						WITHDRAWN
RX-1180	C						WITHDRAWN

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Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-1181	C						WITHDRAWN
RX-1182	C						WITHDRAWN
RX-1183	C						WITHDRAWN
RX-1184	C						WITHDRAWN
RX-1185	C						WITHDRAWN
RX-1186	C						WITHDRAWN
RX-1187	C						WITHDRAWN
RX-1188	C						WITHDRAWN
RX-1189							WITHDRAWN
RX-1190	C						WITHDRAWN
RX-1191	C						WITHDRAWN
RX-1192	C						WITHDRAWN
RX-1193							WITHDRAWN
RX-1194	C						WITHDRAWN
RX-1195							WITHDRAWN
RX-1196	C						WITHDRAWN
RX-1197							WITHDRAWN
RX-1198							WITHDRAWN
RX-1199							WITHDRAWN
RX-1200	C						WITHDRAWN
RX-1201							WITHDRAWN
RX-1202	C						WITHDRAWN
RX-1203							WITHDRAWN
RX-1204	C						WITHDRAWN
RX-1205	C						WITHDRAWN
RX-1206							WITHDRAWN
RX-1207							WITHDRAWN
RX-1208							WITHDRAWN
RX-1209							WITHDRAWN
RX-1210	C						WITHDRAWN
RX-1211							WITHDRAWN
RX-1212	C						WITHDRAWN

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Respondents Final Exhibit List
Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692
DIRECT EXHIBITS LIST

RX-1213							WITHDRAWN
RX-1214							WITHDRAWN
RX-1215	C						WITHDRAWN
RX-1216							WITHDRAWN
RX-1217	C						WITHDRAWN
RX-1218							WITHDRAWN
RX-1219							WITHDRAWN
RX-1220							WITHDRAWN
RX-1221	C						WITHDRAWN
RX-1222							WITHDRAWN
RX-1223	C						WITHDRAWN
RX-1224	C						WITHDRAWN
RX-1225	C						WITHDRAWN
RX-1226	C						WITHDRAWN
RX-1227	C						WITHDRAWN
RX-1228	C						WITHDRAWN
RX-1229	C						WITHDRAWN
RX-1230	C						WITHDRAWN
RX-1231	C	FN8001	MM_301722	MM_301722	Claim construction, non-infringement, invalidity	Sano, Dougherty, Murata witness	7/28/2010
RX-1232							WITHDRAWN
RX-1233							WITHDRAWN
RX-1234	C						WITHDRAWN
RX-1235	C	IBM Low Inductance Tab Capacitor Vendor Development Program, February 1981	IBM 000001	IBM 000026	invalidity, claim construction, non-infringement, unenforceability	Barrese, Randall, IBM representative	Rejected
RX-1236							WITHDRAWN

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RX-1237	C	Low Inductance Thick Film Capacitor Status Updated, March 4, 1981	IBM 000067	IBM 000074	invalidity, claim construction, non-infringement, unenforceability	Barrese, Randall, IBM representative	Rejected
RX-1238	C	Manufacturing Electrical Test Requirements Specification for MLC C-4 LICA Capacitor Assembly	IBM 000075	IBM 000101	invalidity, claim construction, non-infringement, unenforceability	Barrese, Randall, IBM representative	Rejected
RX-1239	C	MLC Capacitor Shipped Product Quality Level (SPQL)	IBM 000041	IBM 000044	invalidity, claim construction, non-infringement, unenforceability	Barrese, Randall, IBM representative	Rejected
RX-1240	C	Multilayer Ceramic (MLC) Capacitor Subassembly Requirements	IBM 000045	IBM 000066	invalidity, claim construction, non-infringement, unenforceability	Barrese, Randall, IBM representative	Rejected
RX-1241	C	Multilayer Ceramic Capacitor Group B and C Specification	IBM 000027	IBM 000040	invalidity, claim construction, non-infringement, unenforceability	Barrese, Randall, IBM representative	Rejected
RX-1242	C						WITHDRAWN
RX-1243	C						WITHDRAWN
RX-1244	INTENTIONALLY LEFT BLANK						
RX-1245	INTENTIONALLY LEFT BLANK						
RX-1246	INTENTIONALLY LEFT BLANK						
RX-1247	INTENTIONALLY LEFT BLANK						
RX-1248	INTENTIONALLY LEFT BLANK						
RX-1249	INTENTIONALLY LEFT BLANK						
RX-1250							WITHDRAWN
RX-1251							WITHDRAWN
RX-1252	C						WITHDRAWN
RX-1253	C						WITHDRAWN

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Respondents Final Exhibit List

Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-1254							WITHDRAWN
RX-1255	C						WITHDRAWN
RX-1256	C						WITHDRAWN
RX-1257	C						WITHDRAWN
RX-1258							WITHDRAWN
RX-1259	INTENTIONALLY LEFT BLANK (Duplicate of JX-18)						
RX-1260							WITHDRAWN
RX-1261	C						WITHDRAWN
RX-1262							WITHDRAWN
RX-1263	C						WITHDRAWN
RX-1264	C						WITHDRAWN
RX-1265	C						WITHDRAWN
RX-1266	C						WITHDRAWN
RX-1267	C						WITHDRAWN
RX-1268	C						WITHDRAWN
RX-1269	C						WITHDRAWN
RX-1270	C						WITHDRAWN
RX-1271	C						WITHDRAWN
RX-1272	C						WITHDRAWN
RX-1273	C						WITHDRAWN
RX-1274	C						WITHDRAWN
RX-1275	C						WITHDRAWN
RX-1276	C						WITHDRAWN
RX-1277	C						WITHDRAWN
RX-1278	C						WITHDRAWN
RX-1279	C						WITHDRAWN
RX-1280	C						WITHDRAWN
RX-1281	C						WITHDRAWN
RX-1282	C						WITHDRAWN
RX-1283	C						WITHDRAWN
RX-1284	C						WITHDRAWN
RX-1285	C						WITHDRAWN

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Certain Ceramic Capacitors and Products Containing the Same , Inv. No. 337-TA-692

DIRECT EXHIBITS LIST

RX-1286	C						WITHDRAWN
RX-1287	C						WITHDRAWN
RX-1288	C						WITHDRAWN
RX-1289	C						WITHDRAWN
RX-1290	C						WITHDRAWN
RX-1291	C						WITHDRAWN
RX-1292	C						WITHDRAWN
RX-1293	C						WITHDRAWN
RX-1294	C						WITHDRAWN
RX-1295	C						WITHDRAWN
RX-1296	C						WITHDRAWN
RX-1297	C						WITHDRAWN
RX-1298	C						WITHDRAWN
RX-1299	C						WITHDRAWN
RX-1300	C						WITHDRAWN
RX-1301	C						WITHDRAWN
RX-1302	C	XIA formula standard	MM_301588	MM_301588	Invalidity, claim construction, non-infringement	Sano, Dougherty, Murata witness	7/28/2010
RX-1303	C	XIA inspection report	MM_301580	MM_301580	Invalidity, claim construction, non-infringement	Sano, Dougherty, Murata witness	7/28/2010
RX-1304	C	XMA formula standard	MM_301599	MM_301599	Invalidity, claim construction, non-infringement	Sano, Dougherty, Murata witness	7/28/2010
RX-1305	C	XMA inspection report	MM_301590	MM_301590	Invalidity, claim construction, non-infringement	Sano, Dougherty, Murata witness	7/28/2010
RX-1306	C	XVA formula standard	MM_301610	MM_301610	Invalidity, claim construction, non-infringement	Sano, Dougherty, Murata witness	7/28/2010

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DIRECT EXHIBITS LIST

RX-1307	C	XVA inspection report	MM_301601	MM_301601	Invalidity, claim construction, non-infringement	Sano, Dougherty, Murata witness	7/28/2010
RX-1308	C	Deposition Transcript for Masaaki Taniguchi, March 26, 2010	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability		7/27/2010
RX-1309	C						WITHDRAWN
RX-1310	C						WITHDRAWN
RX-1311	C						WITHDRAWN
RX-1312	C						WITHDRAWN
RX-1313	C						WITHDRAWN
RX-1314	C						WITHDRAWN
RX-1315	C						WITHDRAWN
RX-1316	C						WITHDRAWN
RX-1317	C						WITHDRAWN
RX-1318	C						WITHDRAWN
RX-1319	C						WITHDRAWN
RX-1320	C						WITHDRAWN
RX-1321	C						WITHDRAWN
RX-1322	C						WITHDRAWN
RX-1323	C						WITHDRAWN
RX-1324	C						WITHDRAWN
RX-1325	C						WITHDRAWN
RX-1326	C						WITHDRAWN
RX-1327	C						WITHDRAWN
RX-1328	C						WITHDRAWN
RX-1329	C						WITHDRAWN
RX-1330	C						WITHDRAWN
RX-1331	C						WITHDRAWN

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Respondents Final Exhibit List
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DIRECT EXHIBITS LIST

Exhibit No.	Color	Description	Beg Bates No.	Ended Bates No.	Purpose	Sponsoring Witness	Status of Receipt into Evidence
RX-1332	C	Deposition Transcript of Andreas Glaeser, taken July 12, 2010	n/a	n/a	invalidity; non-infringement; claim construction; unenforceability	Dougherty	7/27/2010
RX-1333		Murata Semiannual Report For the Six Months Ended September 30, 2004				Yoshino	7/28/2010
RX-1334		U.S. Patent Application Publication, Pub. No. US 2009/0237859 A1 (Sept. 24, 2009)				Yoshino	7/28/2010
RX-1335		Interview with Mr. Yasutaka Murata, President, Murata Manufacturing Company, Ltd., "Will Secure Production in Japan through Integration of Technologies," in Japanese and with certified translation				Yoshino	7/28/2010
RX-1336		EAG Web Print-out, Transmission Electron Microscopy and Scanning Transmission Electron Microscopy				Burn	7/28/2010
RX-1337		Technical Specification ISO/TS 16949, Third Edition 2009-06-15				McHargue	7/28/2010
RX-1338	C	Exhibit 2 to Vol. II of Deposition of Yoshio Kawaguchi (May 11, 2010 Deposition)				Kawaguchi	7/28/2010
RX-1339	C	Ex. 4, Youn Dep. 3-16-2010				Youn	7/30/2010

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Certain Ceramic Capacitors, Inv. No. 337-TA-692
REBUTTAL EXHIBITS LIST

RRX-001	C							Withdrawn
RRX-002								Withdrawn
RRX-003								Withdrawn
RRX-004								Withdrawn
RRX-005								Withdrawn
RRX-006								Withdrawn
RRX-007								Withdrawn
RRX-008								Withdrawn
RRX-009								Withdrawn
RRX-010								Withdrawn
RRX-011								Withdrawn
RRX-012								Withdrawn
RRX-013								Withdrawn
RRX-014								Withdrawn
RRX-015								Withdrawn
RRX-016								Withdrawn
RRX-017								Withdrawn
RRX-018								Withdrawn
RRX-019								Withdrawn
RRX-020								Withdrawn
RRX-021								Withdrawn
RRX-022								Withdrawn
RRX-023								Withdrawn
RRX-024								Withdrawn
RRX-025								Withdrawn
RRX-026								Withdrawn
RRX-027								Withdrawn
RRX-028								Withdrawn
RRX-029								Withdrawn
RRX-030								Withdrawn
RRX-031								Withdrawn

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REBUTTAL EXHIBITS LIST

RRX-032		Dielectric Properties of Fine-Grained BaTiO3 Ceramics Doped with CaO - paper authored by Sakabe (JJAP, vol.41 No.11B (2002) pp.6922-6925)	SEMCO02283414	SEMCO02283417	Burn, Dougherty, Sang Hyuk Kim	Obviousness; Independent Development; Invalidity	CX-26C	7/30/2010
RRX-033	C							Withdrawn
RRX-034	C							Withdrawn
RRX-035	C							Withdrawn
RRX-036	C							Withdrawn
RRX-037	C							Withdrawn
RRX-038	C							Withdrawn
RRX-039	C							Withdrawn
RRX-040	C							Withdrawn
RRX-041	C							Withdrawn
RRX-042	C							Withdrawn
RRX-043	C							Withdrawn
RRX-044	C							Withdrawn
RRX-045	C							Withdrawn
RRX-046	C							Withdrawn
RRX-047	C							Withdrawn
RRX-048	C							Withdrawn
RRX-049	C							Withdrawn
RRX-050	C							Withdrawn
RRX-051	C							Withdrawn
RRX-052	C							Withdrawn
RRX-053	C							Withdrawn
RRX-054	C							Withdrawn
RRX-055	C							Withdrawn
RRX-056	C							Withdrawn
RRX-057	C							Withdrawn
RRX-058	C							Withdrawn
RRX-059	C							Withdrawn

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Certain Ceramic Capacitors, Inv. No. 337-TA-692
REBUTTAL EXHIBITS LIST

RRX-060	C							Withdrawn
RRX-061	C							Withdrawn
RRX-062	C							Withdrawn
RRX-063	C							Withdrawn
RRX-064	C							Withdrawn
RRX-065	C							Withdrawn
RRX-066	C							Withdrawn
RRX-067	C							Withdrawn
RRX-068	C							Withdrawn
RRX-069	C							Withdrawn
RRX-070	C							Withdrawn
RRX-071	C							Withdrawn
RRX-072	C							Withdrawn
RRX-073	C							Withdrawn
RRX-074	C							Withdrawn
RRX-075	C							Withdrawn
RRX-076								Withdrawn
RRX-077								Withdrawn
RRX-078								Withdrawn
RRX-079								Withdrawn
RRX-080	C							Withdrawn
RRX-081	C							Withdrawn
RRX-082	C							Withdrawn
RRX-083	C							Withdrawn
RRX-084	C							Withdrawn
RRX-085								Withdrawn
RRX-086								Withdrawn
RRX-087								Withdrawn
RRX-088								Withdrawn
RRX-089	C							Withdrawn
RRX-090	C							Withdrawn
RRX-091	C							Withdrawn

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REBUTTAL EXHIBITS LIST

RRX-092	C							Withdrawn
RRX-093	C							Withdrawn
RRX-094	C							Withdrawn
RRX-095	C							Withdrawn
RRX-096	C							Withdrawn
RRX-097		Intentionally left blank						
RRX-098	C							Withdrawn
RRX-099	C							Withdrawn
RRX-100	C							Withdrawn
RRX-101	C							Withdrawn
RRX-102	C							Withdrawn
RRX-103	C							Withdrawn
RRX-104	C							Withdrawn
RRX-105	C							Withdrawn
RRX-106	C							Withdrawn
RRX-107	C							Withdrawn
RRX-108	C							Withdrawn
RRX-109	C							Withdrawn
RRX-110	C							Withdrawn
RRX-111	C							Withdrawn
RRX-112	C							Withdrawn
RRX-113		Rare Earth Additions to BaTiO3, by K. Takada, E. Chang, and D. M. Smyth from Advances in Ceramics Vol. 19, Proceedings of the Electronics Division Fall Meeting, The American Ceramic Society, October 13-16, 1985, Orlando, Florida	n/a	n/a	Burn, Dougherty, Sang Hyuk Kim	Independent development; Industry practice; Obviousness; Invalidity	CX-140C; CX-19C; CX-207C; CX-208C; CX-209C; CX-20C; CX-210C; CX-211C; CX-212C; CX-213C; CX-21C; CX-22C; CX-23C; CX-24C; CX-25C; CX-26C; CX-324C; CX-325C; CX-344C; CX-345C; CX-346C; CX-347C; CX-348C; CX-349C; CX-38C;	7/28/2010

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Certain Ceramic Capacitors, Inv. No. 337-TA-692
REBUTTAL EXHIBITS LIST

RRX-114								Withdrawn
RRX-115								Withdrawn
RRX-116								Withdrawn
RRX-117								Withdrawn
RRX-118								Withdrawn
RRX-119								Withdrawn
RRX-120								Withdrawn
RRX-121								Withdrawn
RRX-122								Withdrawn
RRX-123								Withdrawn
RRX-124								Withdrawn
RRX-125								Withdrawn
RRX-126								Withdrawn
RRX-127								Withdrawn
RRX-128								Withdrawn
RRX-129								Withdrawn
RRX-130								Withdrawn
RRX-131								Withdrawn
RRX-132								Withdrawn
RRX-133	C							Withdrawn
RRX-134	C							Withdrawn
RRX-135	C							7/30/2010
RRX-136								Withdrawn
RRX-137								Withdrawn
RRX-138								Withdrawn
RRX-139								Withdrawn
RRX-140	C							Withdrawn
RRX-141	C							Withdrawn
RRX-142	C							Withdrawn
RRX-143								Withdrawn
RRX-144	C							Withdrawn
RRX-145								Withdrawn

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Certain Ceramic Capacitors, Inv. No. 337-TA-692
REBUTTAL EXHIBITS LIST

RRX-146	C							Withdrawn
RRX-147	C							Withdrawn
RRX-148								Withdrawn
RRX-149								Withdrawn
RRX-150	C							Withdrawn
~~RRX-151~~	~~C~~							Withdrawn

RPX-01	C	Physical equipment and components thereof contained in AVX IDCs that are the subject of Randall '229 Opening Expert Report Exhibit 9 DPA Mount Sample #16: AVX IDC MLCC Analysis for '229 (W2L14Z225MAT1S)	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-02	C	Physical equipment and components thereof contained in AVX IDCs that are the subject of Randall '229 Opening Expert Report Exhibit 6 DPA Mount Sample #13: AVX IDC MLCC Analysis for '229 (W3L12C224MAT1A)	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-03	C	Physical equipment and components thereof contained in AVX IDCs that are the subject of Randall '229 Opening Expert Report Exhibit 7 DPA Mount Sample #14: AVX IDC MLCC Analysis for '229 (W3L1YC105MAT1A)	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-04	C						Withdrawn
RPX-05	C						Withdrawn

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Certain Ceramic Capacitors, Inv. No. 337-TA-692
PHYSICAL EXHIBITS LIST

RPX-06	C	Physical equipment and components thereof contained in IBM AS 400 Server that is the subject of Randall '229 Opening Expert Report Exhibit 3 DPA Mount Sample #70: AVX LICA (Low Inductance Capacitor Array) for '229	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-07	C	Physical equipment and components thereof contained in IBM AS 400 Server that is the subject of Randall '229 Opening Expert Report Exhibit 4 DPA Mount Sample #69: AVX LICA (Low Inductance Capacitor Array) for '229	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-08	C	Physical equipment and components thereof contained in IBM AS 400 Server that is the subject of Randall '229 Opening Expert Report Exhibit 5 DPA Mount Sample #20: AVX LICA (Low Inductance Capacitor Array) for '229	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-09	C						Withdrawn

RPX-10	C	Physical equipment and components thereof contained in MacIntosh PowerBook computer that is the subject of Randall '309 Opening Expert Report Exhibit 4 DPA Mount Sample # 162: 1206 2.2 uF Capacitor from Apple PowerBook 1400C And Sample #163: 1206 2.2 uF Capacitor from Apple PowerBook 1400C for '309	n/a	n/a	invalidity, claim construction, non-infringement, unenforceability	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-11	C						Withdrawn
RPX-12	C						Withdrawn
RPX-13	C	Physical equipment and components thereof contained in Toshiba Portege computer that is the subject of Randall '309 Opening Expert Report Exhibit 3 DPA Mount Sample # 168: 1206 2.2 uF Capacitors from Toshiba Portege 660CDT #4 and Sample #173: 1206 2.2 uF Capacitors from Toshiba Portege 660CDT #9 for '309	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	Rejected
RPX-14	C						Withdrawn
RPX-15	C	Physical samples of the Murata deNeuf parts analyzed by Dr. Randall	n/a	n/a	Invalidity	Randall; Dougherty; Kim, S.H.; Lee, B.H.; Youn	7/30/2010

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PHYSICAL EXHIBITS LIST

RPX-16	C						Withdrawn
RPX-17	C						Withdrawn
RPX-18	C						Withdrawn
RPX-19	C						Withdrawn
RPX-20	C						Withdrawn
RPX-21	C						Withdrawn
RPX-22	C						Withdrawn
RPX-23	C						Withdrawn

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DEMONSTRATIVE EXHIBITS LIST

RDX-186	CBI					Kubodera	7/27/2010
RDX-220	CBI					Randall	7/28/2010
RDX-221	CBI					Randall	7/28/2010
RDX-222	CBI					Randall	7/28/2010
RDX-223	CBI					Randall	7/28/2010
RDX-224	CBI					Randall	7/28/2010
RDX-225	CBI					Randall	7/28/2010
RDX-003	CBI	Demonstratives to be used during opening statement			background, claim construction, validity, infringement, domestic industry, unenforceability	Youn, Kim, Dougherty, Randall, Lee	7/29/2010
RDX-007	CBI					Youn	7/29/2010
RDX-011	CBI					Youn	7/29/2010
RDX-072	CBI					Randall	7/29/2010
RDX-073	CBI					Randall	7/29/2010
RDX-074	CBI					Randall	7/29/2010
RDX-195	CBI					Dougherty	7/30/2010
RDX-196	CBI					Dougherty	7/30/2010
RDX-197	CBI					Dougherty	7/30/2010
RDX-206	CBI					Dougherty	7/30/2010
RDX-001	CBI						Withdrawn
RDX-002	CBI						Withdrawn
RDX-004	CBI						Withdrawn
RDX-005	CBI						Withdrawn
RDX-168	CBI						Withdrawn
RDX-169	CBI						Withdrawn
RDX-185	CBI						Withdrawn
RDX-187	CBI						Withdrawn
RDX-188	CBI						Withdrawn
RDX-226	CBI						Withdrawn
RDX-099						Randall	7/28/2010
RDX-170						Ulrich	7/28/2010
RDX-171						Ulrich	7/28/2010
RDX-172						Ulrich	7/28/2010
RDX-173						Ulrich	7/28/2010

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RDX-175						Ulrich	7/28/2010
RDX-176						Ulrich	7/28/2010
RDX-177						Ulrich	7/28/2010
RDX-178						Ulrich	7/28/2010
RDX-179						Ulrich	7/28/2010
RDX-180						Ulrich	7/28/2010
RDX-181						Ulrich	7/28/2010
RDX-184						Ulrich	7/28/2010
RDX-232						Randall	7/28/2010
RDX-006						Youn	7/29/2010
RDX-008						Randall	7/29/2010
RDX-009						Randall	7/29/2010
RDX-010						Randall	7/29/2010
RDX-012						Randall	7/29/2010
RDX-013						Randall	7/29/2010
RDX-014						Randall	7/29/2010
RDX-015						Randall	7/29/2010
RDX-016						Randall	7/29/2010
RDX-017						Randall	7/29/2010
RDX-018						Randall	7/29/2010
RDX-020						Randall	7/29/2010
RDX-021						Randall	7/29/2010
RDX-022						Randall	7/29/2010
RDX-023						Randall	7/29/2010
RDX-026						Randall	7/29/2010
RDX-027						Randall	7/29/2010
RDX-028						Randall	7/29/2010
RDX-029						Randall	7/29/2010
RDX-030						Randall	7/29/2010
RDX-031						Randall	7/29/2010
RDX-032						Randall	7/29/2010
RDX-033						Randall	7/29/2010
RDX-034						Randall	7/29/2010
RDX-035						Randall	7/29/2010
RDX-036						Randall	7/29/2010
RDX-037						Randall	7/29/2010

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RDX-038						Randall	7/29/2010
RDX-039						Randall	7/29/2010
RDX-040						Randall	7/29/2010
RDX-041						Randall	7/29/2010
RDX-042						Randall	7/29/2010
RDX-043						Randall	7/29/2010
RDX-044						Randall	7/29/2010
RDX-045						Randall	7/29/2010
RDX-046						Randall	7/29/2010
RDX-047						Randall	7/29/2010
RDX-048						Randall	7/29/2010
RDX-049						Randall	7/29/2010
RDX-050						Randall	7/29/2010
RDX-051						Randall	7/29/2010
RDX-052						Randall	7/29/2010
RDX-053						Randall	7/29/2010
RDX-054						Randall	7/29/2010
RDX-055						Randall	7/29/2010
RDX-056						Randall	7/29/2010
RDX-057						Randall	7/29/2010
RDX-058						Randall	7/29/2010
RDX-059						Randall	7/29/2010
RDX-060						Randall	7/29/2010
RDX-061						Randall	7/29/2010
RDX-062						Randall	7/29/2010
RDX-063						Randall	7/29/2010
RDX-064						Randall	7/29/2010
RDX-065						Randall	7/29/2010
RDX-066						Randall	7/29/2010
RDX-067						Randall	7/29/2010
RDX-068						Randall	7/29/2010
RDX-070						Randall	7/29/2010
RDX-071						Randall	7/29/2010
RDX-076						Randall	7/29/2010
RDX-077						Randall	7/29/2010
RDX-078						Randall	7/29/2010

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RDX-079						Randall	7/29/2010
RDX-080						Randall	7/29/2010
RDX-082						Randall	7/29/2010
RDX-083						Randall	7/29/2010
RDX-084						Randall	7/29/2010
RDX-085						Randall	7/29/2010
RDX-086						Randall	7/29/2010
RDX-087						Randall	7/29/2010
RDX-088						Randall	7/29/2010
RDX-089						Randall	7/29/2010
RDX-090						Randall	7/29/2010
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RDX-092						Randall	7/29/2010
RDX-093						Randall	7/29/2010
RDX-094						Randall	7/29/2010
RDX-095						Randall	7/29/2010
RDX-096						Randall	7/29/2010
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RDX-098						Randall	7/29/2010
RDX-100						Randall	7/29/2010
RDX-101						Randall	7/29/2010
RDX-102						Randall	7/29/2010
RDX-104						Randall	7/29/2010
RDX-105						Randall	7/29/2010
RDX-106						Randall	7/29/2010
RDX-109						Randall	7/29/2010
RDX-114						Randall	7/29/2010
RDX-115						Randall	7/29/2010
RDX-116						Randall	7/29/2010
RDX-122						Randall	7/29/2010
RDX-123						Randall	7/29/2010
RDX-124						Randall	7/29/2010
RDX-127						Randall	7/29/2010
RDX-128						Randall	7/29/2010
RDX-129						Randall	7/29/2010
RDX-130						Randall	7/29/2010

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RDX-131						Randall	7/29/2010
RDX-132						Randall	7/29/2010
RDX-134						Randall	7/29/2010
RDX-135						Randall	7/29/2010
RDX-148						Randall	7/29/2010
RDX-149						Randall	7/29/2010
RDX-150						Randall	7/29/2010
RDX-151						Randall	7/29/2010
RDX-152						Randall	7/29/2010
RDX-153						Randall	7/29/2010
RDX-154						Randall	7/29/2010
RDX-155						Randall	7/29/2010
RDX-156						Randall	7/29/2010
RDX-157						Randall	7/29/2010
RDX-158						Randall	7/29/2010
RDX-159						Randall	7/29/2010
RDX-160						Randall	7/29/2010
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RDX-162						Randall	7/29/2010
RDX-163						Randall	7/29/2010
RDX-164						Randall	7/29/2010
RDX-165						Randall	7/29/2010
RDX-166						Randall	7/29/2010
RDX-167						Randall	7/29/2010
RDX-190						Dougherty	7/30/2010
RDX-191						Dougherty	7/30/2010
RDX-192						Dougherty	7/30/2010
RDX-193						Dougherty	7/30/2010
RDX-194						Dougherty	7/30/2010
RDX-198						Dougherty	7/30/2010
RDX-199						Dougherty	7/30/2010
RDX-200						Dougherty	7/30/2010
RDX-201						Dougherty	7/30/2010
RDX-202						Dougherty	7/30/2010
RDX-203						Dougherty	7/30/2010
RDX-204						Dougherty	7/30/2010

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Certain Ceramic Capacitors, Inv. No. 337-TA-692
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RDX-205						Dougherty	7/30/2010
RDX-207						Dougherty	7/30/2010
RDX-208						Dougherty	7/30/2010
RDX-209						Dougherty	7/30/2010
RDX-210						Dougherty	7/30/2010
RDX-211						Dougherty	7/30/2010
RDX-212						Dougherty	7/30/2010
RDX-213						Dougherty	7/30/2010
RDX-214						Dougherty	7/30/2010
RDX-215						Dougherty	7/30/2010
RDX-216						Dougherty	7/30/2010
RDX-024							Withdrawn
RDX-025							Withdrawn
RDX-069							Withdrawn
RDX-075							Withdrawn
RDX-081							Withdrawn
RDX-103							Withdrawn
RDX-107							Withdrawn
RDX-108							Withdrawn
RDX-109							Withdrawn
RDX-110							Withdrawn
RDX-111							Withdrawn
RDX-112							Withdrawn
RDX-113							Withdrawn
RDX-117							Withdrawn
RDX-118							Withdrawn
RDX-119							Withdrawn
RDX-120							Withdrawn
RDX-121							Withdrawn
RDX-125							Withdrawn
RDX-128							Withdrawn
RDX-133							Withdrawn
RDX-136							Withdrawn
RDX-137							Withdrawn
RDX-138							Withdrawn

Respondents' Final Exhibit List
Certain Ceramic Capacitors, Inv. No. 337-TA-692
DEMONSTRATIVE EXHIBITS LIST

RDX-139							Withdrawn
RDX-140							Withdrawn
RDX-141							Withdrawn
RDX-142							Withdrawn
RDX-143							Withdrawn
RDX-144							Withdrawn
RDX-145							Withdrawn
RDX-146							Withdrawn
RDX-147							Withdrawn
RDX-174							Withdrawn
RDX-182							Withdrawn
RDX-183							Withdrawn
RDX-189							Withdrawn
RDX-217							Withdrawn
RDX-218							Withdrawn
RDX-219							Withdrawn
RDX-227							Withdrawn
RDX-228							Withdrawn
RDX-229							Withdrawn
RDX-230							Withdrawn
RDX-231							Withdrawn
RDX-233							Withdrawn
RDX-234							Withdrawn
RDX-235							Withdrawn
RDX-236							Withdrawn
RDX-237							Withdrawn
RDX-238							Withdrawn
RDX-239							Withdrawn

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable E. James Gildea
Administrative Law Judge

IN THE MATTER OF **CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME**	**Investigation No. 337-TA-692**

CORRECTED FINAL JOINT EXHIBIT LIST

In accordance with Order No. 55, Complainants Murata Manufacturing Co., Ltd. and Murata Electronics North America, Inc. (collectively, "Murata") and Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc. (collectively, "SEMCO") hereby submit the following Corrected Final Joint Exhibit List.

JX No.	BEGINNING BATES	ENDING BATES	DATE	DESCRIPTION	SPONSORING WITNESS	PURPOSE	Admitted/ Withdrawn/ Rejected
JX-1	Exh. 1 to Complaint		8/5/2009	Certified copy of the U.S. Patent No. 6,266,229 (Naito)	Tahara, Randall	Patent-in-suit	**Admitted**
JX-2	Exh. 2 to Complaint		8/5/2009	Certified copy of the U.S. Patent No. 6,014,309 (Ueno)	Tahara, Randall	Patent-in-suit	**Admitted**
JX-3	Exh. 3 to Complaint		8/5/2009	Certified copy of the U.S. Patent No. 6,377,439 (Sekidou)	Tahara, Randall	Patent-in-suit	**Withdrawn**
JX-4	Exh. 4 to Complaint		8/5/2009	Certified copy of the U.S. Patent No. 6,243,254 (Wada)	Tahara, Dougherty	Patent-in-suit	**Admitted**
JX-5	Exh. 5 to Complaint		8/20/2009	Certified copy of the Assignment of App. No. 09-501084 ('229)	Tahara	Establishes Complainant's ownership of patent-in-suit	**Admitted**
JX-6	Exh. 6 to Complaint		8/20/2009	Certified copy of the Assignment of App. No. 09-075668 ('309)	Tahara	Establishes Complainant's ownership of patent-in-suit	**Admitted**
JX-7	Exh. 7 to Complaint		8/20/2009	Certified copy of the Assignment of App. No. 09-615551 ('439)	Tahara	Establishes Complainant's ownership of patent-in-suit	**Withdrawn**
JX-8	Exh. 8 to Complaint		8/20/2009	Certified copy of the Assignment of App. No. 09-369988 ('254)	Tahara	Establishes Complainant's ownership of patent-in-suit	**Admitted**
JX-9	MM_000001	MM_000555	8/24/2009	Certified copy of the File History of the '229 Patent	Tahara, Randall	Intrinsic evidence re claim construction	**Admitted**
JX-10	MM_000556	MM_000719	8/11/2009	Certified copy of the File History of the '309 Patent	Tahara, Randall	Intrinsic evidence re claim construction	**Admitted**
JX-11	MM_000720	MM_000844	8/11/2009	Certified copy of the File History of the '439 Patent	Tahara, Randall	Intrinsic evidence re claim construction	**Withdrawn**
JX-12	MM_000845	MM_001244	8/15/2009	Certified copy of the File History of the '254 Patent	Tahara, Dougherty	Intrinsic evidence re claim construction	**Admitted**

JX No.	BEGINNING BATES	ENDING BATES	DATE	DESCRIPTION	SPONSORING WITNESS	PURPOSE	Admitted/ Withdrawn/ Rejected
JX-13	SEMCO000568646 SEMCO00080017	SEMCO00568663 SEMCO00080049	5/9/1997	JP H9-135823 (priority application for '309 patent) Prosecution History, translation and certification	Ulrich, Randall	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability; Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
JX-14	SEMCO00566457	SEMCO00566471	2/8/2002	Murata's Response to 2/8/2002 Notification of Reasons for Rejection for JP 10-227202	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**
JX-15	SEMCO00566477	SEMCO00566487	11/19/2002	Murata's Response to 11/19/2002 Notification of Reasons for Rejection for JP 10-227203	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**
JX-16	SEMCO00566447	SEMCO00566451	2/8/2002	Notification of Reasons for Rejection for JP 10-227202	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**
JX-17	SEMCO00566472	SEMCO00566476	11/19/2002	Notification of Reasons for Rejection for JP 10-227203	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**

JX No.	BEGINNING BATES	ENDING BATES	DATE	DESCRIPTION	SPONSORING WITNESS	PURPOSE	Admitted/ Withdrawn/ Rejected
JX-18	SEMCO00566488	SEMCO00566490	8/29/2003	The Japanese Patent Office's Rejection Decision regarding Japanese Patent Application H10-227203	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**
JX-19	SEMCO00566491	SEMCO00566501	2/10/2004	Murata's Response to 8/10/2003 Rejection Decision for 10-2272023	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**
JX-20	SEMCO00566502	SEMCO00566524	5/16/2005	Murata's Response to 8/29/2003 Rejection Decision for 10-227023	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Withdrawn**
JX-21	SEMCO00566423	SEMCO00566446		Japanese Patent No. 3709914 with certified translation	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Enforceability/unenforceability	**Admitted**
JX-22	SEMCO00566408	SEMCO00566422		Japanese Patent No. 3336967, with certified translation	Murata witness, Hamaji, Shibata, Wada, Hiramatsu, Dougherty	Validity/invalidity; claim construction; Infringement/non-infringement; Technical background	**Admitted**

JX No.	BEGINNING BATES	ENDING BATES	DATE	DESCRIPTION	SPONSORING WITNESS	PURPOSE	Admitted/ Withdrawn/ Rejected
JX-23	Exh. 4 to '229 Ulrich Rebuttal Expert Report		12/27/1999	Certified translation of JP 11-370803; priority application for '229 patent (JX-23)	Ulrich, Randall	Validity/invalidity; claim construction; Infringement/non-infringement; Technical background; Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
JX-24			11/10/1997	Certified translation of JP 9-306717; priority application for '229 patent (JX-24)	Ulrich, Randall	Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
JX-25			8/11/1998	Certified translation of JP 10-227202; priority application for '254 patent (JX-25)	Burn, Dougherty	Evidence of priority date as stated on face of patents-in-suit	**Admitted**
JX-26			8/11/1998	Certified translation of JP 10-227203; priority application for '254 patent (JX-26)	Burn, Dougherty	Evidence of priority date as stated on face of patents-in-suit	**Admitted**
JX-27	Exh. 4 to '439 Ulrich Rebuttal Expert Report		7/15/1999	Certified translation of JP 11-202039; priority application for '439 patent (JX-27)	Ulrich, Randall	Evidence of priority date as stated on face of patents-in-suit	**Withdrawn**
JX-28			6/1/2010	Joint Technology Stipulation	N/A	Claim construction, Infringement / Non-infringement, Validity / Invalidity, Enforceability / Un-Enforceability, Domestic Industry Technical prong	**Admitted**

JX No.	BEGINNING BATES	ENDING BATES	DATE	DESCRIPTION	SPONSORING WITNESS	PURPOSE	Admitted/ Withdrawn/ Rejected
JX-29C			6/1/2010	Joint Submission Relating to Representative Products.pdf	N/A	Claim construction, Infringement / Non-infringement, Validity / Invalidity, Enforceability / Un-Enforceability, Domestic Industry Technical prong	**Admitted**

Dated: September 27, 2010

Respectfully submitted,

/s/ Steven J. Routh

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CERTIFICATE OF SERVICE

I, Stephen C. Cruzado, hereby certify that on September 27, 2010, copies of the LETTER TO THE HONORABLE E. JAMES GILDEA ENCLOSING COMPLAINANTS' FINAL CORRECTED EXHIBIT LIST, COMPLAINANTS' EXHIBITS, CX-679C, CX-680C, CX-681, CX-682C, CX-683 and COMPLAINANTS' and RESPONDENTS' FINAL CORRECTED JOINT EXHIBIT LIST and JOINT EXHIBITS, JX-21, JX-22, AND JX-26 were provided to counsel in the manner indicated below:

The Honorable E. James Gildea ADMINISTRATIVE LAW JUDGE U.S. INTERNATIONAL TRADE COMMISSION 500 E. Street, S.W. Room 317-A Washington, DC 20436 **(Via Hand Delivery – 2 copies)**	☐ Via First Class Mail ☒ Via Hand Delivery ☐ Via Overnight Courier ☐ Via Facsimile ☐ Via Electronic Mail
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22772-2001 SYC/SYC

CERTAIN CERAMIC CAPACITORS AND PRODUCTS CONTAINING SAME

Inv. No. 337-TA-692

PUBLIC CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **INITIAL DETERMINATION** has been served by hand upon, the Commission Investigative Attorney, **Aarti Shah, Esq.,** and the following parties as indicated on **January 28, 2011.**

Marilyn R. Abbott

Marilyn R. Abbott
U.S. International Trade Commission
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On Behalf of Respondents Samsung Electro-Mechanics Co., Ltd. and Samsung Electro-Mechanics America, Inc.:

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