

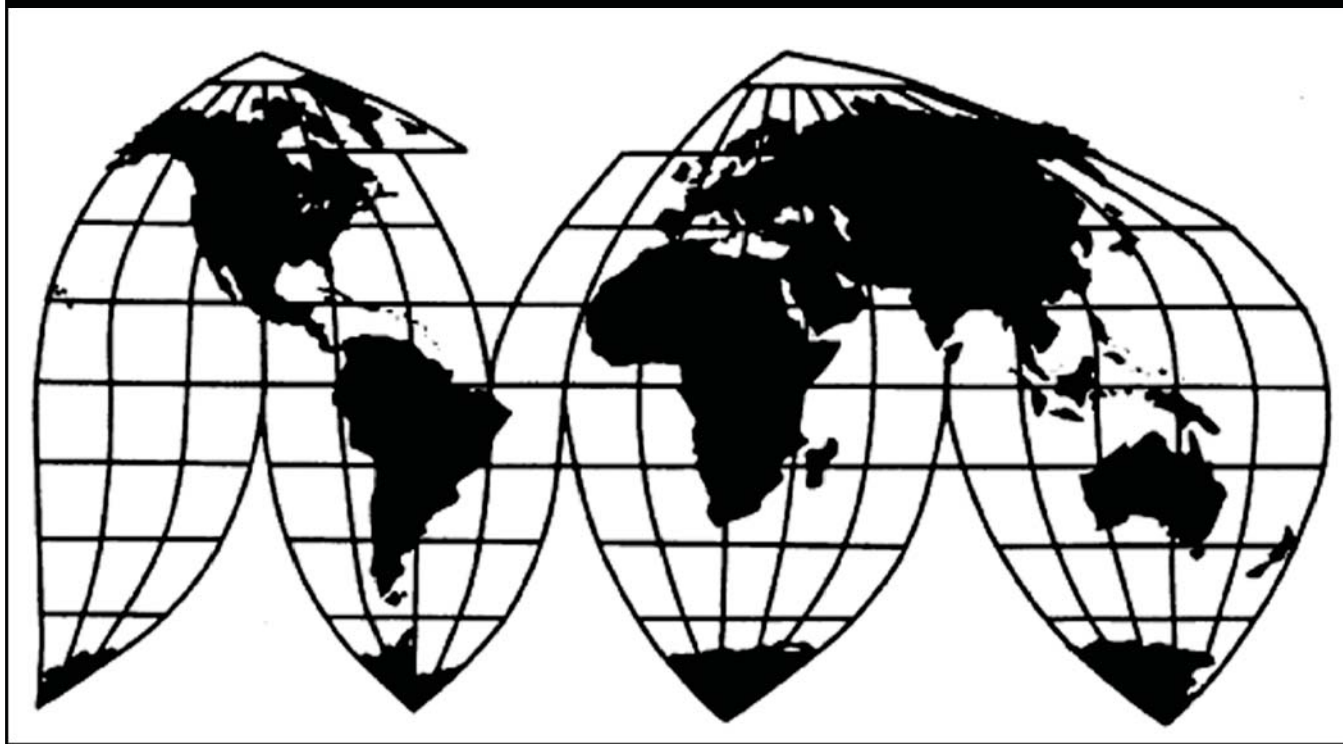
In the Matter of
**Certain Liquid Crystal Display Modules,
Products Containing Same, and
Methods Using the Same**

Investigation No. 337-TA-634

Publication 4187

December 2010

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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**Address all communications to
Secretary to the Commission
United States International Trade Commission
Washington, DC 20436**

U.S. International Trade Commission

Washington, DC 20436
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In the Matter of

**Certain Liquid Crystal Display Modules,
Products Containing Same, and
Methods Using the Same**

Investigation No. 337-TA-634



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

In the Matter of)	
)	
)	Inv. No. 337-TA-634
CERTAIN LIQUID CRYSTAL DISPLAY)	
MODULES, PRODUCTS CONTAINING)	
SAME, AND METHODS USING THE SAME)	

**NOTICE OF COMMISSION DETERMINATION TO RESCIND A LIMITED
EXCLUSION ORDER AND CEASE AND DESIST ORDERS**

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined to rescind the limited exclusion order issued in the above-captioned investigation.

FOR FURTHER INFORMATION CONTACT: Clint A. Gerdine, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-2310. 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 March 4, 2008, based on a complaint filed by Sharp Corporation ("Sharp") of Japan. 73 Fed. Reg. 11678. The complaint, as amended and supplemented, alleged violations of section 337 of the Tariff Act of 1930, as amended, 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 liquid crystal display devices, products containing same, and methods for using the same by reason of infringement of certain claims of U.S. Patent Nos. 6,879,364 ("the '364 patent"); 6,952,192 ("the '192 patent"); 7,304,703 ("the '703 patent"); and 7,304,626 ("the '626 patent"). The complaint further alleged the existence of a domestic industry. The Commission's notice of investigation named the following respondents: Samsung Electronics Co., Ltd. of Korea; Samsung Electronics America, Inc. of Ridgefield Park, New Jersey; and Samsung Semiconductor, Inc. of San Jose, California (collectively, "Samsung").

On June 12, 2009, the presiding administrative law judge (“ALJ”) issued his final initial determination (“ID”) finding a violation of section 337 by Samsung with respect to all four patents at issue and his recommendations on remedy and bonding. On June 29, 2009, Samsung and the Commission investigative attorney (“IA”) filed petitions for review of the final ID. The IA and Sharp filed responses to the petitions on July 7, 2009. On September 9, 2009, the Commission issued notice of its determination not to review the ALJ’s final ID and requested written submissions on the issues of remedy, the public interest, and bonding from the parties and interested non-parties. 74 *Fed. Reg.* 47616-17 (Sept. 16, 2009).

On September 16 and 23, 2009, respectively, complainant Sharp, the Samsung respondents, and the IA filed briefs and reply briefs on the issues for which the Commission requested written submissions. On September 21, 2009, Samsung filed a petition for reconsideration of the Commission’s determination not to review certain portions of the final ID. On October 19, 2009, the Commission issued an order denying the petition for reconsideration.

On October 30, 2009, Samsung filed a supplemental submission on the issues of remedy, the public interest, and bonding. On November 2 and 3, 2009, respectively, Sharp and the IA filed a response to Samsung’s supplemental submission.

On November 9, 2009, the Commission issued notice of its determination to terminate the investigation with a finding of a violation of section 337, and issued: 1) a limited exclusion order prohibiting the unlicensed entry of LCD devices, including display panels and modules, and products containing the same that infringe one or more of (i) claims 5-7 of the ‘364 patent; (ii) claims 1 and 4 of the ‘192 patent; (iii) claims 1-2, 6-8, 13-14, and 16-17 of the ‘703 patent; and (iv) claims 10, 17, and 20 of the ‘626 patent, where the infringing LCD devices are manufactured abroad by or on behalf of, or are imported by or on behalf of, Samsung, or any of its affiliated companies, parents, subsidiaries, licensees, contractors, or other related business entities, or successors or assigns; and 2) cease and desist orders prohibiting Samsung Electronics America, Inc. and Samsung Semiconductor, Inc. from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, LCD devices, including display panels and modules, and products containing the same that infringe one or more of (i) claims 5-7 of the ‘364 patent; (ii) claims 1 and 4 of the ‘192 patent; (iii) claims 1-2, 6-8, 13-14, and 16-17 of the ‘703 patent; and (iv) claims 10, 17, and 20 of the ‘626 patent. 74 *Fed. Reg.* 58978-79 (November 16, 2009).

On February 12, 2010, complainant Sharp and respondent Samsung filed a joint petition to rescind the remedial orders under Commission Rule 210.76(a)(1) on the basis of a settlement agreement between the parties. The parties asserted that their settlement agreement constitutes “changed conditions of fact or law” sufficient to justify rescission of the order under Commission Rule 210.76(a)(1), 19 C.F.R. § 210.76(a)(1). The IA did not oppose the joint petition.

Having reviewed the parties' submissions, the Commission has determined that the settlement agreement satisfies the requirement of Commission Rule 210.76(a)(1), 19 C.F.R. § 210.76(a)(1), that there be changed conditions of fact or law. The Commission therefore has issued an order rescinding the limited exclusion order and cease and desist orders previously issued in this investigation.

This action is taken under the authority of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) and section 210.76(a)(1) of the Commission's Rules of Practice and Procedure (19 C.F.R. § 210.76(a)(1)).

By order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott". The signature is fluid and cursive, with a large initial "M" and a long, sweeping underline.

Marilyn R. Abbott
Secretary to the Commission

Issued: March 1, 2010

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

In the Matter of

CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS USING THE
SAME

Investigation No. 337-TA-634

ORDER

Upon consideration of the joint petition by Complainant Sharp Corporation and Respondents Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. to rescind the Commission's limited exclusion order and cease and desist orders, the Commission hereby **ORDERS** that:

1. The joint petition for rescission of the limited exclusion order and cease and desist orders previously issued in this investigation is *granted*.
2. The Secretary will serve this Order on the parties to this investigation and the Secretary of the Treasury, and publish notice thereof in the *Federal Register*.

By order of the Commission.



Marilyn R. Abbott
Secretary to the Commission


Issued: March 1, 2010

**CERTAIN LIQUID CRYSTAL DISPLAY MODULES,
PRODUCTS CONTAINING SAME, AND METHODS
FOR USING THE SAME**

337-TA-634

CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **NOTICE OF COMMISSION DETERMINATION TO RESCIND A LIMITED EXCLUSION ORDER AND CEASE AND DESIST ORDERS** has been served by hand upon the Commission Investigative Attorney, Brian Moore, Esq., and the following parties as indicated, on March 2, 2010.


Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW
Washington, DC 20436

On Behalf of Complainant Sharp Corporation:

Barry E. Bretschneider, Esq.
MORRISON & FOERSTER LLP
1650 Tysons Boulevard, Suite 400
McLean, VA 22102

Via Hand Delivery
 Via Overnight Mail
 Via First Class Mail
 Other: _____

**On Behalf of Respondents Samsung Electronics Co.,
Ltd.; Samsung Electronics America, Inc.; and,
Samsung Semiconductor, Inc.:**

Joseph V. Colaianni, Jr., Esq.
FISH & RICHARDSON P.C.
1425 K Street, NW, 11th Floor
Washington, DC 20005

Via Hand Delivery
 Via Overnight Mail
 Via First Class Mail
 Other: _____

Government Agency:

Timothy Geithner
Secretary of the Treasury
Department of the Treasury
1500 Pennsylvania Avenue, NW
Washington, D.C. 20220

Via Hand Delivery
 Via Overnight Mail
 Via First Class Mail
 Other: _____

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

In the Matter of

**CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS USING THE
SAME**

Investigation No. 337-TA-634

**FINAL COMMISSION DETERMINATION OF VIOLATION; ISSUANCE OF A
LIMITED EXCLUSION ORDER AND CEASE AND DESIST ORDERS; AND
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 terminated the above-captioned investigation with a finding of violation of section 337, and has issued a limited exclusion order directed against products of respondents Samsung Electronics Co., Ltd. of Korea; Samsung Electronics America, Inc. of Ridgefield Park, New Jersey; and Samsung Semiconductor, Inc. of San Jose, California; and has issued cease and desist orders against Samsung Electronics America, Inc. and Samsung Semiconductor, Inc.

FOR FURTHER INFORMATION CONTACT: Clint Gerdine, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-2310. 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 March 4, 2008, based on a complaint filed by Sharp Corporation ("Sharp") of Japan. *73 Fed. Reg.* 11678. The complaint, as amended and supplemented, alleges violations of section 337 of the Tariff Act of 1930, as amended, 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 liquid

crystal display devices, products containing same, and methods for using the same by reason of infringement of certain claims of U.S. Patent Nos. 6,879,364 (“the ‘364 patent”); 6,952,192 (“the ‘192 patent”); 7,304,703 (“the ‘703 patent”); and 7,304,626 (“the ‘626 patent”). The complaint further alleges the existence of a domestic industry. The Commission’s notice of investigation named the following respondents: Samsung Electronics Co., Ltd. of Korea; Samsung Electronics America, Inc. of Ridgefield Park, New Jersey; and Samsung Semiconductor, Inc. of San Jose, California (collectively, “Samsung”).

On June 12, 2009, the ALJ issued his final ID finding a violation of section 337 by Samsung. He also issued his recommendation on remedy and bonding during the period of Presidential review. On June 29, 2009, Samsung and the Commission investigative attorney (“IA”) filed petitions for review of the final ID. The IA and Sharp filed responses to the petitions on July 7, 2009. On September 9, 2009, the Commission issued notice of its determination not to review the ALJ’s final ID and requested written submissions on the issues of remedy, the public interest, and bonding from the parties and interested non-parties. 74 *Fed. Reg.* 47616-17 (Sept. 16, 2009).

On September 16 and 23, 2009, respectively, complainant Sharp, the Samsung respondents, and the IA filed briefs and reply briefs on the issues for which the Commission requested written submissions. On September 21, 2009, Samsung filed a petition for reconsideration of the Commission’s determination not to review certain portions of the final ID. On October 19, 2009, the Commission issued an order denying the petition for reconsideration.

On October 30, 2009, Samsung filed a supplemental submission on the issues of remedy, the public interest, and bonding. On November 2 and 3, 2009, respectively, Sharp and the IA filed a response to Samsung’s supplemental submission.

The Commission has made its determination on the issues of remedy, the public interest, and bonding. The Commission has determined that the appropriate form of relief is both: 1) a limited exclusion order prohibiting the unlicensed entry of LCD devices, including display panels and modules, and products containing the same that infringe one or more of (i) claims 5-7 of the ‘364 patent; (ii) claims 1 and 4 of the ‘192 patent; (iii) claims 1-2, 6-8, 13-14, and 16-17 of the ‘703 patent; and (iv) claims 10, 17, and 20 of the ‘626 patent, where the infringing LCD devices are manufactured abroad by or on behalf of, or are imported by or on behalf of, Samsung, or any of its affiliated companies, parents, subsidiaries, licensees, contractors, or other related business entities, or successors or assigns; and 2) cease and desist orders prohibiting Samsung Electronics America, Inc. and Samsung Semiconductor, Inc. from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, LCD devices, including display panels and modules, and products containing the same that infringe one or more of (i) claims 5-7 of the ‘364 patent; (ii) claims 1 and 4 of the ‘192 patent; (iii) claims 1-2, 6-8, 13-14, and 16-17 of the ‘703 patent; and (iv) claims 10, 17, and 20 of the ‘626 patent.

The Commission further determined that the public interest factors enumerated in section 337(d)(1) (19 U.S.C. § 1337(d)(1)) do not preclude issuance of the limited exclusion order or the cease and desist order. Finally, the Commission determined that a 100 percent bond of the entered value of the covered products is required to permit temporary importation during the period of Presidential review (19 U.S.C. § 1337(j)). The Commission's orders and opinion were delivered to the President and to the United States Trade Representative on the day of their issuance.

The Commission has terminated this investigation. 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, 210.45, and 210.50 of the Commission's Rules of Practice and Procedure (19 C.F.R. §§ 210.42, 210.45, 210.50).

By order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott". The signature is written in a cursive, flowing style.

Marilyn R. Abbott
Secretary to the Commission

Issued: November 9, 2009

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

In the Matter of

**CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS FOR USING
THE SAME**

Inv. No. 337-TA-634

CEASE AND DESIST ORDER

IT IS HEREBY ORDERED THAT Samsung Electronics America, Inc., 105 Challenger Road, Ridgefield Park, New Jersey 07660, cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain liquid crystal display devices and products containing infringing liquid crystal display devices, where the infringing liquid crystal display devices are manufactured by or on behalf of Respondent or any of their affiliated companies, parents, subsidiaries, licensees, or other related business entities, or their successors or assigns, that infringe one or more of (i) claims 5-7 of U.S. Patent No. 6,879,364; (ii) claims 1 and 4 of U.S. Patent No. 6,952,192; (iii) claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703; and (iv) claims 10, 17, and 20 of U.S. Patent No. 7,304,626, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

I.

Definitions

As used in this Order:

(A) “Commission” shall mean the United States International Trade Commission.

(B) “Sharp” or “Complainant” shall mean Sharp Corporation, 22-22 Nagaike-cho, Abeno-ku, Osaka 545-8522, Japan.

(C) “Respondent” shall mean Samsung Electronics America, Inc., 105 Challenger Road, Ridgefield Park, New Jersey 07660.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean liquid crystal display devices and products containing liquid crystal display devices that infringe one or more of claims 5-7 of U.S. Patent No. 6,879,364, claims 1 and 4 of U.S. Patent No. 6,952,192, claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703, and claims 10, 17, and 20 of U.S. Patent No. 7,304,626; where the liquid crystal display devices are manufactured by or on behalf of Respondent or any of its

affiliated companies, parents, subsidiaries, licensees, or other related business entities, or their successors or assigns.

II.

Applicability

The provisions of this Cease and Desist Order shall apply to Respondent and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with, or otherwise on behalf of Respondent.

III.

Conduct Prohibited

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

IV.

Conduct Permitted

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if:

(A) in a written instrument, the owner of U.S. Patent No. 6,879,364, U.S. Patent No. 6,952,192, (iii) U.S. Patent No. 7,304,703, and (iv) U.S. Patent No. 7,304,626, licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States; or

(B) the conduct is limited to the provision of service and replacement parts for customers that purchased their covered products prior to the date this Order becomes final.

V.

Reporting

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2010. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent

shall report to the Commission: (a) the quantity in units and the value in dollars of (i) covered products that the Respondent has imported and/or (ii) covered products that the Respondent has sold in the United States after importation during the reporting period; and (b) the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period. A Respondent filing written submissions must file the original document and two copies with the Office of the Secretary. Any Respondent desiring to submit a document to the Commission in confidence must file the original and a public version of the original with the Office of the Secretary and serve a copy of the confidential version on Complainant's counsel.¹

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

VI.

Record-keeping and Inspection

(A) For the purpose of securing compliance with this Order, Respondent shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a

¹ Complainant must file a letter with the Secretary identifying the attorney to receive the reports or bond information. The designated attorney must be on the protective order entered in the investigation.

period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

VII.

Service of Cease and Desist Order

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs

VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of U.S. Patent No. 6,879,364, U.S. Patent No. 6,952,192, (iii) U.S. Patent No. 7,304,703, and (iv) U.S. Patent No. 7,304,626, whichever is later.

VIII.

Confidentiality

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

IX.

Enforcement

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

X.

Modification

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

XI.

Bonding

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, 70 *Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond in the amount of 100 percent of the entered value for infringing liquid crystal display devices and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by Complainant in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R. 210.68. The bond and any accompanying documentation is to be provided to and

approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this order. Upon acceptance of the bond by the Secretary: (a) the Secretary will serve an acceptance letter on all parties; and (b) the Respondent must serve a copy of the bond and any accompanying documentation on Complainant's counsel.²

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

² See fn. 1.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott". The signature is fluid and cursive, with a large initial "M" and a long, sweeping underline.

Marilyn R. Abbott
Secretary to the Commission

Issued: November 9, 2009

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

In the Matter of

**CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS FOR USING
THE SAME**

Inv. No. 337-TA-634

CEASE AND DESIST ORDER

IT IS HEREBY ORDERED THAT Samsung Semiconductor, Inc., 3655 North First Street, San Jose, California 95134, cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain liquid crystal display devices and products containing infringing liquid crystal display devices, where the infringing liquid crystal display devices are manufactured by or on behalf of Respondents or any of their affiliated companies, parents, subsidiaries, licensees, or other related business entities, or their successors or assigns, that infringe one or more of (i) claims 5-7 of U.S. Patent No. 6,879,364; (ii) claims 1 and 4 of U.S. Patent No. 6,952,192; (iii) claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703; and (iv) claims 10, 17, and 20 of U.S. Patent No. 7,304,626, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

I.

Definitions

As used in this Order:

(A) “Commission” shall mean the United States International Trade Commission.

(B) “Sharp” or “Complainant” shall mean Sharp Corporation, 22-22 Nagaike-cho, Abeno-ku, Osaka 545-8522, Japan.

(C) “Respondent” shall mean Samsung Semiconductor, Inc., 3655 North First Street, San Jose, California 95134.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean liquid crystal display devices and products containing liquid crystal display devices that infringe one or more of claims 5-7 of U.S. Patent No. 6,879,364, claims 1 and 4 of U.S. Patent No. 6,952,192, claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703, and claims 10, 17, and 20 of U.S. Patent No. 7,304,626; where the liquid crystal display devices are manufactured by or on behalf of Respondent or any of its

affiliated companies, parents, subsidiaries, licensees, or other related business entities, or their successors or assigns.

II.

Applicability

The provisions of this Cease and Desist Order shall apply to Respondent and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with, or otherwise on behalf of Respondent.

III.

Conduct Prohibited

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

IV.

Conduct Permitted

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if:

(A) in a written instrument, the owner of U.S. Patent No. 6,879,364, U.S. Patent No. 6,952,192, (iii) U.S. Patent No. 7,304,703, and (iv) U.S. Patent No. 7,304,626, licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States; or

(B) the conduct is limited to the provision of service and replacement parts for customers that purchased their covered products prior to the date this Order becomes final.

V.

Reporting

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2010. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent

shall report to the Commission: (a) the quantity in units and the value in dollars of (i) covered products that the Respondent has imported and/or (ii) covered products that the Respondent has sold in the United States after importation during the reporting period; and (b) the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period. A Respondent filing written submissions must file the original document and two copies with the Office of the Secretary. Any Respondent desiring to submit a document to the Commission in confidence must file the original and a public version of the original with the Office of the Secretary and serve a copy of the confidential version on Complainant's counsel.¹

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

VI.

Record-keeping and Inspection

(A) For the purpose of securing compliance with this Order, Respondent shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a

¹ Complainant must file a letter with the Secretary identifying the attorney to receive the reports or bond information. The designated attorney must be on the protective order entered in the investigation.

period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

VII.

Service of Cease and Desist Order

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs

VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of U.S. Patent No. 6,879,364, U.S. Patent No. 6,952,192, (iii) U.S. Patent No. 7,304,703, and (iv) U.S. Patent No. 7,304,626, whichever is later.

VIII.

Confidentiality

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

IX.

Enforcement

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

X.

Modification

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

XI.

Bonding

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, 70 *Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond of in the amount of 100 percent of the entered value for infringing liquid crystal display devices and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by Complainant in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R. 210.68. The bond and any accompanying documentation is to be provided to and

approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this order. Upon acceptance of the bond by the Secretary: (a) the Secretary will serve an acceptance letter on all parties; and (b) the Respondent must serve a copy of the bond and any accompanying documentation on Complainant's counsel.²

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

² See fn. 1.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott", written in a cursive style.

Marilyn R. Abbott
Secretary to the Commission

Issued: November 9, 2009

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

In the Matter of

**CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS FOR USING
THE SAME**

Inv. No. 337-TA-634

LIMITED EXCLUSION ORDER

The Commission has determined that there is a violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the unlawful importation and sale by Respondents Samsung Electronics Co., Ltd. ("SEC"), Samsung Electronics America, Inc. ("SEA") and Samsung Semiconductor, Inc. ("SSI") (collectively, "Samsung") of liquid crystal display modules and products containing the same by reason of infringement of (i) claims 5-7 of U.S. Patent No. 6,879,364; (ii) claims 1 and 4 of U.S. Patent No. 6,952,192; (iii) claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703; and (iv) claims 10, 17, and 20 of U.S. Patent No. 7,304,626.

Having reviewed the record in this investigation, including the written submissions of the parties, the Commission has made its determination on the issues of remedy, the public interest, and bonding. The Commission has determined that the appropriate form of relief is a limited exclusion order prohibiting the unlicensed entry of infringing liquid crystal display devices and

products containing infringing liquid crystal display devices, where the infringing liquid crystal display devices are manufactured by or on behalf of Respondents or any of their affiliated companies, parents, subsidiaries, licensees, or other related business entities, or their successors or assigns. The Commission has also determined that the appropriate form of relief includes cease and desist orders directed against SEA and SSI.

The Commission has determined that the public interest factors enumerated in 19 U.S.C. §§ 1337 (d) and (f) do not preclude issuance of the limited exclusion order or cease and desist orders. Finally, the Commission has determined that the bond during the Presidential period of review shall be in the amount of 100 percent of entered value of imported liquid crystal display devices and products containing these devices that are subject to this order.

Accordingly, the Commission hereby **ORDERS THAT:**

1. Liquid crystal display devices that infringe one or more of (i) claims 5-7 of U.S. Patent No. 6,879,364; (ii) claims 1 and 4 of U.S. Patent No. 6,952,192; (iii) claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703; and (iv) claims 10, 17, and 20 of U.S. Patent No. 7,304,626 and products containing infringing liquid crystal display devices, where the infringing liquid crystal display devices are manufactured abroad or imported by or on behalf of Respondents, or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns, are excluded from entry

for consumption into the United States, entry for consumption from a foreign trade zone, or withdrawal from a warehouse for consumption, for the remaining term of the patents, except under license of the patent owner or as provided by law, and except for infringing liquid crystal display devices imported for use as replacement parts for products imported into the United States prior to the Commission's determination becoming final within the meaning of 19 U.S.C. § 1337(j)(4).

2. Notwithstanding paragraph 1 of this Order, the aforesaid devices and products containing the same are entitled to entry for consumption into the United States, entry for consumption from a foreign trade zone, or withdrawal from a warehouse for consumption, under bond in the amount of 100 percent of the entered value of imported, infringing liquid crystal display devices and products containing infringing liquid crystal display devices, from the day after this Order is received by the United States Trade Representative as delegated by the President, 70 *Fed. Reg.* 43251 (July 21, 2005), until such time as the United States Trade Representative notifies the Commission that this action is approved or disapproved but, in any event, not later than sixty (60) days after the date of receipt of this action.

3. At the discretion of U.S. Customs and Border Protection ("CBP") and pursuant to procedures it establishes, persons seeking to import liquid crystal display devices and products containing liquid crystal display devices that are

potentially subject to this Order may be required to certify that they are familiar with the terms of this Order, that they have made appropriate inquiry, and thereupon state that, to the best of their knowledge and belief, the products being imported are not excluded from entry under paragraphs 1 through 7 of this Order. At its discretion, CBP may require persons who have provided the certification described in this paragraph to furnish such records or analyses as are necessary to substantiate the certification.

4. In accordance with 19 U.S.C. § 1337(l), the provisions of this Order shall not apply to infringing liquid crystal display devices and products containing infringing liquid crystal display devices that are imported by and for the use of the United States, or imported for, and to be used for, the United States with the authorization or consent of the Government.

5. The Commission may modify this Order in accordance with the procedures described in Rule 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

6. The Commission Secretary shall serve copies of this Order upon each party of record in this investigation and upon the Department of Health and Human Services, the Department of Justice, the Federal Trade Commission, and U.S. Customs and Border Protection.

7. Notice of this Order shall be published in the *Federal Register*.

By Order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott". The signature is fluid and cursive, with a large initial "M" and a long, sweeping underline.

Marilyn R. Abbott
Secretary to the Commission

Issued: November 9, 2009

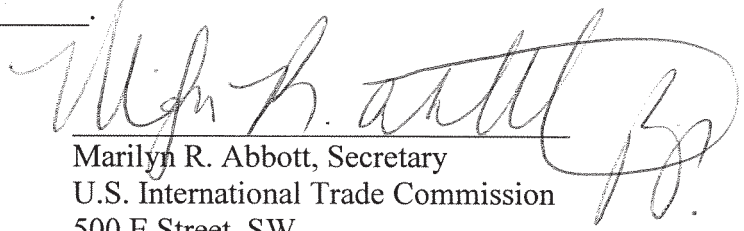
**CERTAIN LIQUID CRYSTAL DISPLAY MODULES,
PRODUCTS CONTAINING SAME, AND METHODS
FOR USING THE SAME**

337-TA-634

CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **FINAL COMMISSION DETERMINATION OF VIOLATION; ISSUANCE OF A LIMITED EXCLUSION ORDER AND CEASE AND DESIST ORDERS; AND TERMINATION OF THE INVESTIGATION** has been served by hand upon the Commission Investigative Attorney, Brian Moore, Esq., and the following parties as indicated, on

November 9, 2009



Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW
Washington, DC 20436

On Behalf of Complainant Sharp Corporation:

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MORRISON & FOERSTER LLP
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Via Hand Delivery
 Via Overnight Mail
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**On Behalf of Respondents Samsung Electronics Co.,
Ltd.; Samsung Electronics America, Inc.; and,
Samsung Semiconductor, Inc.:**

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

In the Matter of

**CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS USING THE
SAME**

Investigation No. 337-TA-634

COMMISSION OPINION

I. INTRODUCTION

On June 12, 2009, the presiding administrative law judge (“ALJ”) issued his final initial determination (“ID”) in the above-captioned investigation, finding a violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, as amended (“section 337”). The ID included his recommended determination (RD) on the issues of remedy and bonding during the period of Presidential review. The Commission determined not to review the ALJ’s finding of violation on September 9, 2009. *74 Fed. Reg.* 47616-17 (Sept. 16, 2009). The investigation is now before the Commission to consider the issues of remedy, the public interest, and bonding.

II. BACKGROUND

The Commission instituted this investigation on March 4, 2008, based on a complaint filed by Sharp Corporation (“Sharp”) of Japan. *73 Fed. Reg.* 11678. The complaint, as amended and supplemented, alleges violations of section 337 in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain liquid crystal display devices, products containing same, and methods for using the same by reason of infringement of certain claims of U.S. Patent Nos. 6,879,364 (“the ‘364 patent”); 6,952,192 (“the

'192 patent"); 7,304,703 ("the '703 patent"); and 7,304,626 ("the '626 patent"). The complaint further alleges the existence of a domestic industry. The Commission's notice of investigation named the following respondents: Samsung Electronics Co., Ltd. of Korea; Samsung Electronics America, Inc. of Ridgefield Park, New Jersey; and Samsung Semiconductor, Inc. of San Jose, California (collectively "Samsung").

On June 12, 2009, the ALJ issued his final ID finding a violation of section 337 by Samsung. On June 29, 2009, Samsung and the Commission investigative attorney ("IA") filed petitions for review of the final ID. On July 7, 2009, Sharp and the IA filed responses to the petitions.

On September 9, 2009, the Commission issued notice of its determination not to review the ALJ's final ID and requested written submissions on the issues of remedy, the public interest, and bonding from the parties and interested non parties. *74 Fed. Reg.* 47616-17 (Sept. 16, 2009). On September 16 and 23, 2009, respectively, complainant Sharp, the Samsung respondents, and the IA filed briefs and reply briefs on the issues for which the Commission requested written submissions. On September 21, 2009, Samsung filed a petition for reconsideration of the Commission's determination not to review certain portions of the final ID. On October 19, 2009, the Commission issued an order denying the petition for reconsideration.

On October 30, 2009, Samsung filed a supplemental submission on the issues of remedy, the public interest, and bonding. On November 2 and 3, 2009, respectively, Sharp and the IA filed a response to Samsung's supplemental submission.

III. DISCUSSION

A. REMEDY

The Commission is authorized to issue relief when it determines that there is a violation of section 337. 19 U.S.C. § 1337(d) and (f). The Commission has broad discretion in selecting the form, scope, and extent of the remedy in a section 337 proceeding. *See Fuji Photo Film v. United States Int'l Trade Comm'n*, 386 F.3d 1095, 1106-1107 (Fed. Cir. 2004). For the reasons set forth below, we have determined to adopt the ALJ's recommendations on remedy. *See ID/ RD* at 169-88.

The ALJ recommended that the Commission issue a limited exclusion order and cease and desist orders that cover not just specifically-identified products, but all infringing products, regardless of brand-name, "that are manufactured abroad or imported by or on behalf of respondents, or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns." *RD* at 173. He also determined that the orders should extend to certain downstream products, *i.e.*, Samsung televisions, computer monitors, and professional displays - imported by, or on behalf of, Samsung and containing infringing LCD devices manufactured by Samsung. *Id.* The ALJ also recommended cease and desist orders directed to the domestic respondents in view of evidence demonstrating that Samsung Electronics America and Samsung Semiconductor maintain a substantial inventory of the infringing products in the United States. *Id.* at 184, *citing* CX-92C, 93C, 98C, 104C, 344C.

Samsung argues that computer monitors should not be denied entry under the exclusion order or subject to the cease and desist orders because Sharp did not carry its burden in

establishing that these downstream products should be covered by remedial orders. The IA and Sharp support the ALJ's recommendation that the remedial orders should extend to computer monitors.

In determining whether an exclusion order should extend to downstream products, the Commission applies a test first articulated in *Certain Erasable Programmable Read-Only Memories, Components Thereof, Products Containing Such Memories, and Processes for Making Such Memories* ("EPROMs"), Inv. No. 337-TA-276, Comm'n Opn. at 125-126 (May 16, 1989).¹ The ALJ set out a detailed analysis of how the EPROMs factors support inclusion in the relief of downstream Samsung products, including computer monitors, that contain infringing LCD devices. We adopt this analysis as our own. The basic facts regarding the infringing LCD articles are largely undisputed and Samsung's own expert admitted that many of the EPROMs factors weigh in favor of exclusion of computer monitors.²

¹Nine factors are weighed as part of the EPROMs downstream analysis: (1) the value of the infringing articles compared to the value of the downstream products in which they are incorporated; (2) identity of the manufacturer of the downstream products, (*i.e.*, are the downstream products manufactured by the party found to have committed the unfair act, or by third parties); (3) the incremental value of complainant of the exclusion of downstream products; (4) the incremental detriment to respondents of the exclusion of downstream products; (5) the burdens imposed on third parties resulting from the exclusion of the downstream products; (6) the availability of alternative downstream products which 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; (8) the opportunity for evasion of an exclusion order which does not include downstream products; (9) the enforceability of an order by U.S. Customs. *Id.*

² See Sharp's Br. at 10, 11, 15, 17; citing *Kyocera v. United States Int'l Trade Comm'n*, 545 F.3d 1340, 1345; RD at 178, 181-83; Napper, Tr. at 1695-96, 1722, 1756-58, 1770, 1776; Hansen, Tr. at 609-10, 616-17, 639-40, 649-51; CX-469C at 26; CDX-1106, 1114, 1118, 1135-36, 1144, 1197; Hansen, Tr. at 609-10; Order No. 6; JX-48C, Weiss, Dep. Tr. at 53, 59 (Sept. 24, 2008); Samsung Remedy Br., Exh. B, Decl. of Jang at 2.

The Commission also adopts the ALJ's recommendation that the appropriate relief includes cease and desist orders directed to Samsung's infringing LCD devices that are manufactured abroad or imported by or on behalf of Samsung, including downstream relief directed to Samsung televisions, computer monitors, or professional displays containing the infringing LCD devices.³

B. Bonding

Section 337(j) provides for entry of infringing articles during the sixty (60) day period of Presidential review upon posting of a bond and states that the bond is to be set at a level "sufficient to protect the complainant from any injury." 19 U.S.C. § 1337(j)(3); *see also* 19 C.F.R. § 210.50(a)(3). The ALJ recommended a bond of 100 percent of the entered value of the covered products. We adopt this recommendation for the reasons stated below.

The ALJ recommended a 100 percent bond because he found that the documents produced by Sharp established that it would be difficult to conduct a reliable price comparison between Samsung and Sharp products or a reasonable royalty rate due to the number of products sold by the parties and the variety of features in the products in the investigation. RD at 184-87, *citing Certain Digital Satellite System (DSS) Receivers and Components Thereof*, Inv. No. 337-TA-392, (*DSS Receivers*) Initial Determination at 244 (Oct. 20, 1997) (reasonable royalty rates are often

³ Because our remedial orders apply only to the downstream products of named respondent Samsung they do not run afoul of the Federal Circuit's holding in *Kyocera*, 545 F.3d at 1357-58 ("Thus, in approving such an LEO, this court did not address the Commission's authority to exclude downstream products of third parties. The only downstream products affected by the ITC's LEO were those of the sole adjudged violator of section 337, namely, Hyundai.") (*citing Hyundai Electronics Industries Co. v. United States Int'l Trade Comm'n*, 899 F.2d 1204, 1206-09 (Fed. Cir. 1990))

used to determine the bond amount during the Presidential period of review); *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, (“*Wind Turbines I*”) Comm’n Opn. at 27 (Sept. 23, 1996) (when there is insufficient evidence in the record to determine a reasonable royalty rate, or the record indicates that the calculation of a price differential is impractical, a bond of 100 percent is appropriate). Particularly, the ALJ found that Samsung’s expert (Mr. Napper) focused on only U.S. patent licenses when analyzing the Sharp patent license agreements to determine a reasonable royalty, and accordingly, made no account as to the value of the patent licenses in other countries besides the United States. *Id.* In addition, the ALJ found that Samsung’s royalty rate analysis was of limited probative value because it specifically excluded three of the four patents-in-suit in this investigation. *Id.* The ALJ also found that the documents produced by Sharp demonstrated that it would be difficult to conduct a reliable price comparison between Samsung and Sharp products this investigation due to the number of products sold and the variety of features in the products.

Samsung contends that the Commission should impose no bond or a bond no greater than [] of the entered value during the period of Presidential review. *Id.* at 23-24. The IA and Sharp support the ALJ’s recommended bond of 100 percent.

We agree with the ALJ that a 100 percent bond is appropriate here because the pricing data of record demonstrates that no meaningful price comparison can be performed. Samsung’s attempt at calculating a reasonable royalty rate suffered from important flaws noted by the ALJ. Accordingly, this case is significantly different from *Digital Televisions*, where a reasonable royalty rate could be calculated. We see no reason to deviate from our practice of imposing a 100 percent bond where there is insufficient evidence in the record to determine a reasonable royalty

rate, and the record indicates that the calculation of a price differential is impractical. See *DSS Receivers*, Initial Determination at 244 ; *Wind Turbines I*, Comm'n Opn. at 27.

C. Public Interest

When issuing an exclusion order under section 337(d), the Commission must weigh the remedy sought against the effect such a remedy would have on the following public interest factors: (1) the public health and welfare; (2) the competitive conditions in the United States economy; (3) the production of articles in the United States that are like or directly competitive with those subject to the investigation; and (4) United States consumers. See 19 U.S.C. § 1337(d)(1).

We find that the issuance of a limited exclusion order and cease and desist orders directed to infringing LCD devices produced by Samsung, and certain Samsung downstream products containing these LCD devices, would not be contrary to the public interest. No evidence exists in the record that issuance of the Commission's orders would harm public health, welfare, or safety. Nothing in the evidentiary record indicates that Sharp and others cannot meet the demand for the types of LCDs devices at issue. To the contrary, the ALJ found that there were numerous LCD suppliers who could supply the U.S. market. Both of these circumstances obviate any public interest concerns.

We have included a certification provision in the limited exclusion order allowing importation of Samsung-branded TVs, computer monitors, and professional displays that contain other manufacturers' LCD panels and modules, *e.g.*, those LCD devices not produced by, or on behalf of, Samsung. This provision will ease the burden both on legitimate trade and on U.S. Customs' enforcement of the exclusion order .

We agree with Samsung and the IA that the public interest weighs in favor of an exemption to allow importation of service and replacement parts for Samsung LCD televisions, computer monitors, and professional displays purchased prior to the effective date of any issued remedial order. Such an exemption is in keeping with Commission precedent. *See Certain Systems for Detecting and Removing Viruses and Worms, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-510, Comm'n Op. at 6 (Aug. 23, 2005); *Certain Automated Mechanical Transmission Systems for Medium-Duty and Heavy-Duty Trucks and Components Thereof*, Inv. No. 337-TA-503, Comm'n Op. at 5-6 (May 9, 2005). Also, we agree with Samsung and the IA that it is appropriate for the repair exemption to be treated consistently in the limited exclusion order and the cease and desist orders.

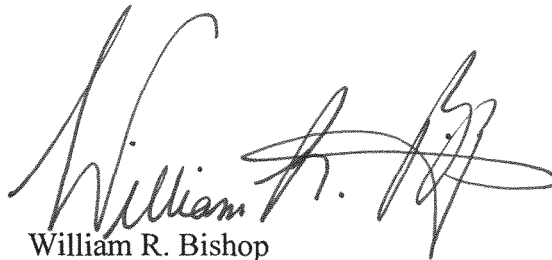
IV. CONCLUSION

The Commission has determined that there has been a violation of section 337, and has further determined that the appropriate form of relief is: (1) a limited exclusion order prohibiting the unlicensed entry of LCD devices, including display panels and modules, and products containing the same, that infringe one or more of (i) claims 5-7 of the '364 patent; (ii) claims 1 and 4 of the '192 patent; (iii) claims 1-2, 6-8, 13-14, and 16-17 of the '703 patent; and (iv) claims 10, 17, and 20 of the '626 patent, that are manufactured abroad by or on behalf of, or are imported by or on behalf of, Samsung, or any of its affiliated companies, parents, subsidiaries, licensees, contractors, or other related business entities, or successors or assigns; and (2) cease and desist orders prohibiting the Samsung respondents located in the United States from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or

distributors for, LCD devices, including display panels and modules, and products containing the same that infringe one or more of (i) claims 5-7 of the '364 patent; (ii) claims 1 and 4 of the '192 patent; (iii) claims 1-2, 6-8, 13-14, and 16-17 of the '703 patent; and (iv) claims 10, 17, and 20 of the '626 patent.

The Commission further has determined that the public interest factors enumerated in section 337(d)(1) (19 U.S.C. § 1337(d)(1)) do not preclude issuance of the limited exclusion order or the cease and desist orders. Finally, the Commission has determined that a bond of 100 percent bond of the entered value of Samsung's products should be imposed during the period of Presidential review.

By order of the Commission.

A handwritten signature in black ink, appearing to read "William R. Bishop". The signature is fluid and cursive, with a large initial "W" and a stylized "B".

William R. Bishop
Acting Secretary to the Commission

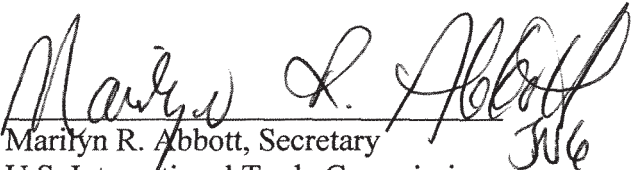
Issued: November 24, 2009

**CERTAIN LIQUID CRYSTAL DISPLAY MODULES,
PRODUCTS CONTAINING SAME, AND METHODS
FOR USING THE SAME**

337-TA-634

CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon the Commission Investigative Attorney, Brian Moore, Esq., and the following parties as indicated, on November 24, 2009.


Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW
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On Behalf of Complainant Sharp Corporation:

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**On Behalf of Respondents Samsung Electronics Co.,
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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C. 20436

In the Matter of

**CERTAIN LIQUID CRYSTAL DISPLAY
MODULES, PRODUCTS CONTAINING
SAME, AND METHODS USING THE
SAME**

Investigation No. 337-TA-634

**NOTICE OF COMMISSION DECISION NOT TO REVIEW A FINAL INITIAL
DETERMINATION FINDING A VIOLATION OF SECTION 337; REQUEST FOR
WRITTEN SUBMISSIONS REGARDING REMEDY, BONDING, AND THE PUBLIC
INTEREST**

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined not to review a final initial determination (“ID”) of the presiding administrative law judge (“ALJ”) finding a violation of section 337 in the above-captioned investigation, and is requesting written submissions regarding remedy, bonding, and the public interest.

FOR FURTHER INFORMATION CONTACT: Clint Gerdine, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-2310. 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 March 4, 2008, based on a complaint filed by Sharp Corporation (“Sharp”) of Japan. 73 *Fed. Reg.* 11678. The complaint, as amended and supplemented, alleges violations of section 337 of the Tariff Act of 1930, as amended, 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 liquid crystal display devices, products containing same, and methods for using the same by reason of infringement of certain claims of U.S. Patent Nos. 6,879,364; 6,952,192; 7,304,703; and 7,304,626. The complaint further alleges the existence of a domestic industry. The Commission's notice of investigation named the following respondents: Samsung Electronics

America, Inc. of Korea; Samsung Electronics America, Inc. of Ridgefield Park, New Jersey; and Samsung Semiconductor, Inc. of San Jose, California (collectively "Samsung").

On June 12, 2009, the ALJ issued his final ID finding a violation of section 337 by Samsung. He also issued his recommendation on remedy and bonding during the period of Presidential review. On June 29, 2009, Samsung and the Commission investigative attorney ("IA") filed petitions for review of the final ID. The IA and Sharp filed responses to the petitions on July 7, 2009. The Commission has determined not to review the subject ID.

In connection with the final disposition of this investigation, the Commission may issue an order that results in the exclusion of the subject articles from entry into the United States. 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).

When 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.

When 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* section 337(j), 19 U.S.C. § 1337(j) and the 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: 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, and such submissions should address the recommended determination by the ALJ on remedy and bonding. The complainant and the IA are also requested to submit proposed remedial orders for the Commission's consideration. Complainant is also requested to state the dates that the patents at issue expire and the HTSUS numbers under which the accused articles are imported. The written submissions and proposed remedial orders must be filed no later than close of business on September 16, 2009. Reply submissions must be

filed no later than the close of business on September 23. 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 of the Commission's Rules of Practice and Procedure, 19 C.F.R. §§ 210.42-46.

By order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott". The signature is fluid and cursive, with a large initial "M" and a long, sweeping underline.

Marilyn R. Abbott
Secretary to the Commission


Issued: September 9, 2009

**CERTAIN LIQUID CRYSTAL DISPLAY MODULES,
PRODUCTS CONTAINING SAME, AND METHODS
FOR USING THE SAME**

337-TA-634

PUBLIC CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **NOTICE OF COMMISSION DECISION NOT TO REVIEW A FINAL INITIAL DETERMINATION FINDING A VIOLATION OF SECTION 337; REQUEST FOR WRITTEN SUBMISSIONS REGARDING REMEDY, BONDING, AND THE PUBLIC INTEREST** has been served by hand upon the Commission Investigative Attorney, Brian Moore, Esq., and the following parties as indicated, on September 10, 2009.


Marilyn R. Abbott, Secretary *JNG*
U.S. International Trade Commission
500 E Street, SW
Washington, DC 20436

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CORPORATION:**

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**ON BEHALF OF RESPONDENTS SAMSUNG
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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of)	
)	
CERTAIN LIQUID CRYSTAL DISPLAY)	Investigation No. 337-TA-634
MODULES, PRODUCTS CONTAINING)	
SAME, AND METHODS FOR USING)	
THE SAME)	

Final Initial and Recommended Determinations

This is the administrative law judge's Final Initial Determination under Commission rule 210.42. The administrative law judge, after a review of the record developed, finds inter alia that there is jurisdiction and that there is a violation of section 337 of the Tariff Act of 1930, as amended.

This is also the administrative law judge's Recommended Determination on remedy and bonding, pursuant to Commission rules 210.36(a) and 210.42(a)(1)(ii). Should the Commission find a violation, the administrative law judge recommends the issuance of a limited exclusion order barring entry into the United States of infringing liquid crystal display modules and products containing respondents' infringing liquid crystal display modules, including respondents' downstream LCD televisions, LCD computer monitors and LCD professional displays as well as the issuance of a cease and desist order. He further recommends that the appropriate Presidential review period bond is 100 percent of entered value.

APPEARANCES

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ORDER 198

ABBREVIATIONS

CBr	Complainant's Post-hearing Brief
CDX	Complainant's Demonstrative Exhibit
CFF	Complainant's Proposed Finding
CORFF	Complainant's Objection To Respondents' Proposed Finding
COSPPF	Complainant's Objection To Staff's Proposed Finding
CRBr	Complainant's Post-hearing Reply Brief
CRRFF	Complainant's Proposed Rebuttal Finding to RFF
CRSPFF	Complainant's Proposed Rebuttal Finding to SPFF
CX	Complainant's Exhibit
JX	Joint Exhibit
RBr	Respondents' Post-hearing Brief
RDX	Respondents' Demonstrative Exhibit
RX	Respondents' Exhibit
RPPF	Respondents' Proposed Finding
ROCF	Respondents' Objection To Complainant's Proposed Finding
ROSPFF	Respondents' Objection To Staff's Proposed Finding
RRBr	Respondents' Post-hearing Reply Brief
RRCFF	Respondents' Proposed Rebuttal Finding To CFF
RRSPFF	Respondents' Proposed Rebuttal Finding To SFF
SBr	Staff's Post-hearing Brief
SRBr	Staff's Post-hearing Reply Brief

SPFF Staff's Proposed Finding

Tr. Transcript Of Pre-hearing Conference and Hearing

OPINION

I. Procedural History

Sharp Corporation (Sharp) filed its complaint on January 30, 2008, naming Samsung Electronics Co., Ltd. (SEC), Samsung Electronics America, Inc. (SEA) and Samsung Semiconductor, Inc. (SSI) (Samsung) as respondents. In the complaint, Sharp asserted claims 5-7 of U.S. Patent No. 6,879,364 ('364 patent), claims 1 and 4 of U.S. Patent No. 6,952,192 ('192 patent), claims 1, 2, 6-8, 13, 14, 16, and 17 of U.S. Patent No. 7,304,703 ('703 patent), and claims 10, 17, and 20 of U.S. Patent No. 7,304,626 ('626 patent) against Samsung. On February, 27, 2008, the Commission issued the Notice of Investigation.

On March 27, 2008, Order No. 3 issued, setting a target date for completion of the investigation of June 4, 2009 and a due date for the final initial determination of March 4, 2009.

On September 11, 2008, Samsung and Sharp agreed to certain stipulations regarding the cost of accused products relative to the cost of downstream products, which stipulations were adopted on September 17, 2008 in Order No. 6.

On October 9, 2008, Sharp filed a Motion for Summary Determination that it has satisfied the economic prong of the domestic industry requirement. On November 10, 2008, Order No. 8 granted Sharp's motion. On November 29, 2008, the Commission determined not to review Order No. 8.

On October 30, 2008, Order No. 7 issued, which related to a stipulated order regarding the exclusion of third party products. On November 26, 2008, Samsung and Sharp agreed to certain stipulations regarding importation, and Order No. 12, which issued on December 10, 2008, adopted said stipulations. On February 3, 2009, Samsung and Sharp agreed to certain stipulations regarding representative LCD modules, and Order No. 16, which issued on February

4, 2009, adopted said stipulation.

On November 24, 2008, Order No. 10 issued, requiring submissions from each of the parties regarding the subject matter of the hearing.

Order No. 11, which issued on December 1, 2008, suspended the set dates for the prehearing conference and evidentiary hearing. Thereafter, Order No. 14 issued on January 6, 2009, setting the dates of February 9, 10, 11, 12, 13 and Saturday February 14, if necessary, for the prehearing conference and evidentiary hearing.

On January 15, 2009, Order No. 15 issued, extending the target date for completion of the investigation to October 12, 2009, and thus setting the due date for the final initial determination as June 12, 2009. On February 9, 2009, the Commission determined not to review Order No. 15.

Pursuant to Order No. 14, the prehearing conference and evidentiary hearing were conducted from February 9, 2009 through February 14, 2009. The following claims were the subject of the hearing: claims 5-7 of the '364 patent; claims 1 and 4 of the '192 patent; claims 1, 2, 6-8, 13, 14, 16, and 17 of the '703 patent; and claims 10, 17 and 20 of the '626 patent. Post hearing submissions have been filed. The matter is now ready for a final decision.

The Final Initial and Recommended Determinations are based on the record compiled at the hearing and the exhibits admitted into evidence. The administrative law judge has also taken into account his observation of the witnesses who appeared before him during the hearing. Proposed findings of fact submitted by the parties not herein adopted, in the form submitted or in substance, are rejected as either not supported by the evidence or as involving immaterial matters and/or as irrelevant. Certain findings of fact included herein have references to supporting evidence in the record. Such references are intended to serve as guides to the testimony and

exhibits supporting the finding of fact. They do not necessarily represent complete summaries of the evidence supporting said findings.

II. Jurisdiction

The administrative law judge finds that Sharp properly states a cause of action under Section 337 of the Tariff Act of 1930. Thus, he finds that the Commission has jurisdiction over the subject matter of this investigation. See Amgen, Inc. v. United States International Trade Commission, 902 F.2d 1532, 1536 (Fed. Cir. 1990). The Commission has in rem jurisdiction over the products at issue by virtue of Order No. 12 regarding the parties' stipulation that Samsung has imported LCD modules and finished products into the United States and does not contest importation of such products for purposes of Section 337(a)(1)(B). Samsung also has responded to the complaint and participated in the investigation, thereby submitting to the personal jurisdiction of the Commission.

III. Parties

See FF 1-4.

IV. Importation

In effect is a stipulation that the accused articles have been imported into the United States. See Order No. 12 supra. Accordingly, this element of Section 337 has been established.

V. General Overview Of Technology In Issue

The private parties have stipulated to the following general overview of the technology of the patents-in-issue to which the staff has no objection and which stipulation has been identified as JX-62:

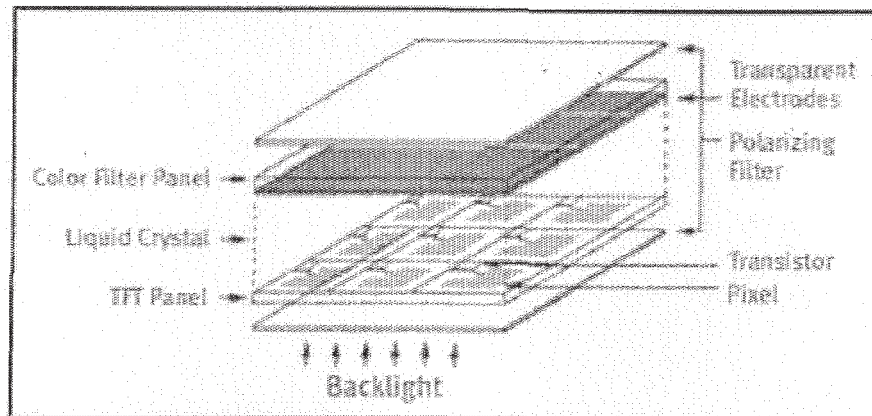
This investigation relates to various technologies used in liquid crystal displays

(LCDs), including structures used to control the formation of domains in pixels and various techniques to turn on and provide voltages to the pixels. To place the issues in this investigation in their proper context, this Technology Overview section provides a brief background on the relevant operation and structure of LCDs.

A. Basic Structure Of LCDs

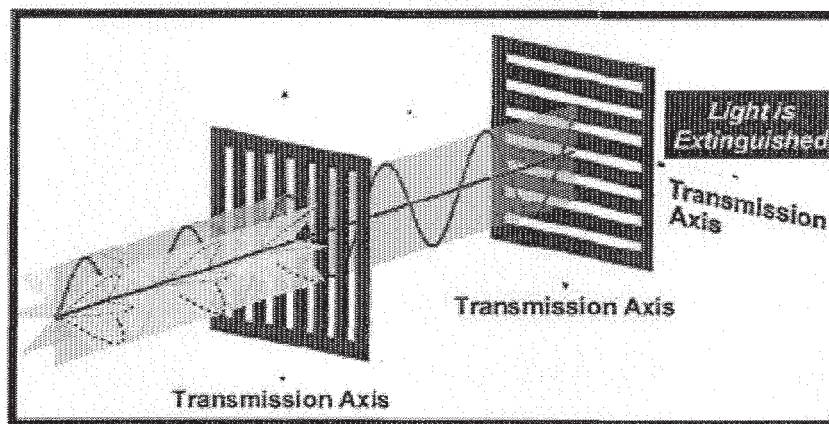
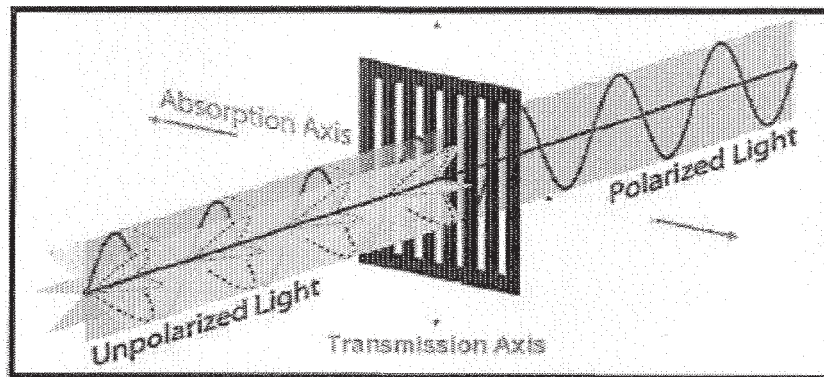
Liquid crystal displays are a type of compact, light weight, low power consumption display that is replacing the historically dominant cathode ray tube in many image display applications. LCD development has moved towards ever more compact LCDs, with lower manufacturing costs and higher quality images at wider viewing angles.

At issue in this investigation is a type of LCD commonly known as an "active matrix" LCD. Generally, active matrix LCDs generate high resolution images using a matrix of pixels formed by liquid crystal cells sandwiched between two glass plates (or substrates) on which various structures are formed or mounted. The liquid crystal cells and the glass plates are together called an "LCD panel." A generalized depiction of an LCD panel is shown below:



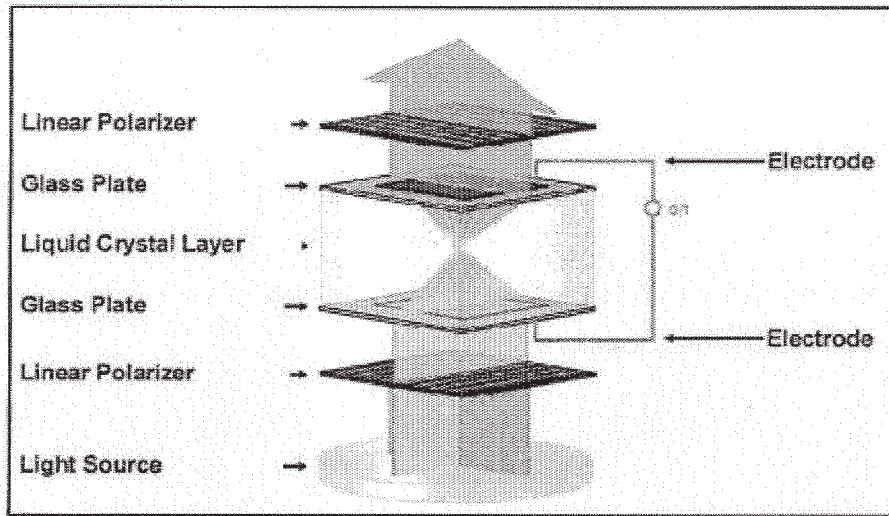
As shown in the diagram above, the pixels are arranged between the glass substrates in rows and columns, with each pixel in the diagram above being associated with a thin film transistor switch (TFT) having gate, source and drain (which is directly connected to the pixel electrode) terminals. The substrate on which the TFTs are formed is commonly called the "TFT substrate." The facing substrate is generally called the "color filter substrate" or the "common substrate" because of the color filters (CF) and the common electrode that are generally mounted on that substrate.

The typical transmissive LCD panel used today, such as the ones used in the accused and domestic industry LCD modules, displays images by affecting the transmission of light through the interplay of the LCD cell's liquid crystal molecules and the electric field resulting from the voltage applied across the TFT and common substrates' electrodes. Typically, an unpolarized light source illuminates the TFT substrate from behind. The unpolarized light becomes polarized (as illustrated below) by the transmission properties of the TFT substrate's polarizer, resulting in the now-polarized light passing through the liquid crystal medium and then confronting a blocking polarizer on the common substrate (next illustration).



The liquid crystal molecules in the LCD cell, which is sandwiched between the TFT and CF polarizers, can alter the transmitted light's polarization through a change in their molecular orientation. Such a change in the molecules' orientation can occur when an electric field is applied on the liquid crystal molecules, causing electro-mechanical torques that result in an orientation shift. The picture below shows a pixel in bright transmission mode, where the input polarization has been

almost fully transformed to the pass polarization of the CF polarizer.



B. Vertically Aligned Liquid Crystal Displays

Most of the products at issue in this investigation contain "vertically aligned" liquid crystal material with "negative dielectric anisotropy." In such an LCD, liquid crystal molecules with a negative dielectric anisotropy will tend to align perpendicularly to the electric field upon the application of voltage, and will therefore tend to lie parallel to the substrate surfaces when sufficient voltage is applied. When no voltage is applied, these liquid crystal molecules are aligned substantially vertically to an adjacent surface. The greater the voltage applied, the more the liquid crystal molecules of the liquid crystal layer tend to align perpendicularly to the electric field and parallel to the substrates.

When little or no voltage is applied, vertical alignment layers in contact with the liquid crystal material are used to initially align the liquid crystal molecules in a vertical orientation such that the long axes of the liquid crystal molecules are perpendicular to an adjacent surface.

When the axes of the liquid crystal molecules are oriented in a direction substantially vertical to the substrates, no light gets through to the screen because of the crossed configuration of the polarizers. This type of display is sometimes called a "normally black" type display.

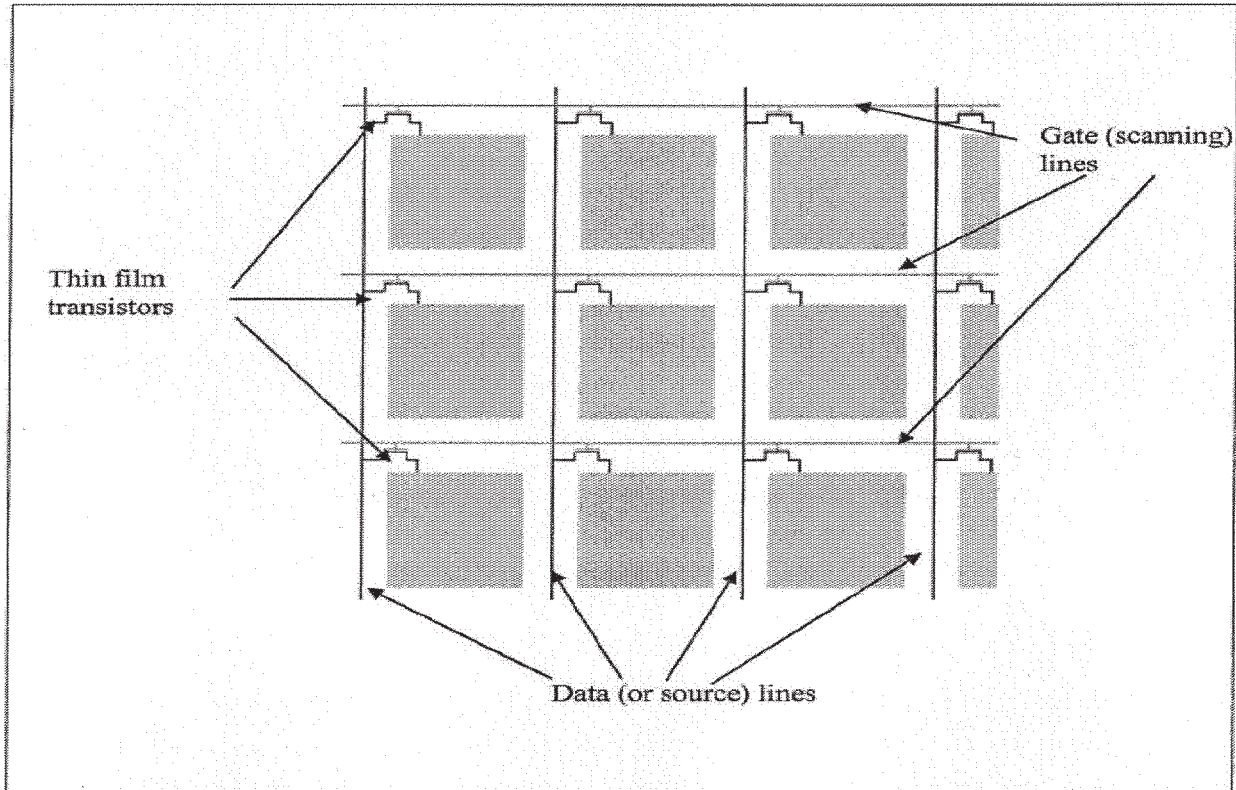
When a full voltage is applied to the electrodes, the long axes of the liquid crystal molecules become aligned substantially parallel to the substrates. When the long axes of the liquid crystal molecules are aligned substantially parallel to the

substrates, the orientation of the light passing through the liquid crystal layer is changed from the first state of polarization to a new state of polarization, allowing the light to pass through the second polarizer and be emitted from the front of the LCD. Therefore, because of the crossed orientation of the polarizers in which the second polarizer blocks light polarized by the first polarizer, the transmittance is at its highest when the long axes of the liquid crystal molecules of the pixel are aligned substantially parallel to the substrates.

If an "intermediate" voltage is applied, the orientation of the liquid crystal molecules changes such that the axes of the liquid crystal molecules are neither substantially parallel nor perpendicular to the substrates. When "tilted," the liquid crystal molecules affect the light passing through it so that only a portion of the light passes through the second polarizer. The amount of light depends on the degree that the liquid crystal molecules are tilted. The degree of tilt is determined by the magnitude of the intermediate voltage. Varying the tilt of the liquid crystal molecules provides different shades of color and brightness (i.e., gray scales) in the display.

C. Controlling the Voltage Applied to an LCD Pixel

In active matrix thin film transistor LCDs, conductive lines are arranged on the TFT substrate in rows and columns to form a matrix. At the intersection of each row and column is a TFT. Typically, the "gate," also known as "scanning," lines are organized in rows and "data," also known as "source," lines are organized in columns, as shown in the basic schematic design below. The resolution of the panel can be expressed in terms of the number of rows and columns used (e.g., 768x1024).



In a typical television, the voltage on the gate lines determine if the TFTs in each row are "on" or "off," *i.e.*; allows the voltage from the data lines to load onto the pixels or not. To ensure appropriate charging of the pixel electrodes, the gate pulse's voltage needs to be high enough to turn on the TFT during the loading period. The short-duration gate "on" signal is usually a specific high positive voltage, while the gate "off" signal is a persistent lower or zero voltage signal. Within a row-charging period, the LCD device loads the data for the cells in a given row by applying a specific and desired voltage to the corresponding data (or source) lines that are connected to the source of each electrode.

To provide an adequate voltage level and drive capability to switch the TFTs in each row, certain LCD devices employ gate drivers arranged at the sides of the TFT substrate close to the terminals of the gate lines. Through the use of the gate drivers, the LCD device applies the appropriate voltage levels synchronously with the corresponding data for only so long as the data corresponding to a given row is present on the data line. Each gate driver receives signals from components external to the LCD panel via conductive lines extending off the panel. In turn, the gate driver connects to the gate terminal of the TFTs through the gate lines in the *active matrix of the LCD panel*.

VI. Technology Related To The Patents-In-Issue

The private parties have stipulated to the following technology related to the patents-in-issue which the staff has no objection and which stipulation is a portion of JX-62.

The following sections are the abstracts of each of the four patents-in-suit.

A. The '703 Patent

The '703 patent discloses a vertical alignment mode liquid crystal display device having an improved viewing angle characteristic is disclosed. The disclosed liquid crystal display device uses a liquid crystal having a negative anisotropic dielectric constant, and orientations of the liquid crystal are vertical to substrates when no voltage being applied, almost horizontal when a predetermined voltage is applied, and oblique when an intermediate voltage is applied. At least one of the substrates includes a structure as domain regulating means, and inclined surfaces of the structure operate as a trigger to regulate azimuths of the oblique orientations of the liquid crystal when the intermediate voltage is applied. [JX-4 ('703 patent) at Abstract.]

B. The '364 Patent

The '364 patent discloses a liquid crystal display apparatus including a pair of substrates having electrodes and vertical alignment layers. A liquid crystal having a negative anisotropy of dielectric is inserted between the substrates. Each substrate has linearly arranged alignment control structures for controlling the alignment of the liquid crystal. The alignment control structures are formed in the form of projections or slits. Each alignment control structure is formed of a plurality of constituent units. In addition, means for forming a boundary of alignment of liquid crystal (singular point in director field) to control the liquid crystal located on the alignment control structures. [JX-1 ('364 patent) at Abstract.]

C. The '192 Patent

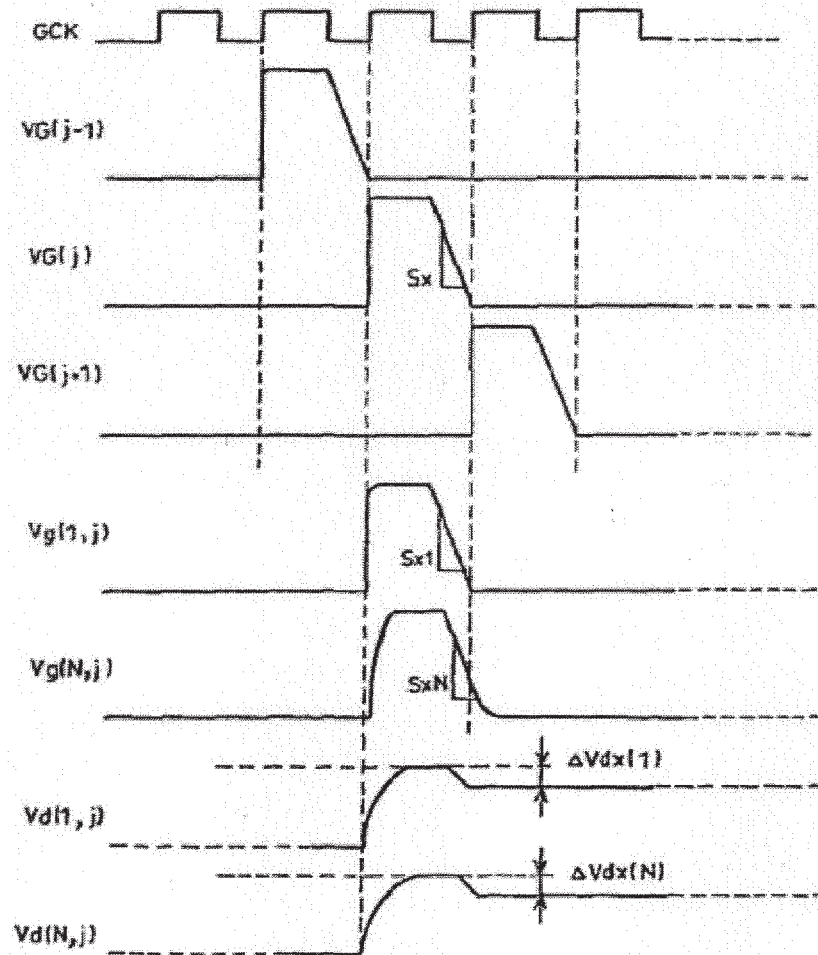
An MVA type liquid crystal panel is slow in a response speed when a black state at a drive voltage about 1V is switched to a low brightness halftone state at the drive voltage about 2 to 3V. According to the invention of the '192 patent, in a liquid crystal display device for driving the MVA type liquid crystal panel, when a liquid crystal pixel at a pixel electrode is changed from a first transmittance to a second transmittance greater than the first transmittance, a drive voltage greater than a first target drive voltage in correspondence with a second transmittance is applied to the pixel electrode in a first frame period of changing to the second transmittance, and the first target display voltage is applied from a second frame period. According to the present invention, even when either switching is performed from a black state to a low brightness halftone state, from the black state to a high brightness halftone state, or from the black state to a white state, a response time is shortened, and the switching can be performed without generating an overshoot. [JX-2 ('192 patent) at Abstract.]

D. The '626 Patent

The '626 patent discloses a display device and a display method. With reference to Fig. 1, reproduced below, in the display device and the display method of the present invention, a scanning signal line driving circuit controls falls of a scanning signal line, so as to make level shifts occurring to pixel potentials substantially uniform throughout display plane, the level shifts being caused by parasitic capacitances which parasitically exist in scanning signal lines. Fall waveforms of the scanning signal change at a change rate S_x which is a change quantity per unit time, and by desirably setting the change rate S_x , a change rate S_{x1} in the vicinity of an input side end of the scanning signal line and a change rate S_{xN} in the vicinity of the other end thereof are substantially equal to each other, not being influenced by signal delay transmission characteristic which the scanning signal

line possesses, like scanning signal line waveforms $Vg(1,j)$ and $Vg(N,j)$. [JX-3 ('626 patent) at Abstract and FIG. 1.1].

FIG. 1



VII. Witnesses

See FF 1-71.

VIII. Person Of Ordinary Skill

A person of ordinary skill in the art with respect to the '703, '364, '192, and '626 patents has a bachelor's degree in engineering or the equivalent, with several years of experience making, designing, researching, and/or working with liquid crystal displays. (Silzars, Tr. at 105-105; Stewart, Tr. at 732-733.)

IX. '703 Patent

The '703 patent (JX-4) issued with twenty-three claims

A. Claims At Issue

Asserted claims 1, 2, 6, 7, 8, 13, 14, 16 and 17 are in issue. Asserted independent claim 1 recites:

1. A liquid crystal display device, comprising: a first substrate and a second substrate for sandwiching a liquid crystal having a negative dielectric constant anisotropy, and molecules of the liquid crystal aligning in a direction vertical to the first and second substrates when no voltage is applied, said first substrate including first domain regulating means for regulating azimuths of orientations of said liquid crystal molecules when a voltage is applied to said liquid crystal, said azimuths of orientations being defined as alignments of respective ones of said molecules in a horizontal plane generally parallel to planes of the first and second substrates, and said second substrate including second domain regulating means for also regulating said azimuths of the orientations of said liquid crystal molecules when a voltage is applied to said liquid crystal, wherein when vertically seen to the substrates, said first domain regulating means includes first line portions and second line portions, said first line portions being extended in a first direction, said second line portions being extended in a second direction different from said first direction, said second domain regulating means includes third line portions

and fourth line portions, said third line portions being extended in said first direction, said fourth line portions being extended in said second direction, said first and third line portions being arranged to be neighbored and to be approximately parallel to each other, and said second and fourth line portions being arranged to be neighbored and to be approximately parallel to each other, and wherein said azimuths of the orientations are regulated according to respective directions of said line portions.

Dependent claim 2 recites:

2. A liquid crystal display device according to claim 1, said first and second domain regulating means includes protrusions, depressions, slits, or combinations thereof.

Dependent claim 6 recites:

6. A liquid crystal display device according to claim 1, wherein said line portions of said first and second domain regulating means are repeatedly arranged with a predetermined pitch respectively on said first and second substrates.

Dependent claim 7 recites:

7. A liquid crystal display device according to claim 6, wherein said first and second domain regulating means are offset by half of said predetermined pitch.

Dependent claim 8 recites:

8. A liquid crystal display device according to claim 1, wherein said line portions of said first and second domain regulating means are bent in a generally zigzag shape.

Independent claim 13 recites:

13. A liquid crystal display device comprising: a first substrate and a second substrate for sandwiching a liquid crystal having a negative dielectric constant anisotropy, and molecules of the liquid crystal aligning in a direction vertical to the first and second substrates when no voltage is applied, said first substrate including first domain regulating means for regulating azimuths of the orientations of said liquid crystal when a voltage is applied to said

liquid crystal, said azimuths of orientations being defined as alignments of respective ones of said molecules in a horizontal plane generally parallel to planes of the first and second substrates, and said second substrate including second domain regulating means for also regulating said azimuths of the orientations of said liquid crystal when a voltage is applied to said liquid crystal, wherein when vertically seen to the substrates, said first domain regulating means includes first line portions and second line portions, said first line portions being extended in a first direction, said second line portions being extended in a second direction different from said first direction, said second domain regulating means includes third line portions and fourth line portions, said third line portions being extended in said first directions, said fourth line portions being extended in said second direction, said first and third line portions being arranged to be neighbored and to be approximately parallel to each other, said second and fourth line portions being arranged to be neighbored and to be approximately parallel to each other, and all of said first, second, third, and fourth line portions existing within each of a plurality of pixels, and wherein said azimuths of the orientations are regulated according to respective directions of said line portions.

Dependent claim 14 recites:

14. A liquid crystal display device according to claim 13, wherein said line portions of said first and second domain regulating means are arranged with a predetermined pitch respectively on said first and second substrates.

Dependent claim 16 recites:

16. A liquid crystal display device according to claim 14, wherein said line portions of said first and second domain regulating means are bent in a generally zigzag shape.

Dependent claim 17 recites:

17. A liquid crystal display device according to claim 14, wherein said line portions of said first and second domain regulating means are offset by half of said predetermined pitch.

B. Claim Construction

Claim construction is a question of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996) (Markman); see Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1455 (Fed. Cir. 1998). In construing claims, a court should look to intrinsic evidence consisting of the language of the claims, the specification and the prosecution history as it “is the most significant source of the legally operative meaning of disputed claim language.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (Vitronics); see Bell Atl. Network Servs., Inc. v. Covad Commc’n. Group, Inc., 262 F.3d 1258, 1267 (Fed. Cir. 2001). Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and, when necessary, to explain what the patentee covered by the claims” See U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997).

The claims themselves “provide substantial guidance as to the meaning of particular claim terms.” Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005) (Phillips), citing Vitronics, 90 F.3d at 1582. It is essential to consider a claim as a whole when construing each term, because the context in which a term is used in a claim “can be highly instructive.” Id. In construing claims, the administrative law judge should first look “to the words of the claims themselves . . . to define the scope of the patented invention.” Vitronics., 90 F.3d at 1582; see generally Phillips, 415 F.3d at 1312-13. Claim terms “are generally given their ordinary and accustomed meaning.” Vitronics, 90 F.3d at 1582. Moreover, each term of a claim should be given its own meaning. See Merck & Co. v. Teva Pharm., USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005), cert. denied 546 U.S. 972 (2005). (Merck & Co.) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

In Pause Technology, Inc. v. T.V., Inc., 419 F.3d 1326 (Fed. Cir. 2005) the Court stated:

. . . in clarifying the meaning of claim terms, courts are free to use words that do not appear in the claim so long as “the resulting claim interpretation . . . accord[s] with the words chosen by the patentee to stake out the boundary of the claimed property.” Cf. Renishaw PLC v. Marposs Società per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (noting that “[w]ithout any claim term susceptible to clarification . . . there is no legitimate way to narrow the property right”).

Id. at 1333. Also, claim terms are presumed to be used consistently throughout the patent, such that the usage of the term in one claim can often illuminate the meaning of the same term in other claims. Research Plastics, Inc. v. Federal Packaging Corp., 421 F.3d 1290, 1295 (Fed. Cir. 2005) (Research Plastics).

The ordinary meaning of a claim term may be determined by reviewing a variety of sources, which may include the claims themselves, dictionaries and treatises, the written description, the drawings and the prosecution history. Ferguson Beauregard/Logic Controls v. Mega Sys., LLC, 350 F.3d 1327, 1338 (Fed. Cir. 2003). “Dictionaries...are often useful to assist in understanding the commonly understood meaning of words and have been used both by our court and the Supreme Court in claim interpretation.” Phillips, 415 F.3d at 1322. The use of a dictionary, however, may extend patent protection beyond what should properly be afforded by a patent. Also, there is no guarantee that a term is used in the same way in a treatise as it would be by a patentee. Id. Moreover, the presumption of ordinary meaning will be “rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1091 (Fed. Cir. 2003).

The presence of a specific limitation in a dependent claim raises a presumption that the limitation is not present in the independent claim. Phillips, 415 F.3d at 1315. This presumption is especially strong when the only difference between the independent and dependent claims is the limitation in dispute. SunRace Roots Enter. Co., Ltd. v. SRAM Corp., 336 F.3d 1298, 1303 (Fed. Cir. 2003) (SunRace). Moreover, “claim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous.” AllVoice Computing PLC v. Nuance Commc’ns, Inc., 504 F.3d 1236, 2007 U.S. App. LEXIS 23949, at *23 (Fed. Cir. 2007). In addition, a claim construction that gives meaning to all the terms of a claim is preferred over one that does not do so. See Merck & Co. 395 F.3d at 1372; Alza Corp. v. Mylan Labs. Inc., 391 F.3d 1365, 1370 (Fed. Cir. 2004) (Alza) (affirming the district court’s rejection of both parties’ claim construction where those constructions meant that “the inclusion of the word ‘base’ in the claims would be redundant”). Differences between the claims are helpful in understanding the meaning of claim terms. Phillips, 415 F.3d at 1314.

The preamble of a claim may be significant in interpreting a claim. Thus, “a claim preamble has the import that the claim as a whole suggests for it.” Bell Commc’ns Research, Inc. v. Vitalink Commc’ns Corp., 55 F.3d 615, 620, 34 U.S.P.Q.2d 1816, 1820 (Fed. Cir. 1995). If said preamble, when read in the context of an entire claim, recites limitations of the claim, or if the claim preamble is “necessary to give life, meaning, and vitality” to the claim, then the claim preamble should be construed as if in the balance of the claim. Kropa v. Robie, 187 F.2d 150, 152 (CCPA 1951) (Kropa); see also Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997) (Rowe); Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989)

(Corning Glass). Indeed, when discussing the “claim” in such a circumstance, there is no meaningful distinction to be drawn between the claim preamble and the rest of the claim, for only together do they comprise the “claim.” If, however, the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention’s limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble may have no significance to claim construction because it cannot be said to constitute or explain a claim limitation. See Rowe, 112 F.3d at 478; Corning Glass, 868 F.2d at 1257; Kropa, 187 F.2d at 152.

In Pitney Bowes Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1306 (Fed. Cir. 1999) (Pitney Bowes), the preamble statement that the patent claimed a method of or apparatus for “producing on a photoreceptor an image of generated shapes made up of spots” was not merely a statement describing the invention’s intended field of use. Instead, the Court found that said statement was intimately meshed with the ensuing language in the claim; and that, for example, both independent claims concluded with the clause “whereby the appearance of smoothed edges are given to the generated shapes.” Id. Because this was the first appearance in the claim body of the term “generated shapes,” the Court found that the term could only be understood in the context of the preamble statement “producing on a photoreceptor an image of generated shapes made up of spots.” Id. Similarly, the Court found that the term “spots” was initially used in the preamble to refer to the elements that made up the image of generated shapes that were produced on the photoreceptor; that the term “spots” then appeared twice in each of the independent claims; and that the claim term “spots” referred to the components that together made up the images of generated shapes on the photoreceptor and was only discernible from the claim

preamble. Id. The Court concluded that in such a case, it was essential that the preamble and the remainder of the claim be construed as one unified and internally consistent recitation of the claimed invention. Id.

The specification of a patent “acts as a dictionary” both “when it expressly defines terms used in the claims” and “when it defines terms by implication.” Vitronics, 90 F.3d at 1582. For example, the specification “may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.” Phillips, 415 F.3d at 1323 quoting Iredto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004).

Importantly, a person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. Phillips, 415 F.3d at 1314. Whatever ambiguity may exist with respect to the claim language may be resolved by an examination of the specification. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002) (“The specification may assist in resolving ambiguity where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.”)

A patentee may deviate from the conventional meaning of a particular claim term by making the intended meaning of a particular claim term clear (1) in the specification or (2) during the patent’s prosecution history. Lear Siegler, Inc. v. Aeroquip Corp., 733 F.2d 881, 889 (Fed. Cir. 1984). If using a definition that is contrary to the definition given by those of ordinary skill in the art, however, the patentee’s specification must communicate a deliberate and clear preference for the alternate definition. Kumar v. Ovonic Battery Co., Inc., 351 F.3d 1364, 1368

(Fed. Cir. 2003), citing Apple Computers, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 21 n.5 (Fed. Cir. 2000). In ascribing to an alternative definition rather than the ordinary meaning, the intrinsic evidence must “clearly set forth” or “clearly redefine” a claim term so as to put one reasonably skilled in the art on notice that the patentee intended to so redefine the claim term. Bell Atl. Network Servs., Inc. v. Covad Communs. Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001).

The prosecution history, including “the prior art cited,” is “part of the ‘intrinsic evidence.’” Phillips, 415 F.3d at 1317. The prosecution history “provides evidence of how the inventor and the PTO understood the patent.” Id. Thus, the prosecution history can often inform the meaning of the claim language by demonstrating how an inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would be otherwise. Vitronics, 90 F.3d at 1582-83; see also Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution” quoting ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1580 (Fed. Cir. 1988)); Southwall Techs., Inc. v. Cardinal IG Co., F.3d 1570, 1576 (Fed. Cir. 1995); see also Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1306 (Fed. Cir. 2007), citing Microsoft Corp. v. Multi-tech Sys., Inc., 357 F.3d 1340, 1350 (Fed. Cir. 2004) (“We have held that a statement made by the patentee during prosecution history of a patent in the same family as the patent-in-suit can operate as a disclaimer.”) The Federal Circuit in Texas Instruments Inc. v. U.S.I.T.C., 988 F.2d 1165 (Fed. Cir. 1993), stated:

As a general proposition, prosecution history estoppel is based upon a showing that an applicant amended a claim to avoid a cited prior art reference. ... Amendment of a claim in light of a prior art

reference, however, is not the sine qua non to establish prosecution history estoppel. Unmistakable assertions made by the applicant to the Patent and Trademark Office (PTO) in support of patentability, whether or not required to secure allowance of the claim, also may operate to preclude the patentee from asserting equivalency between a limitation of the claim and a substituted structure or process step.

(emphasis added) Id. at 1174 (internal citations omitted); see also Forest Labs, Inc. v Abbott Labs, 239 F.3d 1305, 1313-14 (stating that “arguments made during prosecution lead to the conclusion that the claims should be limited to their literal scope”); Bayer AG v. Elan Pharm. Corp., 212 F.3d 1241, 1252 (Fed. Cir. 2002); Wang Lab., Inc. v. Mitsubishi Elecs., Inc., 103 F.3d 1571, 1578 (Fed. Cir. 1997). The prosecution history includes any reexamination of the patent. Intermatic Inc. v. Lamson & Sessions Co., 273 F.3d 1355, 1367 (Fed. Cir. 2001).

In addition to the intrinsic evidence, the administrative law judge may consider extrinsic evidence when interpreting the claims. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, including inventor testimony and expert testimony. This extrinsic evidence may be helpful in explaining scientific principles, the meaning of technical terms, and terms of art. See Vitronics, 90 F.3d at 1583; Markman, 52 F.3d at 980. However, “[e]xtrinsic evidence is to be used for the court’s understanding of the patent, not for the purpose of varying or contradicting the terms of the claims.” Markman, 52 F.3d at 981. Also, the Federal Circuit has viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms. Phillips, 415 F.3d at 1318. In addition, while extrinsic evidence may be useful, it 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 1319.

In Nystrom v. Trex Company, 424 F.3d 1136 (Fed. Cir. 2005), the Court stated:

. . . as explained in Phillips, Nystrom is not entitled to a claim construction divorced from the context of the written description and prosecution history. The written description and prosecution history consistently use the term “board” to refer to wood decking materials cut from a log. Nystrom argues repeatedly that there is no disavowal of scope of the written description or prosecution history. Nystrom’s argument is misplaced. Phillips, 415 F.3d at 1321 (“The problem is that if the district court starts with the broad dictionary definition in every case and fails to fully appreciate how the specification implicitly limits that definition, the error will systematically cause the construction of the claim to be unduly expansive.”). What Phillips now counsels is that in the absence of something in the written description and/or prosecution history to provide explicit or implicit notice to the public— i.e., those of ordinary skill in the art— that the inventor intended a disputed term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record, it is improper to read the term to encompass a broader definition simply because it may be found in a dictionary, treatise, or other extrinsic source. *Id.*

Id. at 1144-45. In Free Motion Fitness Inc. v. Cybex Int’l Inc., 423 F.3d 1343 (Fed. Cir. 2005),

the Court concluded that:

under Phillips, the rule that “a court will give a claim term the full range of its ordinary meaning”, Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed.Cir. 2001), does not mean that the term will presumptively receive its broadest dictionary definition or the aggregate of multiple dictionary definitions. Phillips, 415 F.3d at 1320-1322. Rather, in those circumstances, where references to dictionaries is appropriate, the task is to scrutinize the intrinsic evidence in order to determine the most appropriate definition.

Id. at 1348-49. In Network Commerce, Inc. v. Microsoft Corp., 422 F.3d 1353 (Fed. Cir. 2005),

the Court concluded:

As we recently reaffirmed in Phillips, “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court.” Phillips, 415 F.3d at 1318. Here [expert] Coombs does not support his conclusion [the “download

component” need not contain the boot program] with any references to industry publications or other independent sources. Moreover, expert testimony at odds with the intrinsic evidence must be disregarded. *Id.* (“[A] court should discount any expert testimony that is clearly at odds with the claim construction mandated by . . . the written record of the patent.” (internal quotations and citation omitted). That is the case here.

Id. at 1361.

Patent claims should be construed so as to maintain their validity. However, that maxim is limited to cases in which a court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous. *Phillips*, 415 F.3d at 1327. If the only reasonable interpretation renders the claim invalid, then the claim should be found invalid. *See, e.g., Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999).

There are three claim terms in dispute: (1) “domain regulating means . . .” (2) “line portions,” and (3) “neighbored.”

1. “domain regulating means . . .”

The first claim term in dispute “domain regulating means” is recited in all asserted claims 1, 2, 6-8, 13, 14, 16 and 17 of the ‘703 patent through independent claims 1 and 13. Said term is recited in the following portion of independent claims 1 and 13, as follows:

said first substrate including first domain regulating means for regulating azimuths of orientations of said liquid crystal molecules when a voltage is applied to said liquid crystal, said azimuths of orientations being defined as alignments of respective ones of said molecules in a horizontal plane generally parallel to planes of the first and second substrates, and

said second substrate including second domain regulating means for also regulating said azimuths of the orientations of said liquid crystal when a voltage is applied to said liquid crystal,

(JX-4 at 93:57-63, 95:1-4 (emphasis added).)

The parties’ proposed constructions for the claimed phrase “domain regulating means” as set forth by the staff (SBr at 2) are the following:

Staff’s Construction	Sharp’s Construction	Samsung’s Construction
<p>112 ¶ 6</p> <p>Structure: One or more of a protrusion, slit, dent, depression, or edge of a pixel electrode, in a non-rubbed VA type display, or equivalents thereof.</p> <p>Function: forming liquid crystal domains when voltage is applied to the liquid crystal.</p>	<p>112 ¶ 6</p> <p>Structure: One or more of a protrusion, slit, dent, depression, or edge of a pixel electrode, in a non-rubbed VA type display, or <i>equivalents thereof</i>.</p> <p>Function: Regulating azimuths of orientations of liquid crystal molecules when a voltage is applied to the liquid crystal in order to form domains.</p>	<p>Structures that regulate the formation of domains in liquid crystal molecules, where at least one domain regulating means has an inclined surface</p>

There is only one point of contention between the private parties’ proposed construction, *viz.* whether at least one of the claimed pair of domain regulating means must include an inclined surface.

Complainant argued that the claim language confirms complainant’s and the staff’s construction of “domain regulating means;” that there is no dispute that the specification of the ‘703 patent repeatedly discloses embodiments excluded under Samsung’s construction because the specification does not equate vertical surfaces with inclined surfaces; that nothing in the specification of the ‘703 patent disclaims embodiments where slits are used on both substrates; and that the prosecution histories of the ‘703 patent and its parent contradict Samsung’s

construction. (CBr at 22-36.)

Samsung argued that the intrinsic evidence supports Samsung's construction, and not Sharp's construction. (RBr at 116-34.) It is also argued that it does not matter whether or not "domain regulating means" is a means plus function limitation. (Tr. at 83-5.)

The staff argued that the claimed function of "domain regulating means" is "regulating azimuths of orientations of liquid crystal molecules when a voltage is applied to said liquid crystal" which is equivalent to "forming liquid crystal domains;" that the specification of the '703 patent discloses the following structures as corresponding to the claimed domain regulating function: protrusions, slits, dents, depressions, and the edges of pixel electrodes; and that the '703 patent discloses domain regulating means with slits on both electrodes in FIGS. 12A and 79A. (SBr at 12-13.)

The term "domain regulating means" is written in means-plus-function format, and thus its construction is governed by 35 U.S.C. § 112, ¶ 6. Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1584 (Fed. Cir. 1996) (holding that the use of the term "means" creates a presumption that the claim is governed by § 112, ¶ 6). A means-plus-function element is construed in a two-step process. "The first step in interpretation of the claim is determination of the meaning of the words used to describe the claimed function." Multiform Desiccants, Inc. v. Medzam Ltd., 133 F.3d 1473, 1479 (Fed. Cir. 1998). The second step in construing a means-plus-function element is to examine the specification and identify the structures disclosed in the specification that are necessary to performing the claimed function. See, e.g., Asyst Techs., Inc. v. Empak, Inc., 268 F.3d 1364, 1374-76 (Fed. Cir. 2001).

As the plain language of the claims indicate to a person of ordinary skill in the art, the '703 patent uses the term "domain regulating means" to encompass the structures performing the function of regulating azimuths of orientations of liquid crystal molecules when a voltage is applied to the liquid crystal. As testified by complainant's expert Silzars:

Q. Please explain what's at CDX-23.

A. This is, again, an excerpt from the patent, from claim 1 specifically, that states that the first domain regulating means is for regulating azimuths of orientation and so on. The function that I identify from this is of course the word regulating azimuths of orientation, and it has to be of liquid crystal molecules. That's what we're talking about. And it has to be in order to form domains, because that is the subject of the sentence which is to – first domain regulating means. The only – domain regulating means, by definition, has to form domains.

(Tr. at 120 (emphasis added).) The administrative law judge finds nothing in the language such that one of ordinary skill in the art would read the claims of the '703 patent to require that one of the domain regulating means must have an inclined surface as respondents argued. This is confirmed by the plain language of claims 1 and 13 because the "first domain regulating means" and "the second domain regulating means" clearly possess the same meaning and no distinction is made in the claims as to what structures correspond to the "first domain regulating means" as opposed to what structures correspond to the "second domain regulating means." Thus, according to the language of the claims, one type of structure on both substrates can satisfy the first and second domain regulating means limitation, or two different types of structures can satisfy the first and second domain regulating means limitation. Hence, the administrative law judge finds that the language of claims 1 and 13 contradicts respondents' construction that one of the domain regulating means must have an "inclined surface." In addition, the administrative

law judge finds that language of claim 2 also contradicts respondents' construction. Thus, claim 2, which depends from claim 1, claims first and second domain regulating means, including protrusions, depressions, slits, or combinations thereof. (JX-4 at 94:17-19.) Hence, claim 2 plainly indicates that the "domain regulating means" on both the first and second substrates of said means can be slits.

Respondents' expert Flasck testified at the hearing that slits do not have inclined surfaces.

Thus he testified:

Q. So would then a vertical surface of a slit also be included?

A. There is no vertical surface of a slit.

Q. Oh, you mean the slit in the electrode doesn't have any vertical surfaces on the sides?

A. I believe everybody in this case agrees that there are no inclined surfaces on a slit.

Q. And why is that?

A. I've heard testimony from your expert to that effect, I certainly believe that, the patent actually shows that down below a certain thickness, even of a protrusion, the effects go away. This -- so the minimum effective height is, I believe, something around 1600 angstroms, if I remember correctly, in the graphs in the patent.

But I think there's agreement among your expert and, certainly, me that slits have no inclined surfaces.

(Tr. at 1452-53 (emphasis added).)

Based on the foregoing, the administrative law judge finds that a person of ordinary skill in the art would find nothing in the language of the claims of the '703 patent that would require one of the domain regulating means to have an inclined surface.

Referring to the specification of the '703 patent, the administrative law judge finds that a person of ordinary skill in the art would conclude that the structures disclosed in the '703 patent for performing the domain regulating means function would include one or more of a protrusion, slit, dent, depression, or edge of a pixel electrode, in a non-rubbed VA type display, or equivalents thereof. Thus the specification of the '703 patent discloses the following structures as corresponding to the claimed domain regulating means function: protrusions, slits, dents, depressions, and the edges of pixel electrodes. (JX-4, FIGS. 9-12, 14B, 38-39, 42, 44, 45, 49-52, 54-56, 58, 60, 63, 66, 67-68, 71-76, 92-93, 96-98, 99-101, 163, and related text; JX-4 at 19-22, 27, 46.) In particular, the administrative law judge finds that the specification of the '703 patent discloses, in Figures 12A and 79A-B, domain regulating means with slits on both substrates, where domain regulating means on neither substrate include an inclined surface. (JX-4 at FIGS. 12A and 79B.) Specifically, the '703 patent specification discloses in reference to Figure 12A that "ITO electrodes 41 and 42 on both substrates or one of the substrates are slitted." (JX-4 at 20:55-56 (emphasis added).) The '703 patent specification discloses in Figures 79A and 79B that slits can be used as the domain regulating means on both the first and second substrate:

FIGS. 79A and 79B are diagrams showing an arrangement of the slits 21 of the electrodes 12, 13 and the CS electrode units 35 according to a modification of the 14th embodiment. FIG. 79A is a top plan view and FIG. 79B is a sectional view. The slits 21 function as a domain regulating means and are preferably masked for preventing the light leakage therethrough.

(JX-4 at 42:61-67 (emphasis added).) Furthermore, according to the '703 patent specification:

When a domain regulating means is formed on one substrate or both substrates, protrusions, dents, or slits can be formed like a unidirectional lattice with a predetermined pitch among them. In this case, when the protrusions, dents, or slits are a plurality of

protrusions, dents, or slits bent at intervals of a predetermined cycle, orientation division can be achieved more stably. Moreover, when the protrusions, dents, or slits are located on both substrates, they should preferably be arranged to be offset by a half pitch.

(JX-4 at 21:53-61 (emphasis added).)

In addition, respondents' expert Flasck admitted that Figures 12A and 79A-B of the '703 patent disclose domain regulating means with slits on both substrates and that the domain regulating means in said figures do not have inclined surfaces. Specifically, respondents' expert Flasck testified:

Q. Now, Mr. Flasck, you reviewed the '703 patent, right?

A. Yes.

Q. And the '703 patent in the specification describes slits as a domain regulating means, right?

A. Yes, slit is described as a domain regulating means in the '703.

Q. And the '703 patent also describes slits on both substrates as domain regulating means?

A. It shows slits on both sides as domain regulating means, but in the context of the '703 patent, there must be an inclined plane on one of the domain regulating means.

Q. Can we pull up Figure 12A of the '703 patent, which is JX-4? We have Figure 12A of the '703 patent on the screen, Mr. Flasck, and my question is are there any inclined planes in Figure 12A?

A. No, I believe the specification describes that as slits on both sides.

Q. Could we pull up Figure 79A of the '703 patent – excuse me, 79B, same page.

Mr. Flasck, do elements 21 in Figure 79B represent slits on both substrates?

A. Yes, they do.

Q. Do you see any inclined surfaces in Figure 79B?

A. I see no inclined surfaces on 79B.

(Tr. at 1449-1450 (emphasis added).)

Respondents, in their RRCFF.V.42.A, refer to three portions of the '703 specification to support their proposed claim construction, viz. JX-4 at 3:46-47, 4:6-14 and 22:2-4. The first two portions occur in the following paragraphs under the subheading SUMMARY OF THE INVENTION:¹

According to the present invention, in the VA mode employing a conventional vertical alignment film and adopting a negative liquid crystal as a liquid crystal material, a domain regulating means is included for regulating the orientation of a liquid crystal in which liquid crystalline molecules are aligned obliquely when a voltage is applied so that the orientation will include a plurality of directions within each pixel. The domain regulating means is provided on at least one of the substrates.

Further, at least one of domain regulating means has inclined surfaces (slopes). The inclined surfaces include surfaces which are almost vertical to the substrates. Rubbing need not be performed on the vertical alignment film.

* * *

As mentioned above, the inclined surfaces fill the role of a trigger for determining azimuths in which the liquid crystalline molecules are aligned with application of a voltage. The inclined surfaces need not have large area. With small inclined surfaces, when no voltage is applied, the liquid crystalline molecules in almost all the regions of the liquid-crystal layer except the inclined surfaces are aligned vertically to the surfaces of the substrates. This results in nearly perfect black display. Thus, a contrast can be raised.

¹ The third portion, viz. 22:2-4, is reproduced infra.

(JX-4 at 3:38-50, 4:6-15 (emphasis added).) Following the SUMMARY OF THE INVENTION section however there is the section with the subheading BRIEF DESCRIPTION OF THE DRAWINGS in which it is stated that the “present invention will be more clearly understood from the description as set below with reference to the accompanying drawings” (JX-4 at 4: 18-20.) Thereafter as indicated supra it is stated:

Three examples of realizing the domain regulating means have been presented. Moreover, various modifications can be devised. For example, the portions of the electrodes formed as the slits in FIG. 12A may be dented, and the dents may be provided with inclined surfaces. Instead of making the protrusions in FIG. 12B using an insulating material, protrusions may be formed on the substrates, and ITO electrodes may be formed on the substrates and protrusions. Thus, the electrodes having the protrusions may be realized. Even this structure can regulate the orientation of the liquid crystal. Moreover, dents may be substituted for the protrusions. Furthermore, any of the described domain regulating means may be formed on one of the substrates. When domain regulating means are formed on both the substrates, any pair of domain regulating means can be employed. Moreover, although the protrusions or dents should preferably be designed to have inclined surfaces, the protrusions or dents having vertical surfaces can also exert an effect of a certain level.

When the protrusions are formed, during black display, parts of the liquid crystal lying in the gaps between the protrusions are seen black, but light leaks out through parts thereof near the protrusions. This kind of partial difference in display is microscopic and indiscernible by naked eyes. The whole display exhibits averaged display intensity. The density for black display deteriorates a bit, whereby contrast deteriorates. When the protrusions are made of a material not allowing passage of visible light, contrast can be further improved.

When a domain regulating means is formed on one substrate or both substrates, protrusions, dents, or slits can be formed like a unidirectional lattice with a predetermined pitch among them. In this case, when the protrusions, dents, or slits are a plurality of protrusions, dents, or slits bent at intervals of a

predetermined cycle, orientation division can be achieved more stably. Moreover, when the protrusions, dents, or slits are located on both substrates, they should preferably be arranged to be offset by a half pitch.

In the constitution disclosed in Japanese Unexamined Patent Publication (Kokai) No. 6-301036, apertures (slits) are provided on only the counter (CF) substrate. Therefore, the size of domain areas cannot be too small. Contrarily, according to the present invention, the size of domain areas can be optionally determined because the domain regulating means are provided on both of the pixel electrode and counter electrode. Further, at least one of the domain regulating means has inclined surfaces, the response speed can be improved.

On one of two upper and lower substrates, protrusions or dents may be formed like a two-dimensional lattice. On the other substrate, protrusions or dents may be arranged to be opposed to the centers of squares of the two-dimensional lattice.

In any case, it is required that orientation division occurs within each pixel. The pitch of the protrusions, dents, or slits must be smaller than that of pixels.

(JX-4 at 21:24-67, 22:1-12 (emphasis added).) Thus, the administrative law judge finds that a person of ordinary skill in the art would understand that when “domain regulating means” are formed on both the first and second substrate, any pair of domain regulating means can be employed. The “characterization of [a limitation] as part of the ‘present invention’ is strong evidence that the claims should not be read to encompass the opposite structure. See nCube Corp. v. Sea Change Int’l Inc., 436 F.3d 1317, 1328-29 (Fed. Cir. 2006) (citations omitted).

As seen from the foregoing, Figure 12B of the ‘703 patent shows an example of where the domain regulating means on the first and second substrates are protrusions (elements 20). Notably, with respect to a sixth embodiment, the specification also discloses embodiments in Figures 42 and 44 where slits are used on the first and second substrates instead of protrusions:

In the fifth and sixth embodiments, slits can be provided in the place of the protrusions on the counter electrode 12. Namely, both of the domain regulating means are realized by the slits. However, in this constitution, the response speed is decreased.

(JX-4 at 33:8-12 (emphasis added); see also Silzars, Tr. at 124.) Figures 42 and 44 from the '703 patent are colored in CDX-27 to indicate the slits on one substrate (in blue) and the slits on the second substrate (in red). (Silzars, Tr. at 124.) The slits on both substrates in the sixth embodiment of Figures 42 and 44 (as depicted in CDX-27) are described as such in the specification of the '703 patent. (JX-4 at 33:8-12, 5:52-58; Silzars, Tr. at 124-126.)

In addition, as indicated supra, in Figures 79A and 79B, the '703 patent specification discloses that slits can be used as the domain regulating means on both the first and second substrates:

FIGS. 79A and 79B are diagrams showing an arrangement of the slits 21 of the electrodes 12, 13 and the CS electrode units 35 according to a modification of the 14th embodiment. FIG. 79A is a top plan view and FIG. 79B is a sectional view. The slits 21 function as a domain regulating means and are preferably masked for preventing the light leakage therethrough.

(JX-4 at 42:61-67 (emphasis added).) Respondents' expert Flasck admitted that the slits (elements 21) in Figure 79B of the '703 patent are on both substrates and that they do not have inclined surfaces. (Tr. at 1450.)

Based on the foregoing and consistent with the plain language of the claims in issue, the administrative law judge finds that a person of ordinary skill in the art would find that the '703 patent specification repeatedly and unambiguously discloses embodiments where the domain regulating means do not have inclined surfaces, and where slits are used as the first and second domain regulating means on both substrates.

Samsung argued that the '703 patent disclaims domain regulating means lacking at least one inclined surface because the '703 patent allegedly distinguished Japanese Unexamined Patent Publication No. 6-301036 (the Kokai '036 reference) based on the fact that it did not disclose an inclined surface. (RBr at 119-21.) In support it relied on the following language of the '703 patent:

In the constitution disclosed in Japanese Unexamined Patent Publication (Kokai) No. 6-301036, apertures (slits) are provided on only the counter (CF) substrate. Therefore, the size of domain areas cannot be too small. Contrarily, according to the present invention, the size of domain areas can be optionally determined because the domain regulating means are provided on both of the pixel electrode and counter electrode. Further at least one of the domain regulating means has inclined surfaces, the response speed can be improved.^[2]

(JX-4 at 21:62-22:4 (emphasis added).)

The administrative law judge finds that a plain reading of said language supra of the '703 patent shows that the '703 patent distinguished the Kokai '036 reference because it only disclosed slits on one counter (CF) substrate. (Silzars, Tr. at 140; CDX-35.) In addition, the alleged "disclaimer," supra, relied on by Samsung is accompanied by the word "optionally." The administrative law judge finds that the reference to inclined surfaces in the '703 patent at 22:3, supra is an option. (See also Silzars, Tr. at 526-527.) Respondents' expert Flasck admitted that the meaning of the term "optionally" in said language has an ordinary meaning, which he

² The staff noted that the statement "[f]urther, at least one of the domain regulating means has inclined surfaces, the response speed can be improved" has an implied "if" and should be read to say "further, if at least one of the domain regulating means has inclined surfaces, the response speed can be improved", citing Silzars, Tr. at 525-27 and thus that the statement is not an unequivocal statement limiting the claimed invention. (SBr at 14.) The administrative law judge agrees.

described as “a choice that can be made.” Thus he testified:

Q. Let's go to RDX-324. You spent a lot of time on this slide, Mr. Flasck, and there's a lot of highlighting on this screen. There's some blue, green, and yellow. I want to focus on the word "optionally," which is not highlighted, and I didn't hear you mention that in your testimony. So I'm going to ask you, doesn't the word "optionally" indicate that we're talking about something that's optional?

A. Optional, I believe, has an ordinary definition here.

Q. And what's the ordinary definition of optional or optionally?

A. It's a choice that can be made.

(Flasck, Tr. at 1466-1467 (emphasis added).) Moreover as complainant's expert testified:

Q. Then they also say that another reason why they deserve the patent is that at least one of the domain regulating means has inclined surfaces, correct?

A. That sentence really has to – grammatically, the only way that sentence can be read correctly is if you say "if" or "when" because, otherwise, it doesn't read correctly. It's a choice. It says, if at least one of the domain regulating means has an inclined surface, then the response speed can be improved.

Q. I don't see the word "if" there, Dr. Silzars, do you?

A. I agree with you, it's not there. But the only reasonable way I can read that sentence is to say that it's an option. Because all of this is optional. They say this is – these are options that we now can provide with our invention.

(Tr. at 525 (emphasis added).) Something that is “optional” or that is “a choice that can be made” is not a clear disavowal of claim scope and thus the administrative law judge finds cannot rise to the level of a disclaimer. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (Even when the specification describes only a single embodiment, the claims of the

patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.) Indeed, the discussion of the Kokai '036 reference in the '703 patent identified slits as a corresponding structure to the domain regulating means under §112, §6 and the disclosed difference in the specification of the '703 patent is the statement that slits or other domain regulating means could be used on both substrates in embodiments of the '703 patent, not just on one substrate. Hence, the administrative law judge finds that the '703 patent does not evince a “clear” intent to disclaim first and second “domain regulating means” not possessing at least one inclined surface. SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). To the contrary, he finds such a finding would be at odds with the breadth of the disclosure in the '703 patent, since the '703 patent discloses numerous structures, i.e., protrusions, slits, dents, depressions, and the edges of pixel electrodes, as well as embodiments with no inclined planes (see, e.g., Figures 12A, 79B) that correspond to the claimed function.

Respondents argued that, because under complainant’s construction of “domain regulating means” an edge of an electrode can be a domain regulating means and because the JP '036 publication discloses an aperture on the top substrate and an electrode edge on the bottom substrate, the JP '036 publication has more than one domain regulating means. (RBr at 120; RBr at 37; RPF 2097.) Thus, according to respondents, the only remaining distinction between the '703 patent and the JP '036 application is that, in the '703 patent invention, “at least one of the domain regulating means has inclined surfaces.” (RBr at 120; RBr at 37.) However, the administrative law judge finds that respondents are reading something into the quoted portion of '703 specification (JX-4 at 21:62-22:4 supra), which clearly states that in the JP '036 application

“apertures (slits) are provided on only the counter (CF) substrate.” (SBr at 15; JX-4 at 62-63 (emphasis added).)

Respondents also argued that “the ‘703 patent is a divisional application of Serial No. 09/097,027, which is now U.S. Patent No. 6,724,452 (the ‘452 patent)” and the parent of the ‘703 patent; that during the prosecution of the parent ‘452 patent, the applicants expressly relied on the difference between a domain regulating means having an inclined surface, e.g., a protrusion, and a domain regulating means without an inclined surface, e.g., a slit, to distinguish the invention of the ‘703 patent from prior art disclosing the use of oblique electric fields to form domains; that in particular, the applicants expressly stated: “slits, however, as taught by Koma, [U.S. Patent No. 5,608,556] are not equivalent to protrusions as azimuth regulating means in a VA device”; and that because structures with an inclined surface, e.g., protrusions, and structures without an inclined surface, e.g., slits in electrodes, are not equivalent structures, construing “domain regulating means” as a means-plus-function limitation still requires an inclined surface. (RBr at 126-7.) The administrative law judge however finds that the ‘703 patent, as issued by the Patent Office, discloses that slits can be at least one of the domain regulating means because slits are explicitly included in claim 2. Hence, the administrative law judge finds that the applicants’ statement distinguishing the Koma reference does not limit the term “domain regulating means” to a structure where at least one of the “domain regulating means” is something other than a slit. Moreover, in the ‘703 patent prosecution, both the Examiner and applicants considered that slits could form both the first and second domain regulating means. For instance, the Examiner rejected the pending claims in light of U.S. Patent No. 5,434,690 (the ‘690 patent), because it disclosed the claimed first and second domain regulating means in the form of slits/apertures:

“the first substrate ... including first domain regulating means (slits 13b)” and “the second substrate ... including second domain regulating means (slits 14b).” (JX-8 at SHARP 1932.) In response to the Examiner’s rejection of the pending claims in light of the ‘690 patent, the applicants did not dispute the Examiner’s characterization of slits 13b and 14b as the first and second domain regulating means. (JX-8 at SHARP 1937-1948 (Amendment D (August 4, 2003)), SHARP 1955-1965 (Request for Cont’d Exam’n (February 26, 2004)), and SHARP 1967-1976 (Amendment E (February 26, 2004)). Also during the prosecution of the ‘452 patent, which is the parent of the ‘703 patent, the Examiner issued a restriction requirement directing the applicants to elect a species of the claimed invention. (JX-17 at SSNG 559224.) One of the species cited by the Examiner was an “LCD device having both structure [sic] are slits (Claim 21)” (JX-17 at SSNG 559224) indicating that the Examiner was giving the applicants the option of electing as an invention a species where both structures are slits.

Based on the foregoing, the administrative law judge finds that a person of ordinary skill in the art would interpret the claimed function of “domain regulating means” as forming liquid crystal domains when voltage is applied to the liquid crystal, and that the specification of the ‘703 patent discloses the following structures as corresponding to the claimed domain regulating function: one or more of a protrusion, slit, dent, depression, or edge of a pixel electrode, in a non-rubbed VA type display, or equivalents thereof.

2. “line portions”

The second disputed claim term in the ‘703 patent is “line portions” which is recited in all of the asserted claims. For example, independent claim 1 has the following language:

wherein when vertically seen to the substrates, said first domain

regulating means includes first line portions and second line portions, said first line portions being extended in a first direction, said second line portions being extended in a second direction different from said first direction, said second domain regulating means includes third line portions and fourth line portions, said third line portions being extended in said first direction, said fourth line portions being extended in said second direction, said first and third line portions being arranged to be neighbored and to be approximately parallel to each other, and said second and fourth line portions being arranged to be neighbored and to be approximately parallel to each other, and wherein said azimuths of the orientations are regulated according to respective directions of said line portions.

(JX-4 at 91:1-16 (emphasis added).)

Complainant argued that the claimed phrase “line portion” should be construed as “a linear segment of a ‘domain regulating means.’” (CBr at 36.) According to complainant, a segment of a linear slit is a single “line portion,” which does not include the edge of a slit because the edge of a slit, as opposed to the slit itself, does not perform the function called for in claims 1 and 13 of the ‘703 patent. (CBr at 37.)

Respondents’ proposed construction of “line portions” is “line segments,” which can include edges. (RBr at 134-35.) Respondents argued that the intrinsic evidence is silent as to the meaning of the claim term “line portions” in the context of the ‘703 patent, yet it also argued that the intrinsic evidence supports respondents’ construction and referred to FIGS. 54, 70A and 254A of the ‘703 patent. (RBr at 135-6.) Respondents also argued, referring to the prosecution history, that in view of the applicants’ express statement that the line portions are not intended to be limited to the zigzag pattern, “it is reasonable” to conclude that the applicants intended the term “line portions” to cover additional arrangements as illustrated in FIGS. 70A and 254A.

(RRBr at 53.)

The staff argued that the claimed “line portions” are portions of the domain regulating means that are generally shaped in a “line” (or linear) rather than simply the edges or sides of the domain regulating means. (SBr at 19.)

As seen from the language of independent claim 1, supra there is no mention of side or edges associated with the term “line portions.” The administrative law judge finds that dependent claim 6 sheds light on the meaning of “line portions.” Thus dependent claim 6, which depends from independent claim 1, requires that “said first and second domain regulating means are repeatedly arranged with a predetermined pitch respectively on said first and second substrates.” (JX-4 at 94:33-35 (emphasis added).) The specification of the ‘703 patent discloses that slits and protrusions are arranged at a predetermined pitch but does not disclose that sides of slits and protrusions are arranged as such. (See, e.g., JX-4 at FIGS. 42 and 43; CDX-1201.) The administrative law judge finds nothing in the ‘703 patent to show that the sides or edges of a domain regulating means structure are arranged at a predetermined pitch.

While the term “line portions” only appears in the claims, the administrative law judge finds that a person of ordinary skill in the art would find several places in the ‘703 patent specification where the term “linear” is used to describe protrusions as a whole. Thus reference is made to the following:

In the first and second embodiments, numerous linear protrusions extending unidirectionally are located parallel to ... (JX-4 at 27:54-55 (emphasis added).)

FIGS. 69A and 69B are diagrams showing an arrangement of a linear (striped) protrusion arrangement ... (JX-4 at 39:19-20 (emphasis added).)

Linear protrusions 20A and 20B are disposed in the same pitch on substrates 16 and 17, respectively, as shown ... (JX-4 at 51: 20-21 (emphasis added).)

FIG. 134A shows linear and parallel protrusions used to divide an orientation-divided domain into two regions, and FIG. 134B shows zigzag protrusions used to divide ... (JX-4 at 59:62-64 (emphasis added).)

Thus, the administrative law judge finds that a person of ordinary skill in the art would find no instances in the '703 patent specification where the sides or edges of a protrusion or any other domain regulating means structure are referred to as "linear" or "line."

Respondents argued that the prosecution history supports respondents' broad construction of "line portions." (RBr at 136-137.) In response to a double patent rejection issued by the Examiner during prosecution of the '703 patent, applicants did explain that the term "line portions" is not limited to a zigzag pattern but also includes other arrangements, such as if the line portions are not connected. (JX-8 at 1260.) Specifically, the applicants stated:

Lastly, Applicants wish to emphasize that the recited configurations of the present invention cover a much broader scope of protection than the mere "zigzag shape" asserted by the Examiner in the double patenting rejection. Therefore, Applicants have added new dependent claims 189-192 to clarify that the first and second line portions, and the third and fourth line portions, may or may not be physically connected, respectively. Although Applicants submit that these features of the present invention should have already been clear to one skilled in the art when read in light of the disclosure and drawings of the Specification, Applicants submit that entry of these dependent claims is necessary at this time to avoid an overly narrow interpretation of the claims of the present invention based on the Examiner's comments in the outstanding Office Action.

(JX-8 at 1260.) Respondents argued that in view of applicants' express statement that the line portions are not intended to be limited to the zigzag pattern, the applicants intended the term

“line portions” to cover additional arrangements. (RBr at 137.) However, the administrative law judge finds that said statement made by applicants simply makes it clear that the line portions can be physically separated and still meet the claim language. The administrative law judge finds that said statement does not suggest that line portions should apply more broadly to include edges or sides of a domain regulating means. Moreover the administrative law judge finds that if respondents’ construction of the term “line portions” were adopted, the claimed function of “azimuths of the orientations are regulated according to respective directions of said line portions” would not be achieved. As, complainant’s expert Silzars testified:

Q. What do we have on CDX-37?

A. CDX-37 is comparing the Sharp and Staff's construction to the Samsung construction. And the Staff – Sharp and Staff's construction is that it's a linear segment of a domain regulating means.

The term line portion as it is used in the claim and as it must apply to a reasonable technical interpretation of what we're discussing requires that it be a linear segment of a domain regulating means. The Samsung construction simply can be of any line segment. If we look at, for example, a – a slit, based on Sharp's construction, it's just one line portion, which means it's one segment of a domain regulating means.

The Samsung construction, if you simply take lines, you end up with really four line portions that can be applied to this construction.

Q. Do you have an opinion as to which of these constructions would be correct in your view?

A. Since the slit operates as a whole, it is not possible to take a slit and have one edge be one thing and the other edge be something else. Because it's a conductive surface, the charges on both sides are influenced by each other. You cannot isolate one side of the slit from the other. So it must work as a whole.

In Samsung's construction, if you attempt to split this up into the two sides and the end pieces, it simply can't work that way. You cannot isolate them. It's one unit. It's one structure. It has one function. And you can't modify one without changing the other.

Q. What have you provided in CDX-39?

A. In CDX-39, we're just adding this example and looking at what would happen if we use a Samsung construction on a protrusion.

And in this case, the protrusion is shown as somewhat of a rectangular or square-shaped cross-section. But, again, with Sharp's construction, we end up with one line portion, which is what it should be. It's one segment of a domain regulating means.

The Samsung construction, if we just, again, begin to assign line portions, we could have the edges, we could have the creases, we could have the end pieces, all those can qualify as line portions.

Functionally, that makes no sense. Functionally it's one structure. It works – it cannot be modified on one side versus the other, or on the ends versus the longitudinal pieces.

So assigning a number of independent line portions is technically contradictory with anything that we would actually observe.

(Tr. at 141-143 (emphasis added).)

Based on the foregoing, the administrative law judge finds that a person of ordinary skill in the art would construe “line portions” as “linear segments of a domain regulating means rather than simply the edges or sides of said means.”

3. “neighbored”

The last ‘703 claim term in dispute is “neighbored.” Said term is found in all of the asserted claims. For example it is found in the following portion of asserted independent claim

1:

wherein when vertically seen to the substrates, said first domain regulating means includes first line portions and second line portions, said first line portions being extended in a first direction, said second line portions being extended in a second direction different from said first direction, said second domain regulating means includes third line portions and fourth line portions, said third line portions being extended in said first direction, said fourth line portions being extended in said second direction, said first and third line portions being arranged to be neighbored and to be approximately parallel to each other, and said second and fourth line portions being arranged to be neighbored and to be approximately parallel to each other, and wherein said azimuths of the orientations are regulated according to respective directions of said line portions.

(JX-4 at 93:51-94:17 (emphasis added).)

Complainant argued that “neighbored” should be interpreted as “relatively close with no elements of like kind in between.” (CBr at 39.) Samsung argued that the claim term in issue should be interpreted as “relatively close with no intervening structures.” (RBr at 138.) The staff agreed with complainant on the construction of the term “neighbored.” (SBr at 20.) However, the staff and complainant appear to disagree on the meaning of the words used in the proposed construction. Thus the staff is of the view that “relatively close” means close enough so that when one applies electric field, it affects the azimuth of the LCD molecules between them, while complainant asserts that the distances which can be construed as neighbored are that which is disclosed in the ‘703 patent specification separating neighbored slits or protrusions, i.e. , from approximately 20-30 microns. (SRBr at 4-5.)

In connection with the phrase “relatively close” complainant’s expert Silzars at the hearing testified:

Q. Okay. Was it your idea to change between the "not a great distance

apart" to the "relatively close" construction?

A. I don't think it was uniquely my idea. This was evolved in discussion with Morrison & Foerster and Nixon Vanderhye attorneys.

Q. What does it mean to be relatively close, Dr. Silzars? Is that some kind of a numerical limit?

A. We have to define it in the context of, again, of the patent, of the kind of structures that we're dealing with. And from a technical standpoint, when we talk about relatively close, what it implies is that there is some influence that can be exerted by either a voltage being applied or the structure that exists. If something is -- if there is no effect from an action that I take on some other, let's call it neighboring structure, then, in this context, we would define that as to be not relatively close.

So relatively close has to be interpreted in terms of some influence that can occur as a result of, in this case, voltages being applied or the structure being configured.

Q. So the idea is that the two elements have to be close enough so that when you apply electric field between them, it affects the azimuth of the LCD molecules between them, correct?

A. Yes.

Q. When we're looking at numbers for these kinds of devices, I think you said in direct that 27-1/2 microns might be close enough; is that right?

A. That's correct. Those are the actual measurements from some of the panels that we have.

Q. Is 30 microns close enough?

A. It would be. And just to kind of put it in context so that we begin to understand why is something close enough, why is it not, the two substrates are typically spaced apart by about 3 to 5 microns. So we're in that range. So we're comparing to a spacing of 3 to 5 microns.

So certainly 5 microns, 10, that would seem pretty close compared to that distance apart. When we get to 20 to 30, we still have quite a good effect.

What we see from one of the figures in the patent, which I may not be able to find on short notice, is that the effect degrades rather quickly once we get to distances on the order of 40 or 50 microns. And it's interesting that the effect drops off. It's not linear. It's almost like falling off a cliff. So that when we looked at the Kokai reference earlier and it said that the distance was too great to influence, it's when you cross that distance of the pixel, the effect just disappears.

So there's just -- it's not exactly a threshold. But it's more abrupt than just a linear dropoff. So the distances that we're looking at always compare to the spacing between the substrates and then how far we go. And certainly we're finding the distances on the order of 30 microns are okay.

Those are close.

Q. What about 40? 40 microns?

A. 40 is getting -- starting to get into that region where the effects are beginning to drop off.

And by 50, you -- you've probably dropped off to the degree that it would no longer be suitable for exerting this control.

Q. How far would you have to go in order for there to be no control? 60 microns? 70 microns? 100?

A. From a practical sense, perhaps something on that order. If -- if you're talking to a physicist, he might have to say, no, we have to go to the next galaxy. That's not reality. And the realistic dropoff of influence is probably in the range once we get, yeah, 60, 70, 80. I think by then it would not be a useful structure anymore.

(Tr. at 541-44 (emphasis added).) Respondents' expert Flasck testified:

Q. What do you mean by relatively close in your proposed construction of neighbored?

A. In my construction, by relatively close, I mean a distance that is not so great as to prevent two structures from controlling or aligning the liquid crystal molecule directions between them.

(Tr. at 1403 (emphasis added).) Flasck later testified:

Q. Now, you testified earlier that 100 microns was not relatively close, right?

A. Well, I think what I testified to was relatively close means close enough to essentially regulate the formation of domains. You asked me to estimate a number. I said it depended on many variables in the display, you know, and I came up with a number of perhaps normal displays, you know 100, 110 microns, is what I recall.

This is 140 microns, but it is clear from the Koma reference, that it is in fact regulating the domain formation, it's regulating the domains during formation, so by definition, it is close enough – you don't see any disclination lines forming in the patent here, so according to this patent, it is relatively close within the context of the meaning of the '703 patent.

Q. So you want us to ignore your testimony from earlier today that 110 microns was too far to be relatively close?

A. I don't believe my testimony was 110 microns is too far. I said that relatively close meant close enough so that the two domain regulating means could regulate the domains during domain formation, and you asked for a number, I gave you a rough number based on lots of variables.

And I made it clear that there were lots of variables involved. So 140 microns is not unreasonable.

Q. Mr. Flasck, you did testify probably an hour ago that 110 microns was not relatively close in your opinion, right?

A. I don't remember doing that. If I did, I was incorrect.

(Tr. at 1506-1507 (emphasis added).)

While complainant's expert and respondents' expert in their testimony supra made

reference to numerical limits, the administrative law judge finds said testimony ambiguous as to precise limits. Moreover, the Federal Circuit has not imposed precise numeric constraints on claim language unless there is something that imposes a clear and unmistakable disclaimer. See Playtex Prods. Inc. v. Proctor & Gamble Co., 400 F.3d 901, 907 (Fed. Cir. 2005.)

Based on the testimony of the experts of the private parties the administrative law judge finds that a person of ordinary skill in the art would interpret the claimed term “neighbored” as the two elements relatively close enough so that when one applies an electric field between them, it affects the azimuth of the LCD molecules.

C. Infringement

Resolution of the question of infringement of patent claims requires a two-step analysis. First, the patent claims must be construed, as a matter of law, to determine their scope and meaning. Second, a factual inquiry must be conducted in order to compare the claims, as relatively close with no elements of like kind in between such that the properly construed, to the accused device or process. See MBO Labs., Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1329 (Fed. Cir. 2007); see also Zelinski v. Brunswick Corp., 185 F.3d 1311, 1315 (Fed. Cir. 1999) (citing Markman, 52 F.3d at 976).

The second step of the infringement analysis, which is a factual inquiry, focuses on whether the patent claims encompass the accused device or process literally or under the doctrine of equivalents. Zelinski, 185 F.3d at 1315. Sharp bears the burden of demonstrating infringement by a preponderance of the evidence. Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc., 424 F.3d 1293, 1310 (Fed. Cir. 2005). To prove literal infringement, Sharp must show that an accused product contains every limitation in the asserted claims. WMS Gaming

Inc. v. Int'l Game Tech., 184 F.3d 1339, 1350 (Fed. Cir. 1999). Alternatively, the accused products may also infringe the patent claims under the doctrine of equivalents if the differences between the accused products and the claimed invention are “insubstantial.” Desper Prods. Inc. v. QSound Labs, Inc., 157 F.3d 1325, 1338 (Fed. Cir. 1998). Equivalency of an element of a claim to an element of an accused device is determined on an element-by-element basis at the time of infringement. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997); Certain Electric Robots and Component Parts Thereof, Inv. No. 337-TA-530, Final Initial and Recommended Determinations, 2005 ITC LEXIS 868, at *107 (December 19, 2005) (unreviewed).

“[P]rosecution history estoppel limits the broad application of the doctrine of equivalents by barring . . . equivalents . . . relinquished . . . during prosecution.” Conoco, Inc. v. Energy & Envtl. Int'l, 460 F.3d 1349, 1363 (Fed. Cir. 2006); see also Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 733-34 (2002). Prosecution history estoppel arises in two ways: (1) by making a narrowing amendment to the claim (“amendment-based estoppel”) or (2) by surrendering claim scope through argument to the patent examiner (“argument-based estoppel”). Deering Precision Instruments v. Vector Distribution Systems, Inc., 347 F.3d 1314, 1324-25 (Fed. Cir. 2003).

Specifically, amendment-based estoppel arises when a patentee makes “a narrowing amendment to satisfy any requirement of the Patent Act” Festo, 535 U.S. at 736. Amendments that do not narrow a claim’s scope or do not affect patentability do not create amendment-based estoppel. (Id.) However if the prosecution record shows no reason for the amendment, it is presumed that the narrowing amendment was made to satisfy the requirements

of patentability. *Id.* at 736, 739. Therefore, a patentee bears the burden of showing that narrowing amendments were not made for patentability purposes. *Id.*

Argument-based estoppel arises when a patentee makes statements that differentiate his invention from the prior art. *See, e.g. Deering*, 347 F.3d at 1326-27. A patentee invokes argument-based estoppel whenever the prosecution history “evinces a clear and unmistakable surrender of subject matter.” *Pharmacia & Upjohn Co. v. Mylan Pharmaceuticals, Inc.*, 170 F.3d 1373, 1376-77 (Fed. Cir. 1999) (citation omitted). The court applies an objective test to determine when subject matter has been “clearly” and “unmistakably” surrendered: would “a competitor . . . reasonably believe that the applicant had surrendered the relevant subject matter.” *AquaTex Industries, Inc. v. Techniche Solutions*, 419 F.3d 1374, 1382 (Fed. Cir. 2005) (quoting *Cybor*, 138 F.3d at 1457.) If the court determines that the patentee “clearly” and “unmistakably” surrendered equivalents, argument-based estoppel bars the elements at issue from encompassing the disavowed equivalents. *Deering*, 347 F.3d at 1326-27.

A person may also infringe a patent claim indirectly. Section 271 (b) of the Patent Act provides that “[w]hoever actively induces infringement of a patent shall be liable as an infringer.” To establish liability for induced infringement, “a patent holder must prove that once the defendants knew of the patent, they actively and knowingly aided and abetted another’s direct infringement.” *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) (*DSU Med. Corp.*) (citations omitted). However, “[t]he mere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven.” *Id.*

Additionally, 35 U.S.C. § 271(c) provides that:

[w]hoever offers to sell or sells within the United States . . . a component of a patented machine, manufacture, combination or composition . . . constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article of commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

Thus, “[i]n order to succeed on a claim of contributory infringement, in addition to proving an act of direct infringement, plaintiff must show that defendant knew that the combination for which its components were especially made was both patented and infringing, and that defendant’s components have no substantial non-infringing uses.” Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc., 424 F.3d 1293, 1312 (Fed. Cir. 2005). Direct infringement is a necessary element of induced and contributory infringement. DSU Med. Corp., 471 F.3d at 1303.

Complainant argued that the Samsung accused products infringe claims 1, 2, 6-8, 13, 14, 16 and 17 of the ‘703 patent. With respect to the accused products Samsung produces two basic categories of VA LCD modules that are at issue with respect to the ‘703 patent: PVA (Patterned Vertical Alignment) and SPVA (Super Patterned Vertical Alignment) LCD modules. (CDX-47C CFF.V138 (undisputed).) Samsung incorporates its LCD modules into LCD televisions, professional displays, and monitors. Specifically, Sharp accuses Samsung’s PVA and A3, A4 and CC/CS type SPVA LCD modules of infringing claims 1, 2, 6-8, 13, 14, 16 and 17 of the ‘703 patent. (Silzars, Tr. at 154; CDX-47.) Sharp does not accuse any non-Samsung LCD module of infringement. (Id.) There are three sub-categories of SPVA LCD products: SPCA A3, SPVA A4, SPVA CC/CS. (CFF.VI.39 (undisputed).)

Samsung argued that its PVA and SPVA LCD modules do not infringe the asserted claims of the ‘703 patent, because its modules do not have the claimed “domain regulating

means.” (RBr at 144-45).

The staff argued that complainant has met its burden of proving, by a preponderance of the evidence, that the Samsung accused products infringe claims 1, 2, 6-8, 13, 14, 16 and 17 of the ‘703 patent. (SBr at 45.)

With respect to claim 1 of the ‘703 patent,{

}(See, generally, RBr at 143-146; RRBr 58-

60.) {

}(CFF V.160, CFF V.201, CFF V.241, CFF V.267 (all

undisputed));{

} (CFF

V.177, CFF V.218, CFF V.256, CFF V.282 (all undisputed)). Thus, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that the accused products practice said first and fifth elements of asserted claim 1 of the ‘703 patent.

Respondents’ arguments regarding the remaining elements of asserted claim 1 of the ‘703 patent are based{

} Respondents contend that{

} (See Flasck, Tr. at 1405-08.) The administrative law judge, however, has found, supra that there is no requirement that one of the first and second “domain regulating means”

have an inclined surface. Moreover, as disclosed in the '703 patent,{

} Thus, the administrative law judge finds that all of the accused Samsung PVA and SPVA modules use{

} as domain regulating means. See Silzars, Tr. at 160-70, 192-94, 209-210; CDX-52 - CDX-55; CDX-60 - CDX-65; CDX-66; CDX-449; CDX-96; CDX-97; CDX-99; CDX-142; CDX-144; CDX-145; CDX-146; CDX-93; CX-47;{

} In addition, he finds that the overall shape of the{ } in the PVA and SPVA modules is essentially the same. Id.

The administrative law judge further finds that Samsung's accused products all have{ } See Silzars, Tr. at 171-72, 175-76, 199, 215-16; CDX-67; CDX-69; CDX-74; CDX-75; CDX-76; CDX-77; CDX-115; CDX-116; CDX-117; CDX-155; CDX-156; CDX-157; CDX-158; CDX-159; CDX-160; CDX-161.

Thus, based on the foregoing, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that the accused products practice asserted claim 1 of the '703 patent.

With respect to the asserted claim 2, the administrative law judge finds that complainant has established, by a preponderance of the evidence, that said claim is infringed by all of the accused Samsung products because they all include{ } as found supra, as required by claim 2. See CX-466.59-60; CX-830.8;{ }; Silzars, Tr. at 186, 202, 223-24; CDX-84; CDX-125. Referring to claim 13, all of the accused Samsung

products have{ } and hence infringe said claim 13. See{ } CX-466.59-60; CX-830.8; Silzars, Tr. at 186-87, 202-03, 224; CDX-85; CDX-126;{ }

Referring to claims 6 and 14, all of the accused Samsung products{

{ }and hence infringe said claims 6 and 14. See CX-466.59-60; CX-830.8;{ } Silzars, Tr. at 187, 203, 224;CDX-86; CDX-127;{ } Referring to claims 7 and 17, all of the accused Samsung products have

{ }and hence infringe said claims 7 and 17. See { }; CX-466.59-60;{ } CX-830.8; Silzars, Tr. at 187, 204; CDX-87;{ }

As for claims 8 and 16,{

{ }and hence infringe said claims 8 and 16. See CX-466.59-60; CX-830.8;{ } Silzars, Tr. at 187-188, 204;CDX-88; CDX-129;{ }

Based on the foregoing the administrative law judge finds that complainant has established, by a preponderance of the evidence, that all of the Samsung accused products having Samsung's PVA and SPVA LCD panels literally infringe claims 1, 2, 6-8, 13, 14, 16 and 17 of the '703 patent.

D. Validity

Although a patent is presumed valid upon issue, see 35 U.S.C. § 282, it is invalid as anticipated if it “was known or used by others in this country, or patented or described in a printed publication” before the claimed invention, id. § 102(a), or if it was “patented or described

in a printed publication . . . more than one year prior” to the filing date. Id. § 102(b). However, for anticipation, “all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim.” Karsten Mfg. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1383 (Fed. Cir. 2001) (emphasis added).

Under 35 U.S.C. § 103, 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.” 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. The Upjohn Co., 122 F.3d 1476, 1479 (Fed. Cir. 1997); Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1570 (Fed. Cir. 1997). The Federal Circuit has rejected “broad conclusory statements regarding the teaching of multiple references” so as to guard against “the subtle but powerful attraction of a hindsight-based obviousness analysis.” In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999). It is not proper to use the patents in issue as templates from which to piecemeal prior art references. As the Federal Circuit has stated: “[t]o draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction--an illogical and inappropriate process by which to determine patentability.” Sensonics, Inc. v. Aerosonic Corp., 81 F.3d 1566, 1570 (Fed. Cir. 1996); (citing W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1553 (Fed. Cir. 1983)). “The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made.” (Id. citing Interconnect Planning Corp. v.

Feil, 774 F.2d 1132, 1138 (Fed. Cir. 1985).)

In KSR Int'l v. Teleflex, 127 S.Ct. 1727 (2007) (KSR), the Supreme Court reaffirmed its long-standing obviousness test:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

Id. at 1734 (quoting Graham v. John Deere Co., 383 U.S. 1, 17-18, (1966)). However, the Supreme Court found that the Federal Circuit had addressed the question of obviousness in a manner contrary to 35 U.S.C. § 103 and Supreme Court precedents. Thus it stated:

Seeking to resolve the question of obviousness with more uniformity and consistency, the Court of Appeals for the Federal Circuit has employed an approach re-ferred to by the parties as the “teaching, suggestion, or motivation” test (TSM test), under which a patent claim is only proved obvious if “some motivation or suggestion to combine the prior art teachings” can be found in the prior art, the nature of the problem, or the knowledge of a person having ordinary skill in the art. See, e.g., Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1323-1324 (CA Fed. 1999). KSR challenges that test, or at least its application in this case. See 119 Fed. Appx. 282, 286-290 (CA Fed. 2005). Because the Court of Appeals addressed the question of obviousness in a manner contrary to § 103 and our precedents, we granted certio-rari, 547 U.S., 126 S. Ct. 2965, 165 L. Ed. 2d 949 (2006). We now reverse.

127 S.Ct. at 1734-35, (emphasis added).

Respondents argued that claims 1, 2, 6, 7, 13, 14 and 17 of the '703 patent are anticipated or are rendered obvious by Lein U.S. Patent No. 5,309,264 ('264 patent) (RX-230; RFF 2366;

RBr at 147-53.) Respondents also argued that the '264 patent and Hisatake U.S. Patent No. 5,434,690 ('690 patent) (RX-231) render claims 7, 8, 16 and 17 of the '703 patent obvious. (RFF 2463; RBr at 153-57.) Respondents further argued that Konia U.S. Patent No. 5,666,179 ('179 patent) (RX-232) anticipates or renders obvious all asserted claims of the '703 patent. (RBr at 157-63.) It is also argued that a combination of the '179 patent and the '690 patent renders claims 7, 8, 16 and 17 of the '703 patent obvious. (RBr at 163.)

Complainant argued that respondents have not met their burden to show, by clear and convincing evidence, that any asserted claim of the '703 patent are anticipated or rendered obvious. (CBr at 69; CRBr at 41.) Specifically, complainant argued that Lien does not anticipate independent claims 1 and 13 of the '703 patent because Lien discloses only "twist regions" of liquid crystal molecules and does not disclose the limitation requiring domains with liquid crystal molecules in generally the same direction, nor the limitation requiring regulating azimuths of orientation according to respective directions of said line portions as recited in claims 1 and 13. (CBr at 70; CRBr at 43.) Complainant also argued that Koma does not disclose the elements of independent claims 1 and 13 requiring "domain regulating means" having the required "line portions" and that Koma does not disclose "line portions" of the first and second "domain regulating means" that are "neighbored" as recited in claims 1 and 13. (CBr at 75; CRBr at 47.)

The staff argued that the asserted claims of the '703 patent are not invalid. (SBr at 56-61.)

1. Anticipation ('264 Patent)

The Lien '264 patent (RX-230) titled "Liquid Crystal Displays Having Multi-Domain Cells," was filed in the United States on April 30, 1992, and is assigned to IBM. Sharp does not dispute that the '264 patent is prior art against the '703 patent. (RPFF 2370 (undisputed).)

It is undisputed that the Examiner considered the '264 patent during the prosecution of the '703 patent and then allowed the claims of the '703 patent in spite of the teachings of the '264 patent. Samsung however argued that while during prosecution of the '703 patent, the Examiner cited the '264 patent in a rejection of the claims of the application; that the applicants, in an Amendment dated December 3, 2002, distinguished the X-shaped slits disclosed in the '264 patent from the claims of the pending application (JX-8); that the Examiner did not make reference to, nor did the applicants attempt to distinguish, the +-shaped slits illustrated in FIG. 8 of the '264 patent; that specifically, the applicants purportedly distinguished the disclosure of the '264 patent stating:

Lien [the '264 patent] discloses only X-shaped slits on a single substrate. Nowhere does Lien teach or suggest two different domain regulating means on two respective opposing substrates. More particularly, Lien fails to disclose first line portions on one substrate being parallel to third line portions on a second substrate, or second line portions on the first substrate being parallel to fourth line portions on the second substrate.

Id.; and that only by “misrepresenting” that the '264 patent “discloses only X-shaped slits,” and by ignoring the Lien '264 patent’s disclosure of the +-shaped opening 124 as a first domain regulating means on a first substrate and the edges of the electrode 120 as a second domain regulating means, in which the edges of the +-shaped opening are in fact parallel to the edges of the electrode, were the applicants able to articulate any distinction between the Lien '264 patent and the invention of the '703 patent. (RBr at 152-3.)

The administrative law judge finds that Figure 8 of the '264 patent does not disclose either a first or second “domain regulating means.” As complainant’s expert Silzars testified:

Q. Dr. Silzars, referring to CDX-281, we’re going to address validity

and in particular with respect to the '703 patent.

Referring to CDX-282, do you recall that Samsung anticipation based on the Lien reference?

A. Yes, I do.

Q. Did you prepare a number of slides to had help explain your veiw?

A. Yes, I did.

Q. What do we have at CDX-284?

A. CDX-284 is a figure 8 from Lien and what I am indicating with this figure is that Lien does not anticipate the claims of the '703 patent.

Q. And what is shown at CDX-285?

A. 285, we're showing that Lien was considered by the examiner, and he is listed on the face of the '703 patent.

Q. And what is shown at CDX-287, which references JX-8?

A. This is a partial list of claims that during the prosecution were actually rejected. And I have highlighted the portion that shows that they were actually rejected, based on Lien. So Lien was thoroughly considered by the examiner and used in the prosecution history.

Q. What do we have at CDX-288?

A. I have highlighted here three sections of claim 1 that show Lien does not disclose two of the critical features of the '703 patent as it pertains to claim 1, specifically does not disclose the azimuths of orientation that need to be regulated according to respective directions of said line portions, and Lien also does not disclose domains with liquid crystal molecules in generally the same direction.

Q. How about CDX-289?

A. This is one of the figures of the '703 patent simply to illustrate

using the elongated symbols for the molecules and the letters A, B, C, D, what is meant by the azimuths of orientation for these molecules.

Q. What is shown as CDX-291 – and for the record, I not that Lien is RX-230.

A. Okay. What I have done here is to compare figure 8 from Lien and figure 86B from the '703 patent. And this comparison was used by Mr. Flasck as an indication that Lien has relationship to the '703 patent.

And what I want to highlight here is that this figure 86B was specifically not covered by the claims of the '703 patent, and I believe on the next slide, I will be able to illustrate why.

Q. Is the structure in figure 8 of Lien similar to that in figure 86B of the '703 patent?

A. To some extent it is, in the sense that crosshatch or the crisscross area in the middle is on the same surface, and then there is an outer surface around the edge or there is an edge of some kind. The specific features that are similar are that the cross area and outer area are on opposing substrates.

Q. And what do we have at CDX-293?

A. This illustrates why Lien is simply not applicable to the '703 patent claims. The crossed area in the middle and then the outer surrounding area create what is described in Lien – well, it is described in the '703 patent as two opposite twists in many directions.

I believe Mr. Flasck made the possible connection that, while those two twists regions, they may also be considered domains. But that is not the critical phrase, the critical feature that must be satisfied by claim 1. Claim 1 has to satisfy that these areas are regulated according to respective directions of said line portions and using the construction that Mr. Flasck offered for what are line portions, we simply don't get anything that fits that.

We get some twisted orientation of molecules, but they certainly do not fit this respective directions that need to be identified, so,

therefore, Lien simply does not fit claim 1 of the '703 patent.

Q. So do you have an opinion as to whether claim 1 of the '703 patent is anticipated by Lien?

A. No. In fact, it is – Lien compares to a figure from the '703 patent that was used as an example of a structure that does not work very well. It is the opposite of what claim 1 is describing.

Q. Would your opinion be the same using either construction of line portion that's been offered in this investigation?

A. In this case, it is. I have said before that we cannot take edges of slits and identify those as line portions, but in this case, whether they are the edges or the entire slit, we end up with the same result. So my opinion is the same using either construction.

(Tr. at 2200-04 (emphasis added).) In addition, Flasck admitted that in Figure 8 of the Lien reference, the liquid crystal molecules in the upper left quadrant would twist over a range of zero to 90 degrees. (Flasck, Tr. at 1486; RDX-338.) Also in Figure 8, the liquid crystal molecules are oriented in many directions due to opposite twists³ and accordingly in Lien, the orientations of the liquid crystal molecules are not “regulated according to respective directions of said line portions” as required by claim 1 of the '703 patent. (Silzars, Tr. at 2203-2204; CDX-293.)

The administrative law judge finds that the Lien reference does not disclose the limitation requiring domains with liquid crystal molecules in generally the same direction (Silzars, Tr. at 2201; CDX-288); and that the Lien reference does not disclose the limitation requiring regulating azimuths of orientation according to respective directions of said line portions. (Silzars, Tr. at 2201; CDX-288.) Also, the applicants were ultimately successful in traversing the Examiner's rejections based on the Lien reference under 35 U.S.C. § 102(b) by arguing that:

³ Twist regions are called domains in the '264 patent (RFF 2396 (undisputed).)

The present invention relates to a vertically aligned ("VA") type liquid crystal display ("LCD") device having a first domain regulating means on a first substrate and a second domain regulating means on a second substrate. The first domain regulating means includes first and second line portions which are different, and extend in different directions, and the second domain regulating means includes a first and second line portions which are different, and also extend in different directions. According to this configuration, at least four domains, having at least four different azimuth directions may be formed. Moreover, by having line portions on one substrate parallel to respective line portions on the opposite substrate, the present invention advantageously realizes superior domain regulation control over the Lien reference, as well as other prior art of record.

Nowhere does Lien teach or suggest two different domain regulating means on two respective opposing substrates. More particularly, Lien fails to disclose first line portions on one substrate parallel to third line portions on a second substrate, or second line portions on the first substrate being parallel to fourth line portions on the second substrate. In other words, Lien fails to teach or suggest the superior domain regulating configuration and control of the present invention.

(JX-8 at SHARP 1924-1925 (emphasis added).)

Based on the foregoing, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that the asserted claims are anticipated by the Lien '264 patent.

2. Obviousness ('690 And '264 Patents)

Regarding respondents' argument that a combination of the Lein '264 patent (RX-230) and the Hisatake '690 patent (RX-231) renders claims 7, 8, 16 and 17 of the '703 patent obvious (RBr at 153),⁴ respondents argued that the '690 patent discloses the claimed zigzag shape recited

⁴ Hisatake was the basis of rejections during prosecution of the '703 patent. (Silzars, Tr. at 2206-2207; Flasck, Tr. at 4831; CDX-304; JX8 at Sharp 1933.) The Examiner made an obviousness rejection of application claims 172-174 and 187 in view of Hisatake over Lien.

in claims 8 and 16 and the claimed offset recited in claims 7 and 17.

The purpose of the zigzag-shaped structure in the Hisatake '690 patent is to promote light scattering, a problem not addressed by the '703 patent. See Silzars, Tr. at 2208-09; Flasck, Tr. at 1510-13. The '703 patent, by contrast, is directed to a vertically aligned liquid crystal that is organized into domains by domain regulating means, and light modulation is accomplished with the use of polarizers. See Silzars, Tr. at 2208-09. The '690 patent reference expressly criticizes the use of polarizers, however. See Silzars, Tr. at 2208-09; Flasck, Tr. at 1510-13; RX-231 (the '690 patent) at 1:39-55. Both Hisatake and Lien fail to disclose that "said azimuths of the orientations are regulated according to respective directions of said line portions." Silzars, Tr. at 2207-2208; CDX-306. Because both Hisatake and Lien fail to disclose that "said azimuths of the orientations are regulated according to respective directions of said line portions," the administrative law judge finds that this limitation would not be met even if they were combined. Silzars, Tr. at 2208; Flasck, Tr. at 1510; CDX-307. The Hisatake reference discloses a type of narrow angle device used in projection systems. Silzars, Tr. at 2208; CDX-307. Moreover, Flasck admitted that the Lien reference discloses multi-domain vertical alignment (MVA) technology that uses polarizers. (Flasck, Tr. at 1511.) Polarizers always absorb at least one-half of the light. (Silzars, Tr. at 2208-2209; CDX-309.) In addition, Hisatake intended to create a transmission type structure most applicable to a projection system that would increase light transmission. (Silzars, Tr. at 2208-09; CDX-310.) Moreover, the administrative law judge finds no reason why any person of ordinary skill in the art would have combined the references

(Silzars, Tr. at 2006-2207; Flasck, Tr. at 1483; JX8 at Sharp 1933; CDX-304.) Flasck admitted that the Lien and Hisatake references that he relied upon were both before the Examiner and used by the Examiner repeatedly during the prosecution of the '703 patent. (Flasck, Tr. at 1484.)

identified by Samsung as the individual references deal with very different types of LCD technology. See Silzars, Tr. at 2210-11, 2018-19. Also, as the staff noted, the same combination of art that Samsung is relying on was fully considered and rejected by the Examiner with respect to the very claims Samsung is challenging. (SBr at 61.)

Based on the foregoing, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that asserted claims 7, 8, 16 and 17 of the '703 patent are obvious over the combination of the '264 patent and '690 patent.

3. Anticipation ('179 Patent)

Samsung argued that Koma U.S. Patent No. 5,666,179 (the '179 patent) (RX-232) anticipates claims 1, 2, 6, 13, and 14 of the '703 patent. (CBr at 157-63.) The '179 patent is titled "Liquid Crystal Display Device Having Opening Formed in Electrode." (RX-232.) The inventor of the '179 patent is Koma and the assignee is Sanyo. (RPF 2518 (undisputed).) The '179 patent was filed on September 12, 1996 and relates to vertically aligned active matrix displays. (RPF 2519 (undisputed); RX-232.) Sharp does not dispute that the '179 patent is prior art to the '703 patent. (RPF 2520 (undisputed).)

The administrative law judge finds that the Koma reference does not disclose the elements of claim 1 requiring "domain regulating means" having "line portions." (See Silzars, Tr. at 2213; CDX-230.) The Koma reference also does not disclose line portions of the first and second domain regulating means that are "neighbored." (See Silzars, Tr. at 2213, 2214; CDX-321; CDX-325.) JP-6301036 is the Japanese counterpart to the Koma reference. (Silzars, Tr. at 2212; CX-1093; CDX-318; CDX-316.) The Japanese counterpart of the Koma reference is listed on the face of the '703 patent. (JX-4 at SHARP 6887; Silzars, Tr. at 2212; CDX-317.)

As with the '264 patent, the Examiner on the '703 patent considered subject matter of the '179 reference during prosecution. Thus, the Examiner considered FIG. 2 of the Japanese counterpart of the '179 patent during prosecution and allowed the '703 patent over it (JP 6301036 considered FIG. 2 of by the Examiner is a counterpart of US 5,666,179). (See Silzars, Tr. at 2212-13.)⁵ In addition, all of the asserted claims require two substrates with a “domain regulating means” on each substrate and with each “domain regulating means” having at least two “line portions” extending in different directions. The claims of the '703 patent further require that corresponding line portions on the first and second substrates be parallel. The '179 patent does not disclose “domain regulating means” comprised of line portions but instead it discloses a small square aperture. (See Silzars, Tr. at 2013-15.) Samsung alleges that the edges of this square are the alleged line portions. However, the edges or sides of a protrusion or slit are not line portions as that term is used in the '703 patent. (See JX-4 at 27:54-55, 39:19-21, 51:20-21, 59:62-64, 96:49-50; Silzars, Tr. at 2213-2214;; RX-232; CDX-321; CDX-325.) Moreover, one cannot isolate one side of a slit from the other, since the width of the slit operates as a whole as the charges on both sides are influenced by each other. (See Silzars, Tr. at 42.) As used in the '703 patent, line and linear are used to refer to apertures or protrusions as functional and structural units and they are not used to refer to edges or sides of an aperture or protrusion. (JX-4, at 27:54-55, 39:19-21, 51:20-21, 59:62-64, 96: 49-50, Silzars, Tr. at 2213-2214; RX-232; CX-321; CDX-325.)

⁵ Figure 6 in the Koma '179 reference, and Figure 2 in the Japanese counterpart of the Koma reference considered by the Examiner, are substantially the same. Thus all the elements and structures depicted are the same in both figures. (Silzars, Tr. at 2212-2213; CDX-318; CX-1093.6; RX-232.)

On another point, Silzars and Flasck agreed at the hearing that structures separated by a distance of 100 microns are not relatively close, and thus are not neighbored. (Flasck, Tr. at 1469-1470; Silzars, Tr. at 541-544.) The alleged line portions identified by Flasck in Figure 6 of Koma that must be neighbored are 145 microns apart in Koma. (Silzars, Tr. at 2214-2215; Flasck, Tr. at 1505-1506; CDX-327; CDX-330.)

Based on the foregoing, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that the '179 patent anticipates claims 1, 2, 6, 13, and 14 of the '703 patent.

4. Obviousness ('179 And '690 Patents)

Respondents argued that a combination of the Koma '179 patent and the Hisatake '690 patent renders claims 7, 8, 16 and 17 of the '703 patent obvious. (RBr at 163-66.) The Examiner considered both the Japanese counterpart of Koma and Hisatake during prosecution of the '703 patent but did not make an obviousness rejection and allowed the claims to issue. (Silzars, Tr. at 2220 CDX-348.)

Koma, like Lien, is a polarizer-based LCD. (RX-232, at 1:64-67; Flasck, Tr. at 1503.) The administrative law judge finds that one of ordinary skill in the art would not have combined Koma and Hisatake, for the same reasons that one would not have combined Lien and Hisatake. (See Silzars, Tr. at 2208-2212, 2218-2220; CDX-310- 313; CDX-337-348.) To the contrary, the administrative law judge finds that the teachings in the Koma and Hisatake reference would discourage any combination given the different and non-complimentary structures disclosed in each reference. (Silzars, Tr. at 2219-2220.) Thus as with the alleged combination of the '690 patent with the '264 patent, the administrative law judge finds that the combination of the '179

patent with the '690 patent does not render claims 7, 8, 16 and 17 of the '703 patent invalid due to the disclosure of the '690 patent set forth supra.

Based on the foregoing the administrative law judge finds that respondents have not established, by clear and convincing evidence, that claims 7, 8, 16 and 17 are obvious in view of the '179 patent taken with the '690 patent.

E. Domestic Industry

A violation of Section 337 can be found “only if an industry in the United States, relating to the articles protected by the patent ... exists or is in the process of being established.” Certain Light Emitting Diodes and Prods. Containing Same, Inv. No. 337-TA-512, Order No. 20 at 4 (November 10, 2004). Whether a domestic industry exists is measured at the time the complaint is filed. See Certain Combination Motor and Transmission Sys. and Devices Used Therein, and Prods. Containing Same, Inv. No. 337-TA-561, Initial Determination at 134 (February 13, 2007); Bally/Midway Mfg. Co. v. U.S.I.T.C., 714 F.2d 1117, 1121-22 (Fed. Cir. 1983).

The domestic industry requirement includes both a technical prong and an economic prong.⁶ See Alloc, Inc. v. U.S.I.T.C., 342 F.3d 1361, 1375 (Fed. Cir. 2003). To satisfy the technical prong, “a complainant in a patent-based Section 337 investigation must show it is practicing or exploiting the patents at issue.” Certain Point of Sale Terminals and Components Thereof, Inv. 337-TA-524, Order No. 40, at 17 (April 11, 2005). “The test for claim coverage for the purpose of the domestic industry requirement is the same as that for infringement.” Id. at 18. In issue is whether complainant has established that its domestic industry LCD televisions modules and the televisions that include them practice a claim of the '703 patent, i.e. meet the

⁶ In issue is only the technical prong. See Procedural History, Section I, supra.

technical prong requirement.

Samsung does not dispute that Sharp's products practice the asserted claims. (CFF V.425 (undisputed).)

The staff argued that the evidence shows that two representatives Sharp domestic industry products practice at least claim 1 of the '703 patent. (SBr at 53.)

Referring to claim 1 of the '703 patent,{

} (Silzars, Tr. at 249; CX-467.18-20; CDX-249.) {

} (Silzars, Tr. at 250; CDX-252; CDX-253.)

{

} (Silzars, Tr. at 251;

CX-467.18-20; CDX-252.) {

} (Silzars,

Tr. at 249-250; CDX-252.)

{

} (CFF

V.436 (undisputed); see also Silzars, Tr. at 250.) Instead,{

} (CFF V.437 (undisputed); see also Silzars, Tr. at 252; CX-

467.18-20; CX-939C.10-11; CDX-256C.)

{

}

{

} (CFF V.438 (undisputed); see also Silzars, Tr. at 253; CX-467.17; CDX-258; CPX-259.)

{

} (See CFF V.439 (undisputed); see also Silzars, Tr. at 253-254; CX-467.20; CDX-262.) {

} (See CFF V.440 (undisputed); see also Silzars, Tr. at 254; CX-467.18; CDX-263.) {

} (See CFF V.441 (undisputed); see also Silzars, Tr. at 254; CDX-264.) {

{

} (See CFF V.442 (undisputed); Silzars, Tr. at 254; CDX-265.) {

{

} CX641.11-12;{

} (See CFF V.443 (undisputed); see also Silzars, Tr. at 255; {

} CX641.11-12;{

} (See CFF V.445 (undisputed); see also Silzars, Tr. at 256;

CX-467.17; CDX-270.)

Based on the foregoing, the administrative law judge finds that complainant has established that it practices at least claim 1 of the '703 patent.

X. '364 Patent

A. Claims At Issue

Asserted claims 5, 6, and 7 of the '364 patent (JX-1) are in issue. Claim 5 is independent, and claims 6 and 7 depend from claim 5. Independent asserted claim 5 recites:

5. A liquid crystal display apparatus comprising:

a pair of substrates having electrodes and vertical alignment layers;
a liquid crystal having a negative anisotropy of dielectric constant
and inserted between said pair of substrates;

alignment control structures arranged in each of said pair of
substrates for controlling the liquid crystal;

and auxiliary structures formed on at least one of said pair of
substrates between the alignment control structures of said pair of
substrates as viewed in the direction normal to said pair of
substrates.

Dependent asserted claim 6 reads:

6. A liquid crystal display apparatus as described in claim 5,
characterized in said alignment control structures comprise linearly
arranged structures, and that said auxiliary structures are arranged
at predetermined pitches along the linearly arranged structures.

Dependent asserted claim 7 reads:

7. A liquid crystal display apparatus as described in claim 5,
characterized in that said auxiliary structures have a shape long in

the direction perpendicular to the linearly arranged structures.

B. Claim Construction

The parties dispute the construction of the claimed phrases “alignment control structures,” “auxiliary structures,” and “have a shape long in the direction perpendicular to the linearly arranged structures.” The claimed phrases, “alignment control structure” and “auxiliary structure” are relevant to all asserted claims. The third claim term “have a shape long in the direction perpendicular to the linearly arranged structures” is recited only in dependent claim 7.

1. “alignment control structures”

Complainant argued that the claim term “alignment control structures” means projections formed on one or more of the electrode(s), or slits in the electrode(s), or some combination of both, that are used to control the alignment of liquid crystal molecules in order to form LC domains, and that “the only significant point of contention is that Sharp’s construction requires that the ‘alignment control structures’ form domains...” (CBr at 104.) Complainant further argued that the asserted claims “do not expressly recite how the alignment control structures ‘control’ the alignment of the liquid crystal molecules, but the specification clearly discloses that alignment control structures ‘control’ the alignment of liquid crystal molecules by forming domains.” (CBr at 105.)

Respondents argued that “alignment control structures” are structures that “control the alignment of liquid crystal molecules.” (RBr at 64.) Respondents further argued that the claim language supports their proposed construction, as claim 5 simply recites “alignment control structures arranged in each of said pair of substrates for controlling the liquid crystal...” without reciting any further limitations in connection with the claimed “alignment control structures.”

(Id.) Respondents also argued that the specification and prosecution history of the '364 patent support their construction. (RBr at 64-69.)

The staff argued that “alignment control structures” should be construed to mean “structures that control the alignment of liquid crystal molecules.” (SBr at 22.) The staff further argued that the specification discloses “alignment control structures” as “controlling the alignment of the liquid crystal.” (SBr at 24.)

The relevant language of claim 5 reads “alignment control structures arranged in each of said pair of substrates for controlling the liquid crystal...” (JX-1 at 54:24-25.) Thus, the claim language states that the alignment control structures control the liquid crystal, without further detail.

Referring to the specification, it is undisputed that Figure 5 of the '364 patent discloses “alignment control structures” in the context of the '364 patent (CFF VI.30 (undisputed); see also Tr. at 277:16-18; CDX-503; JX-1, FIG. 5.) Further, it is undisputed that Figure 5 of the '364 patent depicts alignment control structures 30 and 32 creating four regions of alignment within a pixel: 16C, 16D, 16E (mislabeled 14E) and 16F. Thus, the specification reads:

In this example, the liquid crystal molecules 16C and 16D on either side of the small, straight portion of the projections 30 and 32 are aligned in opposite directions, and the liquid crystal molecules 16E and 16F on the either side of the next small, straight portion of the bend of the projections 30 and 32 are aligned in opposite directions. The liquid crystal molecules 16C and 16D are rotated by 90 degrees with respect to the liquid crystal molecules 16E, 16F. As a result, the alignment division with four regions of different liquid crystal alignments in one pixel can be attained for a further improved visual field angle characteristic. (JX-1, '364 patent, col. 13:38-48; see also JX-1, '364 patent, FIGS. 40, 67.)

(CFF VI.31 (emphasis added) (undisputed).) Hence, the “alignment control structures” control

the alignment of liquid crystal molecules, as the parties have agreed. (See CBr at 105; RBr at 64; SBr at 22.) Moreover, with respect to whether the alignment control structures “control” the alignment of liquid crystal molecules by forming domains, the administrative law judge finds that the “regions” in the citation, supra, are domains. (Silzars, Tr. at 298; see also CFF VI.21⁷; JX-1 at 25:17-21 (“As a result, the configuration of FIG. 37 permits the alignment control of all the domains on the projection for the TFT liquid crystal panel by determining the direction of alignment on the projections 30 and 32 in accordance with the direction of regulation by the edge of the pixel electrode.”); JX-1 at 25:65-67 (“FIG. 41 is a view showing the alignment of the liquid crystal on the linearly arranged structures of FIG. 35. In this case, the alignment in the display domain is the bend form.”); JX-1 at 26:6-17 (“FIG. 43 is a plan view showing the alignment control structures according to the third embodiment of the present invention. FIG. 44 is a cross-sectional view passing through the alignment control structures of FIG. 43. The basic configuration of this liquid crystal display apparatus is similar to that of the liquid crystal display apparatus according to the embodiment shown in FIGS. 1 to 5. Specifically, the liquid crystal display apparatus 10 includes projections 30 and 32 as the alignment control structures (linearly arranged alignment control structures) for controlling the alignment of the liquid crystal between the projections 30 and 32 (display domain).” (Emphasis added)); JX-1 at 28:22-27 (“In an application to an actual liquid crystal panel, the direction of alignment on the projections 30 and 32 is determined in accordance with the formation of the disclination by the edge of the pixel electrode 22, thereby making it possible to control all the domains in the pixel in a stable

⁷ Respondents object to CFF VI.21 but merely quote complainant’s sole basis for said proposed finding, Tr. at 298:4-20, without further explanation.

fashion.”).) Thus, the alignment control structures create regions of alignment, which are domains. Therefore, the administrative law judge finds that “alignment control structures” are projections formed on one or more of the electrode(s), or slits in the electrode(s), or some combination of both, that are used to control the alignment of liquid crystal molecules in order to form liquid crystal domains.

Respondents argued that a Restriction Requirement issued during the prosecution of the parent application to the ‘364 patent makes it “clear that ‘additional alignment control structures,’ such as additional projections 76, 78 are separate and patentably distinct from “auxiliary structures.” (RPF 1085.) Specifically, respondents rely on the Examiner’s characterization of “species Id” and “species Ih.” (JX-21 at SHARP 0033830-0033836.) The administrative law judge finds, however, that species Id differs from species Ih in a number of ways including that the alignment control structures of species Id must be bent on both substrates; that the “additional alignment control structures” of species Id have to be formed on the obtuse side of the alignment control structures; and that the auxiliary structures of species Ih have to be formed “between” the alignment control structures. Thus, the administrative law judge finds that respondents have not shown that said Restriction Requirement should be interpreted to mean that “additional alignment control structures” and “auxiliary structures,” without consideration of the underlying structures, are patentably distinct.

2. “auxiliary structures”

Complainant argued that, in the context of the ‘364 patent, “auxiliary structures” are slits or projections located on at least one of the substrates between the alignment control structures when viewed from a direction normal to the substrate (i.e., when looking at the substrate from

above or below) that help to control the alignment of liquid crystal molecules in connection with the domains formed by the alignment control structures. (CBr at 109.) Complainant further argued that a person of ordinary skill in the art would understand from the claim language that the “auxiliary structures” are located between the alignment control structures and supplement the alignment control structures by helping the alignment control structures control the alignment of the LC molecules (CBr at 109-10); that “auxiliary structures” are structures used to modify the alignment control structure in order to correct regions of misalignment (CBr at 111); that the names for different types of auxiliary structures include “additional projections 76 and 78,” “edge projections 80,” “corner projections 82,” and “auxiliary wall structures 90;” that all of these structures are structures that modify the alignment control structures in order to correct regions of misalignment that would otherwise occur; and that these structures are “auxiliary” because they have no “stand alone” function independent of the “alignment control structure” (CBr at 111.)

Respondents argued that the claim term “auxiliary structures” should be construed as “structures separate from the alignment control structures.” (RBr at 71.) Respondents also argued that the intrinsic evidence of the ‘364 patent supports their proposed construction and offers no support for complainant’s proposed construction, which “improperly” conflates the meaning of “auxiliary structure” with “alignment control structure” in a manner that contradicts the intrinsic evidence of the ‘364 specification. (Id.) Respondents further argued that independent claim 5 recites “alignment control structure” and “auxiliary control structure” as two separate and distinct claim elements; and that claim 5 also requires the “auxiliary structure” to be “formed on at least one of said pair of substrates between the alignment control structures.” (Id. at 72.)

In addition, respondents argued that the prosecution history of the '364 patent confirms their proposed construction because the prosecution history shows that the '364 patentee regarded "additional alignment control structures" to be separate and distinct from "auxiliary structures." (Id.) Respondents also argued that during the prosecution of the parent to the '364 patent, the Examiner issued a restriction requirement identifying several patentably distinct inventions within the single application, specifically claim 18 as being distinct from claims 28-30; and that the restriction requirement evinces the Examiner's belief that the "additional alignment control structure" and the "auxiliary structures" are separate and "patentably distinct inventions," a position consistent with the separate problems being solved by the separate and distinct structures recited in claims 18 and 28, as explained by Flasck. (Id. at 75-76.)

Respondents argued that the '364 specification never calls additional structures 76, 78, 80 and 82 "auxiliary" structures; that the additional structures 76, 78, 80 and 82 and auxiliary structures have different functions; and that the function of an auxiliary structure is to improve response speed while the function of additional structures is to improve brightness. (Id. at 77-78.) Respondents also argued that complainant's expert Silzars' testimony that non-technical dictionary definitions suggest that the words "additional" and "auxiliary" may be used interchangeably is "of no moment" because the '364 patent never uses said words interchangeably, but rather consistently uses these different words to describe different structures within different functions. (Id. at 78.) Respondents further argued that what the structures were called internally by complainant's engineers is irrelevant; and that it is clear that these structures are never called "auxiliary" structures in the '364 patent. (Id. at 78-79.)

The staff argued that, in the context of the '364 patent, "auxiliary structures" are "slits or

projections located on one of the substrates between the alignment control structures when viewed from a direction normal to the substrate (i.e., when looking at the substrate from above or below) but not including structures 76, 78, 80 and 82.” (SBr at 26.) The staff further argued that the ’364 patent specification never describes structures 76, 78, 80 and 82 as “auxiliary structures,” while the specification does disclose “auxiliary structures” or “auxiliary wall structures” 90. (SBr at 30.) Finally, the staff argued that the prosecution history of the ’364 patent also suggests what the applicants mean by “auxiliary structures,” as RDX-226 shows that the applicants responded to a restriction requirement in which two embodiments relating to claims 18 and 28 were cited by the Examiner as different inventions; that one of the embodiments recited “an additional alignment control structure is arranged on the obtuse angle side of said bent portion of the alignment control structure of the substrate having said alignment control structures;” that this “additional” structure clearly reads on structures 76, 78, 80 and 82; that the other embodiment cited by the Examiner requires auxiliary structures as recited in the asserted claims; that when the Examiner separated claim 18 and claim 28 as being patentably distinct, Sharp never argued against the propriety of the restriction requirement; and that it is clear that the inventors indicated to the Patent Office that the structures embodied in structures 76 and 78 were patentably distinct from the structures embodied in structure 90. (SBr at 30-31.)

The claim language reads in relevant part “auxiliary structures formed on at least one of said pair of substrates between the alignment control structures of said pair of substrates as viewed in the direction normal to said pair of substrates.” (JX-1 at 54:26-29.) Thus, the administrative law judge finds that the claim languages requires that said “auxiliary structures” be located between the alignment control structures.

With respect to the specification, there are references to “additional projections,” “additional alignment control structures,” “edge projections,” “corner projections,” and “auxiliary wall structures.” (See, generally, JX-1; FIGS. 66, 72, 114; see also Tr. at 280:13-21.) Thus, as shown in FIGS. 66, 70, 72, 73, and 74 of JX-1, structures 76, 78, 80, 82, and 90 are located between the “alignment control structures” 30 and 32 and therefore satisfy the claim language with respect to their location. (JX-1 at FIGS. 66, 70, 72, 73, 74; see also JX-1 at 32:28-37; Tr. at 280:17-282:3.) No party has argued that either “auxiliary” or “auxiliary structures” have a technical meaning to a person of ordinary skill in the art in the relevant time period. (See, generally, CBr at 108-134; RBr at 70-79; SBr at 26-31; see also RRCFF.VI.46.C; Tr. at 295:4 - 297:11.) The administrative law judge finds that the intrinsic evidence does not define “auxiliary,” but that the specification does, however, describe the function of structures 76, 78, 80, 82, and 90 as one of supplementing the function of the alignment control structures to maintain the alignment of the LC molecules. Thus, while the ‘364 patent teaches that “alignment control structures” are, alone, beneficial, said patent also notes that the “alignment control structures” have some shortcomings. For example, in the liquid crystal display apparatus of a vertical alignment type having alignment control structures (projections or a slits) on substrates for controlling alignment of the liquid crystal, there are regions where the alignment of liquid crystal molecules is unstable, and there are problems regarding brightness and response speed, which must be improved. (JX-1 at 2:20-26; CFF.VI.47 (undisputed in relevant part).) The regions in which the LC molecules are not properly aligned tend to occur wherever there are abrupt changes in the geometry of the alignment control structures, e.g., 16G, 16H of FIG. 67 of JX-1 and at the corners or edges. (CFF.VI.49 (undisputed); see also JX-1 at FIG. 68, Tr. at

278:13-19.) Thus, the administrative law judge finds that said “auxiliary structures” are used to correct these regions of misalignment, and are structures that are composed of either slits or protrusions located between the alignment control structures. (CFF.VI.53-56; JX-1 at FIGS. 66, 67, 68, 69, 72, 114; JX-1 at 31:67-32:37, 45:42-48; Silzars, Tr. at 279-282.) Further, those structures have no function independent of the “alignment control structure.” Hence, the administrative law judge finds that the structures disclosed in the ‘364 patent that modify the alignment control structures in order to correct these regions of misalignment are the claimed auxiliary structures. Further, the administrative law judge finds that the specification equates auxiliary structures, such as those disclosed in Figures 135A to 157D, to structures modifying the alignment control structures. For example, Figures 135A to 157D are described as being both “views showing examples of auxiliary structures” and “views showing a modification of the alignment control structures.” (CFF.VI.82; CFF.VI.83; CFF.VI.85; JX-1 at 10:55- col. 11:37, 28:65-col. 29:2.) Structures 76, 78, 80, and 82 are described, as are the “auxiliary structures” disclosed in Figures 135A to 157D (CFF.VI.82; CFF.VI.83; CFF.VI.85; JX-1 at FIGS. 135A-157D, 10:55-11:37; 28:65-29:2), as “modification[s] of the alignment control structures.” (JX-1 at 8:19-29, 33:11-12 (“FIG. 69 shows a modification of the linearly arranged structures.”), col. 33:38-39 (“FIG. 70 shows a modification of the linearly arranged structures.”), JX-1 at 34:8-9 (“FIG. 71 shows a modification of the linearly arranged structures.”), JX-1 at 34:26-27 (“FIG. 72 shows a modification of the linearly arranged structures.”), JX-1 at 34:56-57 (“FIG. 73 shows a modification of the linearly arranged structures.”), JX-1 at 34:65-66 (“FIG. 74 shows a modification of the linearly arranged structures.”); see also Tr. at 1522:20-1523:3.) In contrast, the ‘364 patent clearly discloses and teaches that alignment control structures 30 and 32,

unmodified by auxiliary structures, are useful and functional structures. Importantly, although additional projections affect the alignment of LC molecules by correcting the regions of misalignment, they do not create any new domains in addition to those that would have created by the unmodified alignment control structures alone. (CFF.VI.95 (undisputed in relevant part); JX-1 at 39:45-55; Tr. at 301:24-302:19.) Based on the foregoing, the administrative law judge finds that “auxiliary structures” are slits or projections located on at least one of the substrates between the alignment control structures when viewed from a direction normal to the substrate (i.e., when looking at the substrate from above or below) that help to control the alignment of liquid crystal molecules in connection with the domains formed by the alignment control structures.

In reference to respondents’ claim construction, viz. “structures separate from the alignment control structures,” respondents appear to reword the claim phrase in issue, but give no effect to either the word “auxiliary” or the claimed phrase “between the alignment control structures of said pair of substrates as viewed in the direction normal to said pair of substrates.” Moreover, respondents and the staff argued that “auxiliary structures” should not be defined to include structures 76, 78, 80, and 82 because the patentees allegedly distinguished structures 76, 78, 80, and 82 from auxiliary structures. (CFF.VI.59 (undisputed).) The administrative law judge found, supra, however, that said structures 76, 78, 80, and 82 are not distinguished from “auxiliary structures.” Thus, structures 76, 78, and 90 can all be formed from either projections or slits (JX-1 at 33:66-34:5; see also CFF.VI.32, VI.99 (undisputed); JX-1 at 46:6-11); structures 30, 32, 76, 78, 80 and 82 can all be continuous protrusions (projections) in FIGS. 66-73; structures 30, 32 and 90 can all be continuous protrusions (projections) in Figure 114 (see, e.g.,

JX-1 at 32:28-31, 45:21-25, 46:10-11); structures 30, 32, 76, 78, 80 and 82 can all be continuous slits in FIGS. 66-73; structures 30, 32 and 90 can all be continuous slits in FIG. 114 (see, e.g., CFF.VI.111-114; Tr. at 1537:18-1538:7; Tr. at 317:9-25; JX-1 at 34:1-5, 46:2-20); structures 76, 78, 80, 82, and 90 are all located between “alignment control structures” (JX-1 at FIGS. 73, 114); structures 76, 78, 80, 82 and 90 also perform the same function of correcting the regions of misalignment that would otherwise occur if the unmodified alignment control structures were used alone (JX-1 at 32:56-60; see also JX-1 at 45:42-60; CFF.VI.98 (undisputed)); the auxiliary wall structures can be formed on the apices of the alignment control structures (JX-1 at FIGS. 72, 114; see also Tr. at 311:22-313:5); and both the additional projections 76, 78, and the auxiliary wall structures 90 improve response time by correcting the regions of misalignment that would have otherwise occurred, as the provision of the auxiliary wall structures 90 between the linearly arranged structures 30 and 32 facilitates the alignment of the liquid crystal in the gap between the linearly arranged structures 30 and 32 and thus improves the response of the liquid crystal as compared when the auxiliary wall structures 90 are absent (CFF.VI.98 (undisputed); JX-1 at 45:42-48). Based on the foregoing, the administrative law judge finds that said structures 76, 78, 80, and 82 are “auxiliary structures” in the context of the ‘364 patent and therefore should not be excluded from any claim construction.

Further, with respect to respondents’ argument that “additional alignment control structures” and “auxiliary structures” are patentably distinct based on a Restriction Requirement, the administrative law judge, supra, with respect to “alignment control structures,” has rejected said argument.

3. “have a shape long in the direction perpendicular to the linearly arranged structures”

Complainant argued that the claimed phrase recited only in dependent claim 7 means that auxiliary structures are longer in the direction perpendicular to the alignment control structures, and that the alignment control structures contain one or more linear portions. (CBr at 134.)

Respondents argued that said claimed phrase should be construed as meaning “long in the length-wise direction at right angles (i.e., 90 degrees) to the linearly arranged structures” in accordance with its plain and ordinary meaning, because the ‘364 patent does not give “perpendicular” a special definition. (RBr at 79.)

The staff argued that the claimed phrase means that auxiliary structures are longer in the direction perpendicular to the alignment control structures and that the alignment control structures contain one or more linear portions. (SBr at 31.)

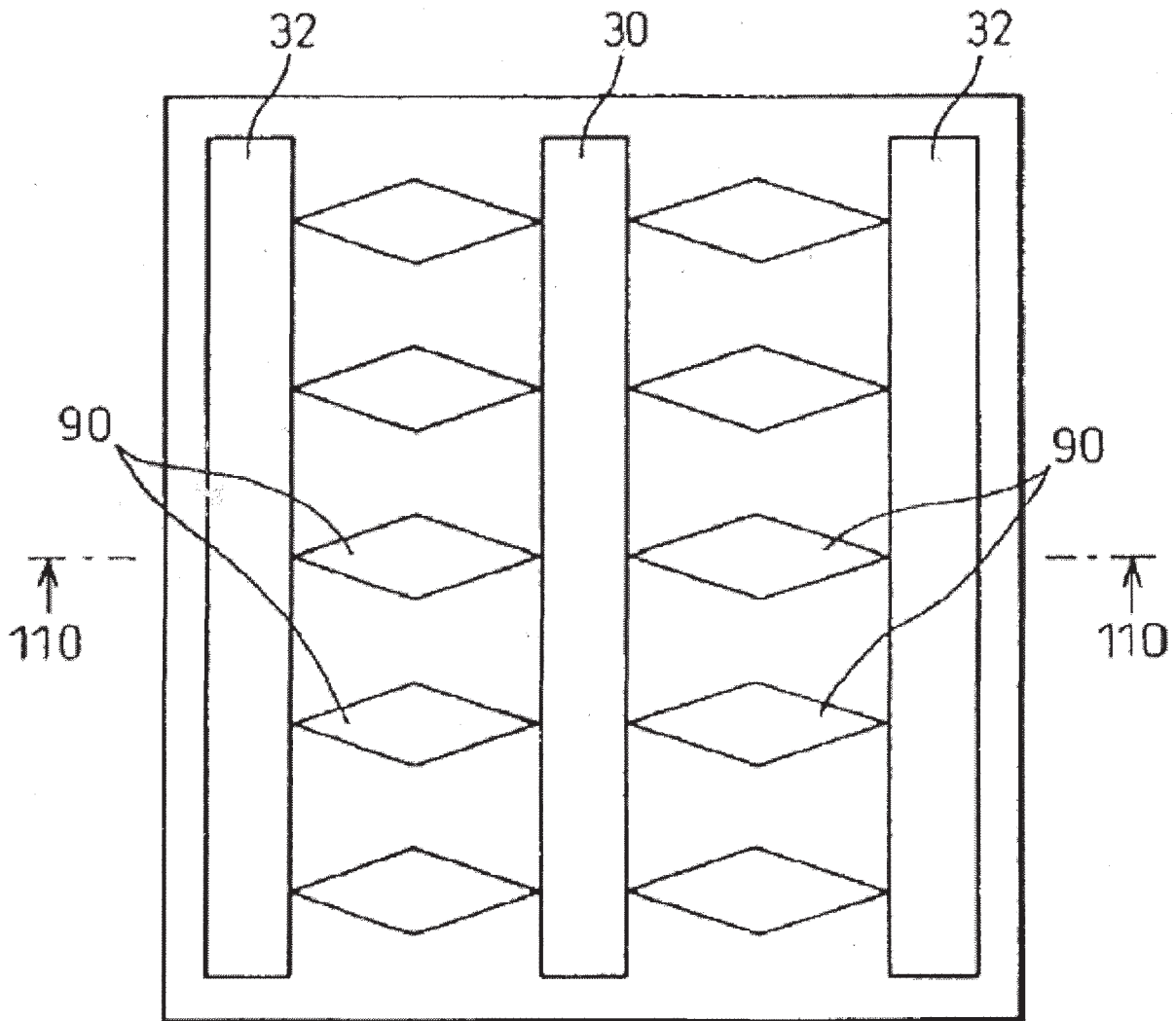
Claim 7 depends from asserted independent claim 5 and requires that the “auxiliary structures” recited in said claim 5 “have a shape long in direction perpendicular” to the alignment control structures. With respect to FIG. 109, the specification reads:

According to this embodiment, the linearly arranged structures 30 of the upper substrate 12 are a projections 30, and the linearly arranged structures 32 of the lower substrate 14 are projections 32. Auxiliary wall structures 90 are arranged on the lower substrate 14 between the linearly arranged structures 30 and 32 of the pair of the substrates 12 and 14, as viewed in the direction normal to the pair of the substrates 12 and 14. The auxiliary wall structures 90 are arranged as rhombic slits. The auxiliary wall structures 90 are long in the direction perpendicular to the linearly arranged structures 30 and 32, and arranged at predetermined pitches (5 to 50 μm) along the linearly arranged structures 30 and 32.

(JX-1 at 44:53-65 (emphasis added).) Said “structures 90” are rhombic slits, and therefore the sides of said structures 90 are not straight lines with respect to the “linearly arranged structures

30 and 32," as can be seen from FIG. 109:

Fig. 109



Yet, the specification, supra, indicates that “structures 90” are perpendicular to said structures 30 and 32 in FIG. 109, and are “arranged at predetermined pitches . . . along the linearly arranged structures 30 and 32.” Thus, the specification specifically discloses that the rhombic-slit shaped auxiliary wall structures 90 are described as being perpendicular to alignment control structures 30 and 32, even though none of the sides of the rhombic slits, which are auxiliary wall structures, are at a 90 degree angle to the alignment control structures. (CFF.VI.124-126 (undisputed).)

Hence, the administrative law judge finds that the patentees used “perpendicular” to encompass relationships between objects, such as those depicted in FIG. 109. Further, not all of the “rhombic slits” disclosed in Figure 109 or rectangular auxiliary wall structures disclosed in Figure 111 are labeled “90,” but all of them are “auxiliary wall structures 90.” (JX-1 at FIG. 109; see also CFF.VI.124-126 (undisputed); JX-1 at FIG. 111; CFF.VI.127 (undisputed).)

Respondents’ expert admitted that even the unlabeled elements in FIGS. 109 and 111 were auxiliary structures, even though they were not labeled with lines from 90:

Q. Could we pull up RDX-205, please. At RDX-205, how many -- let me rephrase that. In Figure 109 of the '364 patent which is shown on RDX-205, what do elements 90 refer to?

A. In the '364 patent, elements 90 are always described as auxiliary structures or auxiliary wall structures.

Q. And in Figure 109 on RDX-205, how many auxiliary wall structures are illustrated, in your opinion?

A. 10.

Q. Now, how many are labeled with lead lines from reference number 90?

A. Four.

- Q. So why did you say 10 instead of four?
- A. Because the remaining six are identical to the four that are labeled.
- Q. Let's go to RDX-233. Do you have RDX-233 in front of you?
- A. Yes, I do.
- Q. Now, I notice at the bottom of RDX-233, you've shown Figures 109, 111 and 114, right?
- A. Yes.
- Q. And reference number 90 is only used to have lead lines going to four elements in each of these three structures, right?
- A. Yes.
- Q. And in Figure 109, you highlighted in blue that there were 10 auxiliary wall structures; in other words, you said all of the shaped elements were auxiliary wall structures, right?
- A. Yes, because they're identical.
- Q. And you did the same thing in Figure 11[1]; you labeled them all as auxiliary wall structures, even the ones that were not -- even the ones that did not have lead lines from number 90, right?
- A. If you meant that I highlighted them as blue, that's correct.
- Q. So in Figures 109 and 111, it doesn't matter that there are no lead lines from number 90; they're all auxiliary wall structures in your opinion, right?
- A. Yeah. The standard patent drawing guidelines say that the same -- the exact same element should have the exact same feature number. And, yeah, it's not necessary to -- if it's exactly the same, it's not necessary to put the lead lines to every structure.

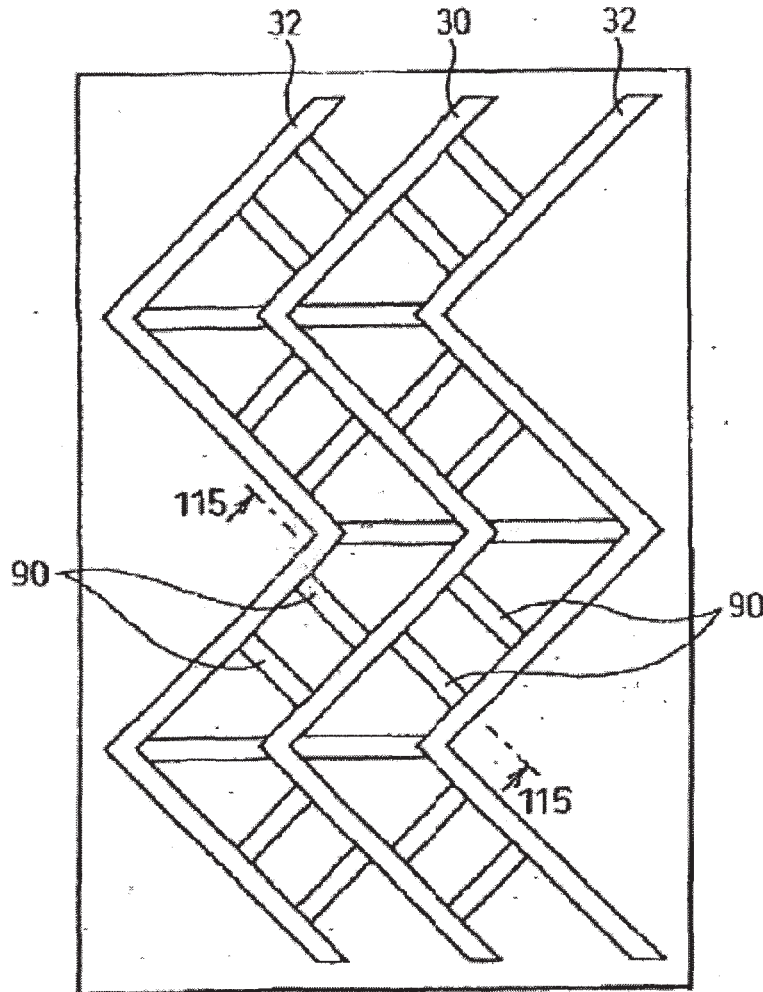
(Tr. at 1533-35 (emphasis added); see also CFF.VI.132, VI.134 (undisputed).) Importantly, the FIG. 114 embodiment is a modification of the FIG. 109 embodiment, as is the FIG. 111

embodiment. (CFF.VI.133 (undisputed); see also Tr. at 329:2-330:2.) The rhombic-slit shaped “auxiliary wall structures” disclosed in Figure 109 are described as being “long in the direction perpendicular to the linearly arranged structures 30 and 32, and arranged at predetermined pitches (5 to 50 μm) along the linearly arranged structures 30 and 32.” (CFF.VI.124-126 (undisputed); JX-1 at 44:61-65.) In the Figure 111 embodiment, the auxiliary wall structures are changed from rhombic slits to rectangles, but are still “long in the direction perpendicular to the linearly arranged structures 30 and 32, and . . . arranged at predetermined pitches along the linearly arranged structures 30 and 32.” (CFF.VI.127 (undisputed); JX-1 at 45:6-10.) The specification states that FIG. 114 is a modification of FIG. 109:

FIGS. 114 and 115 are views showing a modification of the liquid crystal display apparatus of FIG. 109. In this example, the linearly arranged structures 30 of the upper substrate 12 are projections 30, and the linearly arranged structures 32 of the lower substrate 14 are projections 32. Each auxiliary wall structure 90 interposed between the linearly arranged structures 30 and 32 of the pair of the substrates 12 and 14 is arranged as a rectangular slit. The auxiliary wall structure 90 is long in the direction perpendicular to the linearly arranged structures 30 and 32 and is arranged at predetermined pitches along the linearly arranged structures 30 and 32.

(JX-1 at 45:20-32 (emphasis added).) Said language is comparable to the language at 44:53-65, supra. As can be seen from FIG. 114, reproduced, infra, the embodiment of FIG. 114 takes the structure of the FIG. 109 embodiment and modifies it by “bending” the alignment control structures 30 and 32 into zigzag shapes. (JX-1 at FIG. 114; see also JX-1 at FIGS. 109, 111.)

Fig. 114



Like the auxiliary wall structures in FIGS. 109 and 111, the auxiliary wall structures disclosed in Figure 114 are described in the specification as being “long in the direction perpendicular to the linearly arranged structures 30 and 32 and . . . arranged at predetermined pitches along the linearly arranged structures 30 and 32.” (CFF.VI.128 (undisputed in relevant part); JX-1 at 45:26-32.) Thus, the administrative law judge finds that the specification discloses that the auxiliary wall structures 90 are intentionally placed along said structures 30 and 32 in FIGS. 109, 111, and 114. The specification does not state that certain structures 90, because they have been placed at an apex of a zig-zag portion of structures 30 and 32, no longer perform the function of auxiliary wall structures described in the '364 patent. Further, as stated by complainant's expert Silzars:

Q. Dr. Silzars, what's shown on CDX-538?

A. CDX-538 is another excerpt taken from the '364 patent that specifically describes what the inventors intended to say about Figure 114. And the highlighted clause here is, auxiliary wall structure 90 is long in the direction perpendicular to the linearly arranged structures 30 and 32, and it's arranged at predetermined pitches.

So if we are to read this, and we can see what the predetermined pitch is, this is basically a ladder structure that's been made into a zigzag. So there's a repeating pattern here that has an average spacing. And it is not quite so outrageous to take a look at this and say what would be considered perpendicular. I suppose it's the same thing as if we're standing on the top of a mountain. We can still see that there's a horizon out there, and the horizon is the horizontal direction.

So in this case, if you're standing at an apex, you can still determine what is the average. Now, if I do a projection from the apex, which in this case are the horizontal lines, it's not such a stretch to say that's splitting the apex. It's in half. So if it's in half, how would we describe it?

And if we look at the way the inventors use the language, it becomes fairly sensible to say if I were to draw a line across that intersects all of the apexes of this line, I would end up with a line, and then my elements 90 would indeed at those apexes be perpendicular to that line.

So if we can tolerate a little bit of geometry, then the symmetry and the perpendicularness becomes very reasonable to achieve.

(Tr. at 327-29 (emphasis added).) Based on the foregoing, the administrative law judge finds that said claimed phrase in issue should be construed as meaning that the auxiliary structures are longer in the direction at right angles to the alignment control structures, and that the alignment control structures contain one or more linear portions.

Samsung and the staff have argued that the “apex structures” represented in FIG. 114 cannot be perpendicular to the linearly arranged structures of claim 7, apparently because portions of said structures do not form lines perpendicular to said “apex structures.” The administrative law judge, however, finds that the specification of the ‘364 patent describes an auxiliary structure being perpendicular to an entire linearly arranged structure and not that only a part of an auxiliary structure and only a part of a linearly arranged structure must form perpendicular lines.

C. Infringement

Referring to asserted claim 5 of the ‘364 patent, respondents{

} (See, generally, RBr at 84-87;

RBRr at 22-24.){

}

{

} Thus, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that the accused products practice the first, second, and third elements of asserted claim 5. Therefore, the sole remaining claimed phrase in issue is the fourth element of asserted claim 5, viz. “auxiliary structures formed on at least one of said pair of substrates between the alignment control structures of said pair of substrates as viewed in the direction normal to said pair of substrates.”

With respect to said fourth element of asserted claim 5, complainant argued that the accused Samsung PVA LCD, CC-type SPVA LCD, SPVA A3 LCD, and SPVA A4 LCD products{

} (CFF.VI.161, VI.177, VI.186, VI.192);

that the “auxiliary structures” of the accused products are{

} (CFF.VI.162, VI.177, VI.186, VI.193); and that the

accused products’ “auxiliary structures”{

} (CFF.VI.164, VI.178). (See also CBr at 143-146.) Moreover, complainant argued

that the accused Samsung PVA, SPVA A3, SPVA A4, and SPVA CC-type LCD modules satisfy the “auxiliary structure” limitation under the staff’s construction, because{

} As discussed above, structure 90 from Figure 114 can be formed on the apex of a zigzagged shaped alignment control structure making it structurally and functionally the same as the “auxiliary structures” identified by Dr. Silzars as “auxiliary

structures” in the accused products. (CBr at 145.)

Respondents argued that their accused products do not literally infringe any asserted claim of the ‘364 patent because{

} (RBr at 85.) Respondents further argued that the structures relied up on by complainant are not “auxiliary structures,” but rather are{

} (RBr at 85.)

The staff argued that complainant has not met its burden of proving by a preponderance of the evidence that respondents infringe the asserted claims of the ‘364 patent. (SBr at 48.)

Specifically, the staff argued that{

} (SBr at 48.)

The administrative law judge has found, supra, that structures 76, 78, and 80 in the ‘364 patent are auxiliary structures. Respondents asserted that:

{

}

(RBr at 86.) Respondents also asserted that the structures cited in CFF.VI.162 correspond to

{ } (RRCFF.VI.162.A); that the

structures referred to in CFF.VI.177 correspond to{ }

(RRCFF.VI.177.A); that the structures cited in CFF.VI.186{ }

{ } (RRCFF.VI.186.A); and that the structures cited in CFF.VI.192 correspond{ }

{ }
(RRCFF.VI.192.A). Thus, respondents have admitted that the accused products contain
{ } which structures the
administrative law judge has found are auxiliary structures, as disclosed by the '364 patent. (See
also CX-466.59; CX-34C.6;{ } RBr at 85-89; SBr at 48-49.) Therefore, the
administrative law judge finds that the accused products practice the fourth element of asserted
claim 5 of the '364 patent.

Based on the foregoing, the administrative law judge finds that complainant has shown,
by a preponderance of the evidence, that asserted claim 5 is infringed by the accused products.

Referring to asserted claim 6 of the '364 patent, which depends from asserted claim 5,
complainant argued that the accused Samsung SPVA A4 and PVA LCD modules{
} and therefore infringe claim 6. (CBr
at 146.)

Respondents argued that their SPVA A4 and PVA LCD modules do not literally infringe
any asserted claim of the '364 patent because{
} (RBr at 85.)

Respondents further argued that the{
} (RBr at 85.)

The staff argued, as it also argued with respect to asserted claim 5, that complainant has
not met its burden of proving by a preponderance of the evidence that respondents infringe the
asserted claims of the '364 patent. (SBr at 48.) Specifically, the staff argued that "Samsung

claims and the Staff agrees that{

} (SBr at 48.)

The administrative law judge has found, supra, that structures 76, 78, and 80 in the '364 patent are auxiliary structures. Respondents stated that:

{

}

(RBr at 86.) Respondents also stated that the structures cited in CFF.VI.180 correspond to

{ } (RRCFF.VI.180.A) and that the structures cited

in CFF.VI.195 correspond to{

} (RRCFF.VI.195.A.) Thus, respondents have admitted that the accused products

contain structures corresponding to, inter alia, { } which

structures the administrative law judge has found are auxiliary structures, as disclosed by the

'364 patent. (See also { } RBr at 85-89; SBr at 48-49.) Therefore, the

administrative law judge finds that the accused products practice the limitation of asserted

dependent claim 6 of the '364 patent.

Based on the foregoing, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that the accused products infringe asserted claim 6.

Referring to asserted claim 7 of the '364 patent, which depends from asserted claim 5, complainant argued that respondents' SPVA A3 and A4 and PVA modules have "auxiliary structures [that] have a shape long in the direction perpendicular to the linearly arranged

structures,” and therefore infringe claim 7. (CBr at 147.)

Respondents argued that their accused products{ } and also that the { } as required by dependent claim 7. (RBr at 87.)

The staff argued that “[b]ecause Sharp relies on { } Samsung’s accused products do not infringe under the Staff’s construction. (SBr at 48-49.)

The administrative law judge has found, supra, that the accused products do contain auxiliary structures. The administrative law judge has also found, in Section X.B.3, supra, that FIG. 114 in the ‘364 patent specification does show auxiliary structures perpendicular to the linearly arranged structures, and that said specification describes all of the structures 90 disclosed in FIG. 114, including the structures 90 located on the apices of structures 30 and 32, as being “long in the direction perpendicular to the linearly arranged structures 30 and 32.” Further, the administrative law judge has found, supra, that the auxiliary structures in the accused products, as seen in, inter alia, RDX-244C, { } are{

} Based on the foregoing, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that the limitation of dependent claim 7 is practiced by the accused products.

Based on the foregoing, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that asserted claim 7 is infringed by the accused products.

D. Domestic Industry

Complainant argued that its domestic industry 32-inch and 46-inch LCD panels practice at least claims 5 and 7 of the '364 patent. Specifically, complainant argued that, with respect to claim 5, said products each have a pair of substrates having electrodes and vertical alignment layers (CBr at 159); that said products each have “a liquid crystal having a negative anisotropy of dielectric constant and inserted between said pair of substrates” (CBr at 159); that said products have “alignment control structures arranged in each of said pair of substrates for controlling the liquid crystal” (CBr at 159-61); and that said products have “auxiliary structures formed on at least one of said pair of substrates between the alignment control structures of said pair of substrates as viewed in the direction normal to said pair of substrates.” (CBr at 161-63.) With respect to claim 7, complainant argued that its 32-inch and 46-inch televisions have “auxiliary structures” that “have a shape long in the direction perpendicular to the linearly arranged alignment control structures” and therefore practice claim 7 of the '364 patent. (CBr at 163-64.)

{

}

The staff argued that the evidence has not shown that complainant's domestic industry LCD television modules and the televisions that include them practice asserted claims 5-7 of the '364 patent. (SBr at 54.) {

}

With respect to claim 5, it is undisputed that complainant's domestic industry products practice the first, second, and third element of asserted claim 5. (CFF.VI.305. CFF.VI.306.CFF.VI.307 CFF.VI.308, CFF.VI.309, CFF.VI.310, CFF.VI.311, CFF.VI.312 (all undisputed).) Thus, the administrative law judge finds that complainant has shown that their domestic industry products practice each of the first, second, and third elements of asserted claim 5 of the '364 patent.

With respect to the fourth element of asserted claim 5, viz., "auxiliary structures formed on at least one of said pair of substrates between the alignment control structures of said pair of substrates as viewed in the direction normal to said pair of substrates," the administrative law judge has found, supra, {

}

{

} Based on the foregoing, the administrative law judge finds that complainant's domestic industry products practice claim 5 of the '364 patent.

Regarding asserted claim 7, which depends from asserted claim 5, respondents' and the staff's sole arguments against complainant's assertion of domestic industry is that said complainant's domestic industry products do not{ } The administrative law judge has found otherwise, supra. Moreover, the administrative law judge finds that the photographic evidence provided by complainant, viz. CX-467 .4, .5, .7, .18, .21, explained by complainant's expert, Silzars (see Tr. at 367-69), shows{

} (See also{ } Tr. at 374.)

Thus, the administrative law judge finds that complainant has shown that its domestic industry products practice the limitation disclosed in asserted dependent claim 7 of the '364 patent.

Based on the foregoing, the administrative law judge finds that complainant has shown that, inter alia, their 32-inch and 46-inch LCD panels satisfy the technical prong of the domestic industry requirement.

E. Validity

1. The '364 Patent's Priority Date

Complainant argued that asserted claims 5, 6, and 7 of the '364 patent⁸ were invented as

⁸ The application that issued as the '364 patent was filed on July 17, 2003 and is a division of U.S. Application No. 09/398,126, filed on September 16, 1999 (the '126 application). (JX-1.2.) The '126 application (the parent to the '364 patent) and the '364 patent each claim

early as December 5, 1997, as fully documented in{ }.⁹ (CBr at 150.) Complainant further argued that the inventions of asserted claims 5, 6, and 7 of the ‘364 patent were reduced to practice in Japan as early as March 1998, as fully documented in{ }¹⁰ and in{ }.¹¹ (Id. at 150-52.) Complainant argued that{ } contains figures disclosing alignment control structures formed on a pair of substrates for controlling the alignment of LC molecules; that{ } discloses all the limitations of the asserted claims; and that{ } evidences reductions to practice of the asserted claims, having all of the features of the asserted claims. (Id.) Complainant therefore argued that these documents demonstrate that complainant, then Fujitsu, had at least reduced to practice its invention of asserted claims 7 and 8 of the ‘364 patent in actual operational LCD panels by March 1998 and had conceived the inventions of asserted claims 5, 6 and 7 of the ‘364 patent at least as early as December 5, 1997. (Id. at 152.)

Complainant further argued that the undisputed hearing testimony of Messrs,{

} until the

Japanese application JP 10-264849 (the Japanese ‘849 application) was filed on September 18,

priority to the Japanese application JP 10-264849 (the Japanese ‘849 application) as well as JP 11-229249 (the Japanese ‘249 application), filed on September 18, 1998 and August 13, 1999, respectively. (JX-1.2.)

⁹ { }

¹⁰ { }

¹¹ { }

1998. (Id. at 154.) Thus, complainant argued that the asserted claims 5, 6 and 7 of the '364 patent are entitled to a priority date of at least as early as December 5, 1997. (Id.)

Complainant also argued that respondents did not dispute the fact that the invention of the '364 patent was conceived no later than December 5, 1997 and reduced to practice no later than March, 1998 and that complainant continued to diligently work on developing the invention after its reduction to practice. (CRBr at 83, citing RBr at 96-98.) Complainant further argued that respondents' argument that Silzars never testified that the Japanese '849 application disclosed the auxiliary structures claimed in the '364 patent is based entirely on a typographical error in a single demonstrative and ignores the substance of Silzars' testimony on the Japanese '849 application. (Id.; CFF.VI.280-284 (undisputed as to asserted facts).)

Respondents argued that the correct priority date of the '364 patent is August 13, 1999, when the Japanese '249 application was filed; that only the Japanese '249 application, not the Japanese '849 application, enables the full scope of the asserted claims; and that the Japanese '849 application does not disclose auxiliary structures 90 or 96 nor does it include the word "auxiliary" anywhere in the patent document. (RBr at 93-97.) Respondents further argued that complainant's expert, Silzars, erroneously relied on the non-existent FIG. 114 of the Japanese '849 application in an effort to establish that the Japanese '849 application discloses the claimed auxiliary structures; that Silzars admitted at the hearing that the 1998 Japanese '849 application does not actually contain FIG. 114 and admitted his mistaken reliance on said figure; and, that without FIG. 114 to rely, on Silzars admitted that he has no opinion regarding whether the Japanese '849 patent application enables the full scope of the asserted claims of the '364 patent. (Id. at 98; Silzars, Tr. at 2263.) Respondents also argued that due to Silzars' failure to offer an

opinion as to whether the Japanese '849 patent application enables the full scope of the asserted claims of the '364 patent, respondents' expert Flasck's opinion that only the second-filed Japanese '249 application enables the full scope of the asserted claims of the '364 patent is unrebutted. (RBr at 98.) Thus, respondents argued that because the Japanese '849 application fails to satisfy the enablement of the full scope of the asserted claims requirement since it fails to disclose auxiliary structures 90 or 96, complainant is not entitled to a date of conception and reduction to practice prior to September 18, 1998; and that the correct priority date of the '364 patent is August 13, 1999, the filing date of the Japanese '249 application. (Id.)

Respondents further argued that complainant's evidence that{ } conceived the invention of the '364 patent in December 1997 and that{ } reduced{ } invention to practice no later than March 1998 and continued to work on the project until the first Japanese '849 patent application was filed on September 18, 1998 does not entitle complainant to an earlier priority date for the '364 patent because it does not alter the fact that the first-filed Japanese '849 patent application fails to disclose actual auxiliary structures and therefore does not enable the full scope of the asserted claims. (Id. at 29.) Respondents also argued that{ }

(RRCFF.VI.218.C, D, E); and that because complainant does not even claim to be in possession of the invention of auxiliary structures 90 prior to August 13, 1999, a claim covering such a structure, as claim 5 of the '364 patent does under any claim construction, cannot be entitled to a priority date earlier than August 13, 1999. (Id.)

The staff argued that the documents relied on by complainant for invention date, including the Japanese '849 priority application, do not show "auxiliary structures" as construed

by the staff, nor does it mention the word “auxiliary” at all. (SBr at 63.) The staff also argued that the structures that complainant relies on (30, 32, 76,78, 80 and 82 of the ‘364 patent) are specifically defined as not reading on the “auxiliary structures” element under the staff’s construction and, thus, the staff argued that the ‘364 patent is not entitled to a priority date earlier than August 13, 1999, which is the date of the Japanese ‘249 application. (Id. at 64.) The staff further argued that complainant does not allege any diligence between September 18, 1998, when the first Japanese ‘849 application was filed, and August 13, 1999, the filing of the second Japanese ‘249 application; and that because the first application does not disclose “auxiliary structures”, complainant is not entitled to rely on its conception or reduction to practice to prove an earlier priority date. (SRBr at 9-10.)

To claim the benefit of an earlier priority date through reference to an earlier-filed foreign application under 35 U.S.C. § 119, a patentee must prove that the foreign application meets the requirements of 35 U.S.C. § 112 ¶1. See Fiers v. Revel, 984 F.2d 1164, 1169 (Fed. Cir. 1993) (“Revel bears the burden of proving entitlement to the benefit of his earlier-filed Israeli application date. To meet this burden, Revel must prove that his application meets the requirements of 35 U.S.C. § 112, first paragraph.” (citations omitted)). Specifically, the patentee must show that the foreign application contains a written description of the invention, and is enabling. Id. at 1170 (“Revel thus must show that the Israeli application contains a written description of the DNA of the count and that it is enabling.”).

35 U.S.C. § 112, ¶ 1, provides that:

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 ¶ 1.) The enablement requirement ensures that the public knowledge is enriched by the patent specification to a degree at least commensurate with the scope of the claims. Recovery Techs. Inc. v. Magnetic Separation Svs. Inc., 166 F.3d 1190, 1195-96 (Fed. Cir. 1999). Accordingly, “[t]he scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art.” Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997). The specification does not satisfy 35 U.S.C. § 112 ¶ 1, however, merely by enabling a single embodiment of the asserted claims; the specification must enable the “full scope of the claims,” so as to ensure that the scope of what is patented in the claim language does not exceed what is described in the language of the specification. See Sitrick v. Dreamworks, 516 F.3d 993, 999 (Fed. Cir. 2008) (Sitrick) (“The scope of the claims must be less than or equal to the scope of the enablement to ensure that the public knowledge is enriched by the patent specification to a degree that is at least commensurate with the scope of the claim.”).

Therefore, if asserted claims are construed broadly enough so as to cover multiple embodiments of the invention, the specification must enable of these multiple embodiments for the specification to meet the enablement requirement of 35 U.S.C. § 112, 1. Sitrick, 516 F.3d at 1000 (“Because the asserted claims are broad enough to cover both movies and video games, the patents must enable both embodiments.”). Consequently, a patentee hoping to claim the benefit of an earlier priority date using an earlier-filed foreign application must prove that the foreign application enables the full scope of the asserted claims, such that if the patent claims are

ultimately construed to cover certain embodiments of the invention, the specification of the earliest priority application must fully enable all of these embodiments for the patentee to be awarded that earlier priority date. See Falko-Gunter Falkner v. Inglis, 448 F.3d 1357, 1363-65 (Fed. Cir. 2006) (upholding a Patent Board determination that “35 U.S.C. § 119 & 120 require benefit applications to comply with § 112, first paragraph, with respect to the full scope of what a party now claims, rather than with respect to merely one embodiment . . .”).

To establish a December 5, 1997 priority date for the ‘364 patent, the ‘364 patent must date back to the Japanese ‘849 application and the Japanese ‘849 application must date back to the alleged conception and reduction to practice dates with due diligence. The administrative law judge finds that the Japanese ‘849 application and the ‘364 patent have almost identical figures and structure numbering for FIGS. 1-74 and for structures 10-82. (Compare RX-334 (the Japanese ‘849 application) at FIGS. 1-74 with JX-1 (the ‘364 patent) at FIGS. 1-74.) Importantly, he finds that FIGS. 66 and 68-74 and the structures contained therein, viz. structures 30, 32, 76, 78, 80, and 82, which are so numbered in each of the ‘364 patent and the Japanese ‘849 application, are all identical between the ‘364 patent and the Japanese ‘849 application. (Compare RX-334 at FIGS. 66, 68-74 with JX-1 at FIGS. 66, 68-74.) For example, see FIG. 74 of JX-1 and FIG. 74 of RX-334, infra.

Fig. 74

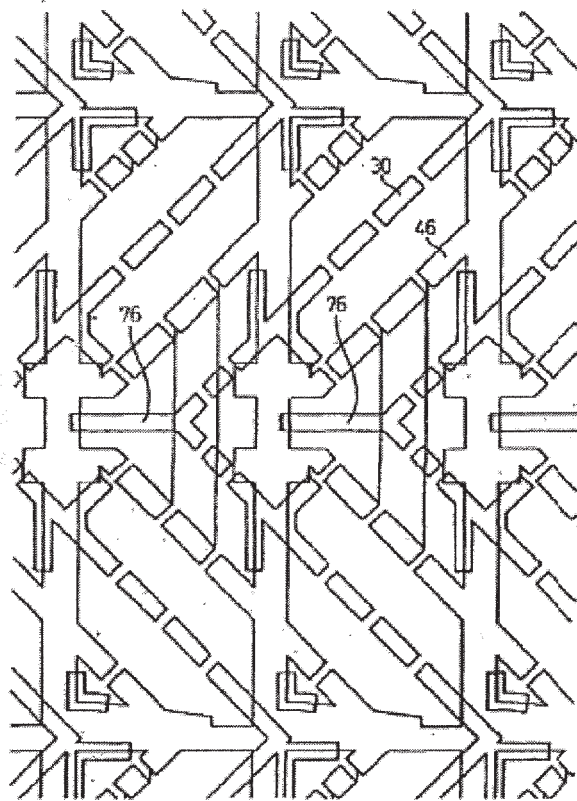
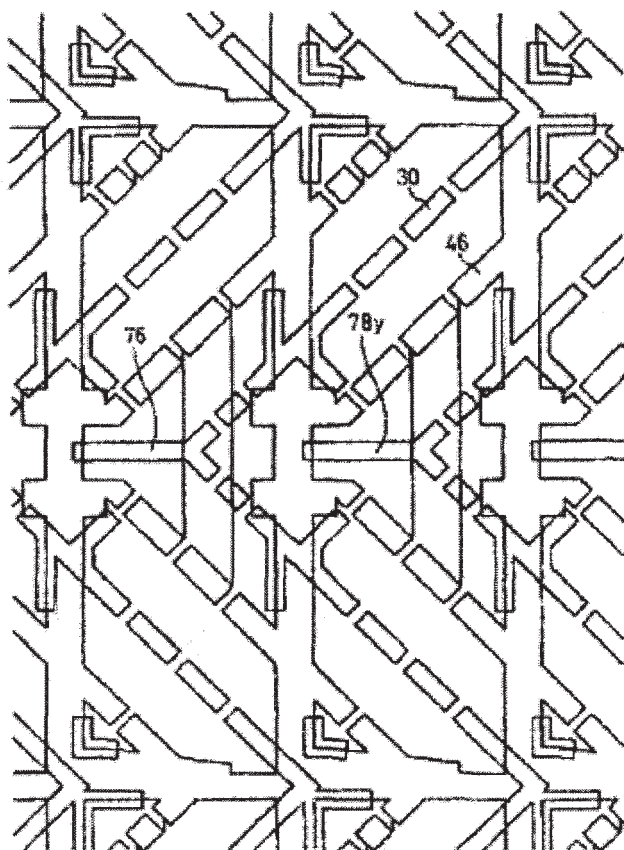


FIG. 74



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As the administrative law judge has found the figures identical, he finds that FIGS. 66 and 69-74 in both the Japanese '849 application and in the '364 patent show that structures 76, 78, 80, and 82 from both documents have the same location between alignment control structures 30 and 32, satisfying an element needed for classification as auxiliary structures. (Compare RX-334 at FIGS. 66, 68-74 with JX-1 at FIGS. 66, 68-74.) As found in Section X.B.2, supra, structures 76, 78, 80, and 82 from FIGS. 66 and 69-74 in the '364 patent are auxiliary structures. The administrative law judge also finds the same structures in the Japanese '849 application to be auxiliary structures.

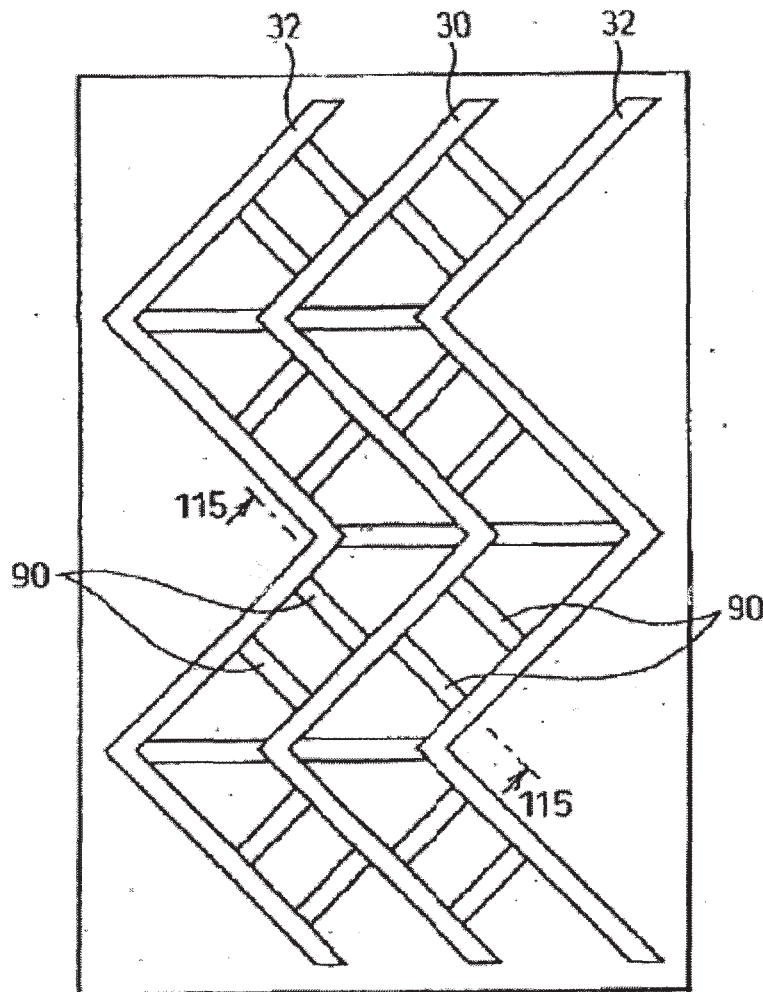
Structures 90 and 96 from FIGS. 109-117 and 122-131, which appear only in the '364 patent, are also auxiliary structures, as found in Section X.B.2, supra. However, within the '364 patent, structures 76, 78, 80, and 82 from FIGS. 66 and 69-74 share identical functions with structures 90 and 96 from FIGS. 109-117 and 122-131.¹² These two groups of auxiliary structures from the '364 patent are also both located between alignment control structures 30 and 32. (JX-1 at FIGS. 66, 69-74, 109-117, and 122-131.) The administrative law judge finds that the Japanese '849 application explores significant modification of auxiliary structure geometry, even including differing lengths and widths as well as extension from obtuse or acute angle sides

¹² Said structures perform the function of correcting orientation of LC molecules in certain regions of pixels, brightening these regions that would otherwise be dark with only the alignment control structures 30 and 32 from figures 66, 69-74, and 109-117 from the '364 patent. (Compare JX-1 at 32:29-37 ("The additional projections 76 and 78 are formed on the obtuse angle side of the bent portions of the substrates having the projections 30 and 32, and therefore, the alignment of the liquid crystal molecules . . . is corrected. . . . As a result, the areas . . . are not darkened and the brightness is improved.") with JX-1 at 45:42-48 ("The provision of the auxiliary wall structures 90 between linearly arranged structures 30 and 32 facilitates the alignment of the liquid crystal . . . and this improves the response of the liquid crystal as compared when [sic] the auxiliary wall structures 90 are absent."))

of linear wall structures for structures 76 and 78 in FIGS. 69-71. (RX-334 at SSTR000980-82, ¶¶ 102-109.) The Japanese '849 application also discloses placement of auxiliary structures in different locations and at different angles between linear wall structures with its inclusion of structures 80 and 82 in FIGS. 72-73. (RX-334 at SSTR000982-83, ¶¶ 110-112.) The administrative law judge further finds that other, unnumbered structures,¹³ depicted but not assigned a number in FIG. 74 of the Japanese '849 application, supra, differ from structure 90 from FIG. 114, infra, of the '364 patent only in slight modifications in length, position, and shape of the connection to the linear wall structure (alignment control structure).

¹³ In FIG 74, supra, said structures start from unbent portions of structure 30 and extend at a 90° angle from structure 30, diagonally and to the right.

Fig. 114



The administrative law judge finds that these modifications do not substantively change the functions of the structures. He also finds that the Japanese '849 application's functional descriptions of structures 76, 78, 80, and 82 from FIGS. 66 and 69-74 enable more than a single embodiment of linear wall projections or "auxiliary" structures. Thus the administrative law judge finds that the disclosures in the Japanese '849 application would enable a person of ordinary skill in the art to construct structures such as structures 90 and 96 from FIGS. 109-117 and 122-131 of the '364 patent. He therefore finds that the Japanese '849 application establishes an earlier priority date for the '364 patent in accordance with 35 U.S.C. §§ 112, 119.

Regarding conception, the administrative law judge finds that the structures that came to be known as structures 76, 80, and 82 from FIGS. 66 and 69-74 in both the '364 patent and the Japanese '849 application first appeared in{ } which is dated December 5, 1997.

{

}

He finds that this document also provides record of the conception of other structures extending perpendicularly from the unbent portions of the alignment control structures, as also seen in FIG. 74 of JX-1, supra. The administrative law judge further finds that these structures are therefore comparable to the '364 patent's structures 90 in FIGS. 109-117, which, like some of the structures from{ } extend perpendicularly from the unbent portions of the alignment control structure. The December 5, 1997 documentation further explains that all of these structures have the purpose of{ } In addition, by March 23, 1999, complainant had photographs of actual LCD pixels{ }

In these photographs, one can see that this{ } mentioned in the December 5, 1997 documentation results in substantial{ } (Id.)

The administrative law judge finds that reduction to practice shown by the photographs thus provides visual evidence of the effectiveness of structures like 76, 80, and 82 from FIGS. 66 and 69-74 in both the '364 patent and the Japanese '849 application and connects that effectiveness with the{ } goals of the conception documentation of December 5, 1997. Furthermore, he finds that complainant has shown due diligence through testimony of its employees, one of whom worked on auxiliary structures as{

}

As found supra, the Japanese '849 application encompasses the asserted claims of the '364 patent. Also as found supra, because the record showed conception of the relevant structures, reduction to practice with actual pixel-brightening functionality of said structures, and due diligence in developing the structures, the conception date for the auxiliary structures establishes the priority date for the Japanese '849 application.

Based on the foregoing, the administrative law judge finds that the documentation in the record evidencing conception and reduction to practice, and the due diligence leading to the Japanese '849 application, establish a priority date of December 5, 1997 for the '364 patent.

Respondents asserted that the Japanese '849 application does not specifically use the term "auxiliary structure" or depict structures 90 and 96 from FIGS. 109-117 and 122-131 in the '364 patent. Respondents' expert witness, Flasck, testified that "feature 90, the auxiliary structure was never disclosed. In fact, the word auxiliary is never used in that patent application." (Flasck, Tr. 1319.) Relying on this information, Flasck stated that he believed "that the correct priority date

for the '364 patent is August 13, 1999 [the filing date of the Japanese '249 application].” (Id.)

However, the administrative law judge finds that Flasck’s testimony relies on the implementation of the term “auxiliary structure” and the structure numbering without consideration given to the actual structure and function of structures 76, 78, 80, and 82 from FIGS. 66 and 69-74 of both the '364 patent and the Japanese '849 application as compared to the actual structure and function of structures 90 and 96 from FIGS. 109-117 and 122-131, which only appear in the '364 patent.

With the findings supra that the Japanese '849 application discloses the asserted claims of the '364 application, Silzars’ initial reliance on the Japanese '849 application as containing a FIG. 114, a figure which was only actually present in the '364 patent, becomes moot.

2. Anticipation

Respondents argued that each of U.S. Patent Nos. 6,710,837 (the '837 patent), 6,342,938 (the '938 patent), and 6,724,452 (the '452 patent) is prior art against the '364 patent under 35 U.S.C. § 102(e)(2), and that each anticipates and invalidates asserted claims 5 through 7 of the '364 patent. (RBr at 94, 98-102.)

Complainant argued that, as the priority date of the '364 patent is December 5, 1997, none of the patents relied on by respondents is prior art to said '364 patent. (CBr at 154-56.)

The staff argued that the '938, '452, and '837 patents are properly considered prior art under the staff’s construction, but that none of said patents anticipates the '364 patent. (SBr at 63-65.) The staff, however, also argued that “under Sharp’s construction Sharp is entitled to the [earlier] priority date and thus the '938 patent, the '452 patent, and the '837 patent would not be prior art.” (SRBr at 10.)

The administrative law judge has found, supra, that the '364 patent is entitled to a priority

date of December 5, 1997. The '837 patent has a priority date of May 14, 1999, which is around eighteen months after the priority date of the '364 patent. Moreover, the priority date of the '837 patent is nine months after the filing date of the Japanese '849 application, September 8, 1998. Likewise, the '938 patent has a priority date of May 19, 1999, which is eight months after the filing date of the Japanese '849 application and around eighteen months after the priority date of the '365 patent. Finally, the '452 patent has a priority date of June 12, 1998, which is about six months after the priority date of the '364 patent.

Based on the foregoing, the administrative law judge finds that none of the references relied on by respondents for their invalidity allegations is prior art and hence cannot be considered in any anticipation argument. Thus, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that asserted claims 5 through 7 of the '364 patent are invalid.

F. Enforceability

Respondents argued that Sharp (then Fujitsu) committed inequitable conduct during the prosecution of the '364 patent thereby rendering the '364 patent unenforceable. In support it is argued that Sharp intentionally misled the Examiner with an incomplete characterization of the prior art in the '364 application, *viz.* Sharp's characterization of the JP '836 reference,¹⁴ which corresponds to U.S. Patent No. 6,724,452 (the '452 patent) (RBr at 104), as only disclosing three limitations of claim 5 when it actually discloses all four limitations. (*Id.* at 105.) It was also argued that the applicants did not disclose the '452 patent to the Patent Office during the prosecution of the '364 patent until it was too late to be considered. (*Id.*)

¹⁴ Japanese Unexamined Patent Application No. 10-185836.

Each of complainant and the staff argued that respondents have not established that the '364 patent is unenforceable.

A patent may be rendered unenforceable for inequitable conduct if an applicant, with intent to mislead or deceive the examiner, fails to disclose material information or submits materially false material information to the PTO during prosecution.” Digital Control Inc. v. Charles Mach. Works, 437 F.3d 1309, 1313 (Fed. Cir. 2006); see also 37 C.F.R. § 1.56(a) (“Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section.”). Inequitable conduct must be proven by clear and convincing evidence, and the burden of proving inequitable conduct is on the party alleging it. Star Scientific, Inc. v. R.J. Reynolds Tobacco Co., 537 F.3d 1357, 1365 (Fed. Cir. 2008). Therefore, in order to prove inequitable conduct for failure to disclose information to the Patent Office, the alleged infringer must prove with clear and convincing evidence that (1) the withheld information was material and (2) the applicant intended to deceive the examiner by withholding the information. Id. Further, even if the alleged infringer meets its elevated burden of proof, the administrative law judge “must still balance the equities to determine whether the applicant’s conduct before the Patent Office was egregious enough to warrant holding the entire patent unenforceable.” Id.

The administrative law judge has found supra that the '452 patent which was first filed in the United States on June 12, 1998 (JX-13), is not prior art to the '364 patent. Hence, the administrative law judge finds that respondents have not established that Sharp committed inequitable conduct during the prosecution of the '364 patent thereby rendering the '364 patent

unenforceable.

XI. '192 Patent

The '192 patent (JX-2) issued with four claims.

A. Claims At Issue

Asserted claims 1 and 4 are in issue. Asserted independent claim 1 reads:

A liquid crystal display device, comprising:

a liquid crystal provided between a pixel electrode and a counter electrode to which a drive voltage is applied;

a domain restriction structure for restricting an alignment of the liquid crystal so that the alignment of the liquid crystal is substantially vertical when non-voltage is applied, substantially parallel when a predetermined voltage is applied, and inclined when a smaller voltage than the predetermined voltage is applied, and further a direction that the alignment of the liquid crystal is inclined is set to be a plurality of parts in each pixel when a voltage smaller than the predetermined voltage is applied; and

a drive circuit in which when the pixel is changed from a first transmittance to a second transmittance greater than the first transmittance, a voltage greater than a first target drive voltage corresponding to the second transmittance is applied between the pixel electrode and the counter electrode in a first period of changing to the second transmittance, and the first target display voltage is applied between the pixel electrode and the counter electrode in a second period after the first period.

Asserted independent claim 4 reads:

A method for driving a liquid crystal display device including a liquid crystal provided between a pixel electrode and a counter electrode to which a voltage is applied, and a domain restriction structure for restricting an alignment of the liquid crystal so that the alignment of the liquid crystal is substantially vertical when non-voltage is applied, substantially parallel when a predetermined voltage is applied, and inclined when a smaller voltage than the predetermined voltage is applied, and further a direction that the

alignment of the liquid crystal is inclined is set to be a plurality of parts in each pixel when a voltage smaller than the predetermined voltage is applied, the method comprising:

when the pixel is changed from a first transmittance to a second transmittance greater than the first transmittance, applying a voltage greater than a first target drive voltage corresponding to the second transmittance between the pixel electrode and the counter electrode in a first period of changing to the second transmittance; and applying the first target display voltage between the pixel electrode and the counter electrode in a second period after the first period.

B. Claim Construction

There are two claim terms in dispute: (1) “domain restriction structure” and (2) “pixel.”

1. “domain restriction structure”

The claim term “domain restriction structure” is recited in independent claims 1 and 4 of the ’192 patent.

Complainant argued that the term “domain restriction structure” is a “structure that regulates the direction of inclination of LC molecules, e.g., slits and/or protrusions.” (CBr at 168.) According to complainant, the ’192 patent describes and claims the application of an “overdrive” voltage to VA LCDs with domain restriction structures to improve the response time of the VA liquid crystal molecules, irrespective of the specific structure used to create domains in the VA LCD; and that one skilled in the art reading the claims in light of the specification would conclude that the claims of the ’192 patent are directed toward all incarnations of VA technology with domain restriction structures, i.e., those that use slits, projections, or rubbing vertical alignment layers as domain restriction structures. (CBr at 169-170.)

Respondents argued that the construction of the term “domain restriction structure” should be “a structure having an inclined plane formed on the pixel electrode or counter

electrode.” (RBr at 171.) According to respondents, “the ’192 patent discloses only structures with inclined planes as ‘domain restriction structures,’ which improve response time by inclining or pre-tilting LC molecules in the absence of an applied driving voltage.” (Id. (emphasis added).)

The staff agreed with complainant that the term “domain restriction structure” means a “structure that regulates the direction of inclination of liquid crystal molecules, e.g., slits and/or protrusions.” (SBr at 36.)

The term “domain restriction structure” appears in asserted independent claims 1 and 4 as part of the larger phrase:

... a domain restriction structure for restricting an alignment of the liquid crystal so that the alignment of the liquid crystal is substantially vertical when non-voltage is applied, substantially parallel when a predetermined voltage is applied, and inclined when a smaller voltage than the predetermined voltage is applied, and further a direction that the alignment of the liquid crystal is inclined is set to be a plurality of parts in each pixel when a voltage smaller than the predetermined voltage is applied . . .

(JX-2 at 17:66-18:9 and 18:17-55 (emphasis added).) From the express language of the claims, the administrative law judge finds that a person of ordinary skill in the art would conclude that the purpose of the “domain restriction structure” is twofold, viz. that the domain restriction structure restricts an alignment of the liquid crystal so that the liquid crystals are aligned either “substantially vertical,” “substantially parallel,” or “inclined,” according to the voltage being applied, and that when a voltage for an “inclined” alignment of the liquid crystal is applied, the “domain restriction structure” restricts a direction of the inclined alignment of the liquid crystal to a “plurality of parts in each pixel.” The administrative law judge further finds that the claim language does not require that a “domain restriction structure” have an inclined plane.

Referring to the specification of the ’192 patent, the administrative law judge finds that

the specification, read as a whole, does not indicate that the goal of the invention requires the domain restriction structure of each embodiment be formed with “an inclined plane” to incline the liquid crystal molecules in advance. Specifically, in each of the three exemplary embodiments provided in the specification, the goal of improving response time is achieved by using a drive circuit having a drive voltage greater than a target transmittance, rather than relying on any inclined plane of the domain restriction structure. (See, e.g., JX-2 at 6:5-10, 12:4-21, 15:41-50.) In fact, the only embodiment that partially takes advantage of the advance incline of liquid crystal molecules to improve response time is the “Second Embodiment,” which nevertheless focuses mainly on the use of an overdrive voltage to improve response time. (JX-2 at 10:43-14:16.)

Moreover, as indicated throughout the specification, the concepts of “domain restriction” and of using “domain restriction means” to incline liquid crystal molecules in advance was well known before the claimed invention in issue. Specifically, the “Background Art” section of the specification gave the following exemplary description of an MVA type liquid panel crystal panel:

The MVA type liquid crystal panel uses an n type liquid crystal having negative dielectric anisotropy and the MVA type liquid crystal panel is provided with domain restriction means for, when voltage is applied, restricting an alignment direction of the liquid crystal so that the direction is set to be a plurality of parts in one pixel.

The domain restriction means incline in advance the liquid crystal molecules at a projection part at a slight angle when non-voltage is applied, by the projection, etc. provided in a part on an electrode.

(JX-2 at 1:44-54 (emphasis added).) The “Background Art” section then went on to explain the various disadvantages with MVA type liquid crystal panels, and concluded:

Then, it is an object of the present invention to provide a liquid crystal display device having a drive circuit in which when driving the MVA type liquid crystal panel in which n type liquid crystals are aligned vertically, a response time when the black state is switched to the low brightness halftone state is lessened, and the overshoot when the black state is switched to the halftone state or the white state is diminished; and its drive method.

(JX-2 at 2:41-48 (emphasis added).) Moreover, the abstract of the '192 patent states:

According to the present invention, in a liquid crystal display device for driving the MVA type liquid crystal panel, when a liquid crystal pixel at a pixel electrode is changed from a first transmittance to a second transmittance greater than the first transmittance, a drive voltage greater than a first target drive voltage in correspondence with a second transmittance is applied to the pixel electrode in a first frame period of changing to the second transmittance, and the first target display voltage is applied from a second frame period.

(JX-2 at Abstract (emphasis added).) Thus, according to the specification, the administrative law judge finds that the overall objective of the '192 patent is to use a drive circuit having a drive voltage greater than a target transmittance to improve the response time of a LCD panel, and not to use a domain restriction structure having an inclined plane, which was already known before the claimed invention in issue.

The administrative law judge finds that the prosecution history further supports the finding that the term "domain restriction structure" need not be restricted to an "inclined plane." Thus, during a non-final office action rejecting the claims under 35 U.S.C. § 102, the Examiner pointed to a reference disclosing domain restriction structures having both protrusions and slits. (JX-6 at 429 (referencing "USPN: 6,661,488 B1 [CX-861], see figs. 9, 82 and 83, and abstract, col. 18, line 44 through col. 19, line 8, and col. 44, lines 18-43".)) According to the Examiner, U.S. Patent No. 6,661,488 to Takeda et al. (Takeda) was considered pertinent to the applicants'

disclosure by “disclosing a related MVA type LCD device including domain restriction structure for restricting” (JX-6 at 429.) Specifically, the combination of protrusions and slits was disclosed in Figure 9 of Takeda, which was among the specific sections cited by the Examiner as disclosing the claimed “domain restriction structure.”

Furthermore, the administrative law judge finds that other evidence supports the finding that the term “domain restriction structure” need not be restricted to structures having an “inclined plane” but may include “slits.” For example, the “Background Art” section of the specification refers to Japanese Patent Application Laid-Open No. 10-185836 (JP ’836) to describe restricting the alignment and direction of liquid crystal molecules in an MVA type LCD panel. (JX-2 at 1:34-44.) Specifically, Figure 12 of JP ’836 discloses an MVA LCD that uses protrusions and/or slits to restrict domains, demonstrating that the inventors of the ’192 patent were well aware that domain restriction structures may be implemented using either or both protrusions and slits. (CDX-732 (citing JP ’836).) In addition, respondents’ own expert Flasck testified that either protrusions or slits can be used to restrict domains. According to respondents’ expert Flasck:

Q. Turning to RDX-123, Mr. Flasck, can you describe how multi domains can be formed.

A. Yes. The domains can be created one of three basic ways. One is to form slits in the electrode – in the common electrode or the pixel electrode. That was known actually before the time of the patents.

Structures having inclined surfaces, for instance protrusions formed on the pixel or common electrodes, and that was disclosed and discovered about the time of the patents. Or you can rub alignment layers in two different directions.

(Tr. at 1246 (emphasis added).) Complainant’s expert further testified that “both incline

surfaces and slits serve [the] purpose” of inclining liquid crystal molecules in advance, because the molecules near the slits formed in a vertically aligned LCD “is always a little bit off vertical” when no voltage is applied. (Tr. at 1130-1131.)

Respondents argued that inclined surfaces are required to further the ‘192 patent’s goal of reducing response speed, relying on testimony of their expert Flasck. (Tr. at 1811.) While protrusions and slits are not the same because protrusions may represent a greater reduction in response time, apertures also achieve the goal of reducing response time. As complainant’s expert Silzars testified:

Q. And by making the LCD molecule a little bit off vertical, it takes less time for the molecule to react to the input signal in general, correct?

A. That’s, in general, correct.

Q. Okay. And part of the idea behind using incline surfaces is that they help to induce an angle in the LCD molecules, correct?

A. Both incline surfaces and slits serve that purpose.

Q. But, in particular, incline surfaces serve that purpose, correct?

A. They both serve that purpose. So I would not necessarily emphasize one over the other.

Q. Okay. And you would agree with me that -- that when you use protrusions with an incline surface in general, you should expect an improvement in the response time of the panel, correct?

A. As you would if you used slits for a domain restriction means. In both cases you are using these to both increase the angle of view and also increase the response time.

Q. You would agree with me that in your view slits do not carry an inclined surface, correct?

A. We agree on that, yes.

Q. You believe that protrusions and slits are very different structures in the context of LCD panels, correct?

A. They both serve the function of assisting in the creation of domains; how they do it is somewhat different, but they both behave as domain creation structures. So there is a practical difference, but not a functional difference.

Q. You certainly believe that slits and protrusions are not interchangeable, correct?

A. For purposes of creating domains, they are interchangeable. For how we design with them, it is not the same. We have to design the panel taking into account whether we are using protrusions or slits or the combination thereof; but, both can be implemented, as we have seen in the actual panels that we have examined.

Q. But, sir, it's your opinion that slit analysis protrusions are not interchangeable, correct?

A. They are interchangeable for the purposes of creating domains.

Q. Let's go to your deposition. It's the first one in your binder at page 222, line 7, through 223, line two. I apologize, Dr. Silzars, I think my cite's off here.

It's page 200, line 7. Do you have it?

“QUESTION: Do you believe that domain division for the use of apertures is substantially different than domain division through the use of protrusions?”

“ANSWER: I do.”

Do you recall that?

A. Yes.

* * *

Q. So now let's go to 222, line 7, through 223, line two.

“QUESTION: Do you think that somebody reading this prosecution history, which is a public document, could fairly

conclude that the patent examiner and applicant came to some sort of agreement that domain dividers was broad enough to encompass protrusions?

“ANSWER: I can't make that legal interpretation, but from a technical standpoint, with regard to what the '311 patent describes and what the claims describe, we cannot make that substitution without further explanation. From a technical standpoint, a protrusion and aperture work in a very different way, and if we try to mix the two and say they're interchangeable, they are not interchangeable.”

Do you recall that testimony, sir?

A. Yes.

Q. And you stand by it today?

A. Absolutely.

(Tr. at 1130-1134.)

Based on the foregoing, the administrative law judge finds that the claim term “domain restriction structure” should be construed as “a structure that regulates the direction of inclination of LC molecules, e.g., slits and/or protrusions.”

2. “pixel”

The claim term “pixel” is recited in asserted independent claims 1 and 4 of the '192 patent.

Complainant argued that the term “pixel” means the “unit that is associated with a pixel electrode and is independently addressable.” (CBr at 182.)

Respondents argued that the term “pixel” refers to “an entire region of a single color (i.e., red, green or blue) in an RGB dot.” (RBr at 185.)

The staff agreed with complainant and argued that the proper construction of the term

“pixel” is the “unit that is associated with a pixel electrode and is independently addressable.”

(SBr at 39.)

The term “pixel” appears throughout independent claims 1 and 4. Both claims 1 and 4 begin by stating that the liquid crystal display device include “a liquid crystal provided between a pixel electrode and a counter electrode to which a drive voltage is applied.” (JX-2 at 17:64-65, 18:45-46 (emphasis added).) Both claims go on to specify that “when the pixel is changed from a first transmittance to a second transmittance greater than the first transmittance, a voltage greater than a first target drive voltage corresponding to the second transmittance is applied between the pixel electrode and the counter electrode” (JX-2 at 18:10-16, 18:55-62 (emphasis added).) Thus, the administrative law judge finds that the express language of the claims indicates to a person of ordinary skill in the art an association between a “pixel” and the “pixel electrode.” The administrative law judge finds nothing in the claim language to indicate a color requirement for to the term “pixel.”

Referring to the specification, it defines the association between a “pixel” and the “pixel electrode.” Thus in the “Best Mode For Carrying Out the Invention” section, the specification begins by describing a First Embodiment (FIG. 1) as “an equivalent circuit of a[n] MVA type liquid crystal panel 1 according to an embodiment of the present invention. The actual MVA type liquid crystal panel 1 has 1024x3x768 pixels, for example, when a color display is made, but here shows the case of 3x3 pixels.” (JX-2 at 4:51-53.) The specification indicating that each of the pixels depicted in Figure 1 of the ‘192 patent are described as being associated with their own pixel electrode then states:

The MVA type liquid crystal panel 1 is assorted into respective pixels by longitudinal source electrode lines S0, S1, S2 and

transverse gate electrode lines G0, G1, G2, and has TFTs 2 to 10 in each of respective pixels. A source electrode S and a gate electrode G of the TFTs 2 to 10 are connected to the source electrode lines S0 to S2 and the gate electrode lines G0 to G2, respectively, and a drain electrode D is connected to pixel electrodes 12 to 20.

The pixel electrodes 12 to 20 are transparent electrodes of ITO (Indium Tin Oxide), etc., and a drive voltage is applied on liquid crystal pixels 22 to 30 inserted between the pixel electrode and a counter common electrode 32. The common electrode 32 is an ITO transparent electrode covering the substantially entire plane of a liquid crystal panel, and a common voltage Vcom is applied thereon.

(JX-2 at 4:56-5:3 (emphasis added).) Thus, each “pixel” in the 3x3 portion of the panel described is associated with an individual “pixel electrode,” and each “pixel” is independently addressable by having a drive voltage applied to the liquid crystals between each pixel’s “pixel electrode” and “counter electrode.” (Silzars, Tr. at 1038-39, 1207-08.) Although the specification as for the first embodiment states that “[t]he actual MVA type liquid crystal panel 1 has 1024x3x768 pixels, for example, when a color display is made” and that the first embodiment only “shows the case of 3x3 pixels,” supra, the administrative law judge finds that the specification does not indicate that each one of the shown 3x3 pixels, i.e., nine pixels, should encompass “an entire region of a single color (i.e., red, green or blue in an RGB dot).”

Based on the foregoing, the administrative law judge finds that the construction of the claim term “pixel” is a “unit that is associated with a pixel electrode and is independently addressable.”

C. Infringement

Complainant argued that respondents’ products containing the patterned vertical alignment (PVA) and super patterned vertical alignment (SPVA) modules{ }

{ } directly infringe asserted claims 1 and 4 of the '192 patent. (CBr at 188.) A list of the accused products, based on Samsung's Fifth Supplemental response to Sharp's Interrogatory No. 3, is found at CDX 810C, 811C and 812C.

Respondents argued that the accused PVA and SPVA products do not infringe claims 1 and 4 of the '192 patent{ } under respondents' construction of the term. (RBr at 192.) Respondents also argued that the accused products containing the SPVA modules do not infringe claims 1 and 4 of the '192 patent because { } so that there is no "first target drive voltage corresponding to the second transmittance" as required by the claims. (RBr at 192-193.)

The staff argued that the evidence showed that, under the staff's construction, the accused PVA and SPVA products directly infringe claims 1 and 4 of the '192 patent. (SBr at 49.)

With respect to the limitation "a liquid crystal provided between a pixel electrode and a counter electrode to which a drive voltage is applied" of claims 1 and 4, all of the accused products are liquid crystal display devices comprising said limitation, as shown in CDX-761. (Silzars, Tr. at 1065-1066.) Thus, the administrative law judge finds that the accused products practice the claimed limitation "a liquid crystal provided between a pixel electrode and a counter electrode to which a drive voltage is applied."

With respect to the "domain restriction structure" limitation of claims 1 and 4, both the accused PVA and SPVA products{ } "for restricting an alignment" and "further a direction" of the liquid crystals, as required by the claims. (Silzars, Tr. at 1066-1077; see also CDX-764, CDX-765, CDX-769, CDX-771, CDX-774, CDX-776, and CDX-781.) The

administrative law judge has found supra that a “domain restriction structure” is “a structure that regulates the direction of inclination of LC molecules, e.g., slits and/or protrusions.” {

} (RBr at 197.) Accordingly, the

administrative law judge finds that the accused products practice the “domain restriction structure” limitation of claims 1 and 4.

With respect to the limitation:

when the pixel is changed from a first transmittance to a second transmittance greater than the first transmittance, a voltage greater than a first target drive voltage corresponding to the second transmittance is applied between the pixel electrode and the counter electrode in a first period of changing to the second transmittance, and the first target display voltage is applied between the pixel electrode and the counter electrode in a second period after the first period.

of claims 1 and 4, the accused products practice said limitation by using either a {

} to change the pixels from one transmittance to a higher

transmittance. (Silzars, Tr. at 1079-1096.) Specifically, as shown in CDX-152 and CDX-796, and CDX-804, for accused products using each of {

} (Id.)

Respondents argued that their SPVA products do not infringe the ‘192 patent because

{

} (RBr at 197.) In support, it was argued that

respondents’ “sub-pixel” is not a “pixel” as used in the ‘192 patent. (Id. at 198.) However, the

administrative law judge finds that each “sub-pixel,” as respondents use the term, falls under the

construction of “pixel,” supra,{
} (Silzars, Tr. at 1097-1098; CDX-95, 449,{ } 826; CX-466.54;
{ } CX-35C at SSNG 22737;{ } Flasck, Tr. at
1844-1848; RDX-643-644,{ } Moreover,{
}

(JX-34C, Na. Dep. Tr. (Aug. 14, 2008) at 98-99;{

} In addition, respondents’ expert Flasck admitted that{

} (Flasck, Tr. at 1844-1845; 1846-1847; RDX-130; RDX
642-643, 646;{ }CX-34 at SSNG 216125.)

Therefore,{

} (Flasck, Tr. at 1844, 1847; RDX-646.) Thus, the administrative law judge finds
that respondents’ SPVA products have “a first target drive voltage corresponding to the second
transmittance” under the construction of the term “pixel,” as found supra.

Based on the foregoing, the administrative law judge finds that complainant has shown,
by a preponderance of the evidence, that the accused products practice all the limitations of
asserted claims 1 and 4 and thus directly infringe said claims.

D. Domestic Industry

Complainant argued that its domestic industry LCD devices, a representative listing of
which can be found in{ } practice the asserted claims 1 and 4 of the ’192 patent (CBr at
228).

Respondents argued that complainant's domestic industry products do not practice the asserted claims of the '192 patent. (RBr at 201-202.)

The staff argued that the evidence shows that complainant's domestic industry products practice the asserted claims 1 and 4 of the '192 patent. (SBr at 54-55.)

With respect to the limitation "a liquid crystal provided between a pixel electrode and a counter electrode to which a drive voltage is applied" of claims 1 and 4, complainant's domestic industry products are liquid crystal display devices comprising said limitation, as shown in CDX-831. (Silzars, Tr. at 1110-1112.) With respect to the "domain restriction structure" limitation of claims 1 and 4, complainant's domestic industry products include domain restriction structures, as shown in CDX-836. (Silzars, Tr. at 1112:15-21.)

Referring to the limitation:

when the pixel is changed from a first transmittance to a second transmittance greater than the first transmittance, a voltage greater than a first target drive voltage corresponding to the second transmittance is applied between the pixel electrode and the counter electrode in a first period of changing to the second transmittance, and the first target display voltage is applied between the pixel electrode and the counter electrode in a second period after the first period.

{

}

Based on the foregoing, the administrative law judge finds that complainant's domestic industry products practice each limitation of asserted claims 1 and 4, and therefore complainant has established the technical prong of the domestic industry requirement as it relates to the '192

patent.

E. Validity

Respondents argued that asserted independent claims 1 and 4 of the '192 patent would have been obvious to a person of ordinary skill in the art of liquid crystal display technology in 1998, under either complainant's or respondents' proposed constructions. (RBr at 202.) Specifically, respondents argued that claims 1 and 4 would have been obvious over a 1999 article by Takeda entitled "A Super-High-Image-Quality Multi-Domain Vertical Alignment LCD by New Rubbing-Less Technology" (Takeda article), which discloses MVA LCD technology, in view of any one of the of the secondary prior art references, which disclose overdriving liquid crystals to shorten response time: Japanese Publication JP H10-039837 ('837 publication), U.S. Patent No. 5,528,257 ('257 patent), Japanese Publication S64-010299 ('299 publication), or U.S. Patent No. 3,575,491 ('491 patent). (RBr at 203.)

Complainant argued that respondents has not met its burden to show, by clear and convincing evidence, that the claims of the '192 patent are obvious in light of the prior art. (CBr at 212.) Specifically, complainant argued that one of ordinary skill in the art would not have been motivated to combine Takeda with the alleged references that respondents assert as prior (CBr at 218.)

The staff agreed with complainant that respondents has not met their burden of proving by clear and convincing evidence that the claims of the '192 patent are invalid for obviousness. (SBr at 66.) Specifically, the staff argued that there is no motivation to use overdrive in connection with the technology described in the Takeda article, and hence there is no motivation to combine a technique or structure found in a non-VA LCD technology with a VA LCD. (Id.)

The asserted claims 1 and 4 of the '192 patent have the language:

when the pixel is changed from a first transmittance to a second transmittance greater than the first transmittance, a voltage greater than a first target drive voltage corresponding to the second transmittance is applied between the pixel electrode and the counter electrode in a first period of changing to the second transmittance, and the first target display voltage is applied between the pixel electrode and the counter electrode in a second period after the first period.

Respondents acknowledged that the Takeda article does not disclose said overdrive limitation. Respondents argued, however, that said overdrive limitation is disclosed by each of the '837 publication, the '257 patent, the '299 publication, and the '491 patent, and that it would have been obvious to one of ordinary skill in the art to combine the teachings of the Takeda article with the teachings of said references. (RBr at 206, 209.)

The Takeda article focuses on modifying the structure of an MVA LCD in order to optimize response speed. (Silzars, Tr. at 2064; RX-93 at SSNG 591550; CDX-863-864.) Takeda teaches that “the space between protrusions must be determined by considering the transmittance and response.” (RX-93 at SSNG 591549.) However, the fast (or “optimized”) response speed achieved in Takeda has nothing to do with the voltage drive waveforms. (Silzars, Tr. at 2065.) Also during prosecution of the '192 patent, the Examiner cited U.S. Patent No. 6,661,488 (the '488 patent) to Takeda et al., which discloses a more detailed description of MVA technology than the disclosure in Takeda relied upon by Samsung as prior art to the '192 patent. (Silzars, Tr. at 2073; CDX-876; CX-861, '488 patent FIG. 9; JX-6 at SHARP 832.) The Examiner also considered JP 5-100208 (JP '208), which depicts the use of an overdrive voltage in non-MVA LCD technology. (Silzars, Tr. at 2073; CDX-876; CX-212, JP '208, FIG. 3; JX-6 at SHARP 750.)

As to whether one of ordinary skill in the art would combine the Takeda article with the '837 publication or the '257 patent, both the '837 publication and the '257 patent discloses "a PDLC structure," which is "a scattering mode" rather than the MVA mode disclosed by the '192 patent. (Silzars, Tr. at 2068-2069 and 2074.) Similarly, the '491 patent discloses a "scattering mode," which is incompatible with the MVA mode of the '192 patent. (Silzars, Tr. at 2071-2072 and 2074.) Thus:

The way this material, this polymer dispersed liquid crystal mode operates, in effect, if you think of it as being a sponge with holes in it, so we have this polymer material that has many, many cavities in it.

And then what we do is we fill these cavities with liquid crystal material. Well, so first of all, the liquid crystal does not really see a uniform top surface or bottom surface. It sees these little spheres that it is sitting in.

And that's one of the reasons why the overdrive doesn't work so well in this condition is because there is no clean reference point for the liquid crystal molecule. It is sitting in a nonuniform, it seems, substrate everywhere, not just top and bottom.

So when you try to operate this in an overdrive mode, you get a very, very different result. It is a scattering mode. It doesn't use polarizers to accomplish the light transmission.

(Silzars, Tr. at 2069-2070 (emphasis added).) Hence, since a scattering mode is very different from the MVA mode of the '192 patent, the administrative law judge finds that the '837 publication, the '257 patent, or the '491 patent does not disclose the overdrive limitation required by the asserted claims of the '192 patent.

As to whether one of ordinary skill in the art would combine the Takeda article with the '299 publication.

[The '299 publication] actually does not discuss or disclose the

structure of the display cell or the orientation or alignment of the liquid crystal molecule.

There is certainly no reference to creation of domains or MVA. And it only relates to a control circuitry and to signal processing.

So without any of that teaching, it is simply an overdrive circuit of some kind

(Silzars, Tr. at 2072-2073.) Thus, the administrative law judge finds that the '299 publication does not even disclose the mode of the LCD.

Based on the foregoing, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that the asserted claims are obvious in light of the Takeda article, the '837 publication, the '257 patent, the '299 publication, or the '491 patent.

XII. '626 Patent

The '626 patent (JX-3) issued with twenty one claims.

A. Claims At Issue

Asserted claims 10, 17 and 20 are in issue. Asserted independent claim 10 reads:

A display device comprising:

- a plurality of pixels;

- video signal lines for supplying data signals to the pixels;

- scanning signal lines intersecting said video-signal lines;

- a gate driver which outputs scanning signals to said scanning signal lines, and drives said scanning signal lines;

- a circuit, which provides an input to the gate driver, that generates a waveform voltage that is provided to the gate driver, wherein the waveform voltage generated by said circuit is used in order to make at least part of a change between a high level and a low level of the scanning signal incline by being inputted into said gate driver; and

wherein the waveform voltage that is generated by said circuit and which is to be input to the gate driver includes a sloped portion which slopes downwardly in a sloped non-vertical manner from a first level to a second level, wherein the waveform voltage including the sloped portion thereof is input to the gate driver and causes the scanning signals output from the gate driver to include an inclined portion that inclines from a high level to a second level which is between the high level and a low level of the scanning signal.

Asserted dependent claim 17 reads:

The display device of claim 10, wherein the circuit receives a circuit input voltage having the first level, and the circuit comprises a first switch that selectively provides the circuit input voltage to a circuit output.

Asserted dependent claim 20 reads:

The display device of claim 17, wherein the first switch stops providing the circuit input voltage to the circuit output at a timing of the sloped portion of the waveform voltage.

B. Claim Construction

There is one claim term in dispute, viz. “circuit.”

1. “circuit”

As seen supra, the claimed term “circuit” appears in asserted independent claim 10 and asserted dependent claims 17 and 20 of the ’626 patent.

Complainant argued that the plain and ordinary meaning of the term “circuit” is “a collection of electronic components” and that said “collection of electronic components” can be affected by parasitics and other inherent elements from the gate driver or the display panel. (CBr at 238-41; CBRr at 12-13.)

While respondents acknowledged that the term “circuit” include “a collection of electronic components,” respondents argued that the proper construction of the term “circuit”

should be “a collection of electronic components separate from the gate driver and the display panel.” (RFF at 235; RBr at 222-223.) Respondents further argued that “separate from the gate driver and the LCD panel elements” means that the circuit “must be considered separately in its function and operation” and must “not include elements or components of the gate driver or LCD panel (including but not limited to parasitic capacitances).” (RRBr at 108.) Respondents also argued that said construction offered by the complainant is inconsistent with the construction advanced by complainant and its expert during the hearing, which referred to the term “circuit” as “a collection of electronic components that generates a waveform voltage that is input to the gate driver, wherein the waveform voltage includes a sloped portion.” (RBr at 244-45, RRBr at 104 (emphasis added).)

The staff agreed with complainant that the plain and ordinary meaning of the term “circuit” is simply “a collection of electronic components” and that said collection of electronic components can be affected by parasitic capacitance from the gate driver or the display panel. (SBr at 42-44.) According to the staff, respondents’ narrower construction of the term “circuit” requires something that is not contemplated by the ‘626 patent, i.e., that the invention can only be practiced when the circuit is unconnected and non-working so that no parasitic capacitance exists in the accused product. (Id. at 44.) The staff further argued that a person of ordinary skill in the art would understand that independent claim 10 requires the circuit to generate a waveform voltage with a sloped portion when the circuit is connected and working. (Id.)

The term “circuit” appears in independent claim 10 as part of the larger phrase:

a circuit, which provides an input to the gate driver, that generates a waveform voltage that is provided to the gate driver, . . . wherein the waveform voltage that is generated by said circuit and which is to be input to the gate driver includes a sloped portion, . . . wherein

the waveform voltage including the sloped portion thereof is input to the gate driver and causes the scanning signals output from the gate driver to include an inclined portion . . .

(JX-3 at 21:8-24.) Thus, the administrative law judge finds that the language of claim 10 requires that the circuit “generates a waveform voltage that is provided to the gate driver.” The administrative law judge further finds that the language of claim 10 requires that the waveform voltage generated by the circuit “is input to the gate driver and causes the scanning signals output from the gate driver to include an inclined portion.” Thus, the administrative law judge finds, based on the claim language, that a person of ordinary skill in the art would conclude that the circuit must at least be connected to the gate driver to cause the gate driver to produce an ultimate result and hence conclude that the circuit cannot be completely separate from the gate driver in its function and operation.

Referring to the specification, the third and fourth embodiments of the specification¹⁵ disclose that the circuit cannot be completely separate from the gate driver or the display panel in its function and operation. While said third and fourth embodiments disclose that the circuit may be external to the “conventional common inexpensive gate driver” so that said inexpensive gate driver can be applied as it is to a display device, said third and fourth embodiments do not disclose that the circuit is separate from the gate driver in function or operation. (JX-3 at 9:35-48, 11:19-35.) To the contrary, according to the third embodiment, the disclosed circuit produces an output signal VD1a that is sent to the input terminal VD1 of the gate driver circuit 300 to produce a sloped scanning signal, like the waveform VG(j) shown in FIG. 5, necessary for driving the scanning signal lines of the display panel. (JX-3 at 10:51-55.) In addition, according

¹⁵ Independent claim 10 encompasses the “third embodiment” and the “fourth embodiment” described in the specification. (CFF VIII.72 (undisputed).)

to the third embodiment, the slope quantity of said resulting scanning signal can be adjusted by varying a resistance and a capacitance of the disclosed circuit. (JX-3 at 10:57-61.) Similarly, according to the fourth embodiment, the disclosed circuit produces an output signal VD1b that is sent to the input terminal VD1 of the gate driver circuit 300 to produce a sloped scanning signal necessary for driving the scanning signal lines of the display panel, and that the slope quantity of said sloped scanning signal can be adjusted by varying a variable of the disclosed circuit. (JX-3 at 11:57-67, 12:14-25.) Thus, although the third and fourth embodiments disclose a circuit that may be distinct from the gate driver, both embodiments disclose a circuit that must function together with, and not separately, from the gate driver to produce a desired scanning signal necessary to drive the scanning signal lines of the display panel.

In addition to containing disclosure that the circuit must function together with and not separately from the gate driver and display panel, the specification indicates that the circuit may be affected by parasitic capacitance from the display panel. Thus the specification fully describes that parasitic capacitance unavoidably exists within the display panel, to which the circuit and the gate driver are connected. For example, according to the section in the specification titled “Background of the Invention,” not only is there parasitic capacitance “unavoidably formed between the gate and the drain of the TFT [within the display panel] out of structural necessity,” there is also parasitic capacitance “generated at intersections of the scanning signal lines with signal lines.” (JX-3 at 2:61-63 and 3:29-32.) Moreover, the third and fourth embodiments of the specification make clear that the disclosed circuit is designed for the very purpose of making more uniform, as well as reducing the degree of, level shifts to pixel potentials caused by the parasitic capacitance existing in the display panel. (JX-3 at 10:62-11:3.) Based on such

disclosure in the specification, the administrative law judge finds that a person of ordinary skill in the art in considering the circuit would take into account parasitic capacitance from the display panel. Moreover, according to complainant's expert Stewart:

Q. Let me ask you, then, in reading the '626 patent specification and, in particular, the figures you have on CDX-931, including Figures 4, Figure 10, and Figure 11, would somebody of ordinary skill in the art looking at this particular disclosure in the '626 patent have an understanding as to whether or not the circuits that are shown on CDX-931 are connected?

A. They're clearly connected and clearly the behavior of the Figure 4 circuit is affected by the parasitic capacitances in the gate driver and, even to some small extent, the array itself.

(Tr. at 765.) In addition, the demonstrative CDX-931 presented during testimony by complainant's expert Stewart showed a circuit that is both clearly distinct from the gate driver and yet connected to the gate driver. (*Id.*) With respect to the prosecution history of the '626 patent, respondents argued that the prosecution history strongly supports respondents' proposed construction of the term "circuit" and that it is the opinion of complainant's expert that asserted independent claim 10 issued over U.S. Patent No. 5,995,075 to Vignolle (Vignolle), a prior art reference considered by the Examiner during prosecution, because the "circuit" of claim 10 is separate from the gate driver. (RBr at 232; RRB at 117.) Complainant argued that its proposed construction of the term "circuit" does not conflict with prosecution history of the '626 patent. (CRBr at 124.) The administrative law judge finds that the prosecution history of the '626 patent does not support respondents' proposed construction of the term "circuit," and is instead consistent with complainant's and the staff's proposed construction of the term "circuit." (See, generally, JX-7.) It is a fact that the claims of the '626 patent were issued over Vignolle. (CFF VIII.346 (undisputed).) As the testimony at the hearing disclosed, Vignolle does not disclose a

“circuit” that generates a waveform voltage that is provided to the gate driver; instead, the waveform input to the gate driver in Vignolle is modulated within the gate driver to generate the desired output. Thus, at the hearing, complainant’s expert Stewart credibly testified:

Q. Mr. Stewart, did you hear the testimony from Mr. Flasck about the alleged invalidity of the '626 patent?

A. Yes.

Q. Do you agree with that, with the opinions you heard?

A. No, I don't.

Q. Okay. Did you prepare some slides that help explain your opinion in that regard?

A. Yes, I did.

Q. Could we take a look at CDX-1033, citing JX-7.

Are you aware that the reference that -- the primary reference that was being used by Mr. Flasck was the Vignolle '075 reference?

A. Yes.

Q. And could you tell me what this slide represents?

A. This is taken from the action of the patent examiner where he considered Vignolle and he chose not to issue a rejection in view of that reference.

Q. Okay. Do you think there is any reason that the Vignolle patent should have prevented the '626 patent from issuing?

A. I don't believe the Vignolle prior art should have -- I agree with the examiner. I don't believe there is any basis, based on Vignolle, for not allowing the claims of the '626 patent to issue.

Q. Okay. Turning now to CDX-1031,^[16] citing RX-234, this is an

¹⁶ CDX-1031 reads:

excerpt from the Vignolle patent and figure 6 from the Vignolle patent. Could you tell me why these are relevant to you?

- A. Sure. This is one of the paragraphs of Vignolle that was quoted by Samsung as a reason why they believed that Vignolle teaches the, you know, teaches the '626.

And the problem is that they were basically ignoring the second half of the second sentence here. What I did is I underlined what I think is just a direct English reading of this paragraph. It just says there is an analog input. And then – which makes it possible to find the high level V_H . It says the high level signal was obtained at the output of the driver and it says how, by modulating this input, referring to the analog input, in such a way as to obtain the wave V_H . And they tell us what V_H is. That's the wave having an inverse sawtooth shape as illustrated in figure 6.

So that says that the -- what is happening is the analog input is used to generate within the gate drivers used in Vignolle to generate this other signal, which we see illustrated in figure 6.

So that the key thing is that the waveform in figure 6 is not the input to the gate driver in Vignolle.

- Q. Do you think anybody of ordinary skill in the art in connection

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Prior Art – Vignolle '075

It is also possible to use drivers which have an analogue input which makes it possible to define the high level V_H . The desired signal is obtained at the output of the driver by modulating this input in such a way as to obtain a wave V_H having an inverse sawtooth shape as illustrated by FIG. 6.
'075 Patent Col. 3:33-37 [RX234]

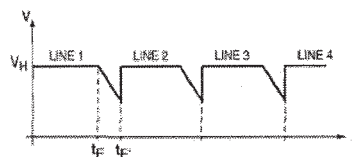


FIG. 6

with the '626 patent would believe that, in fact, figure 6 was the input to the gate driver, based on the specification?

A. I think it is clear that it is not, that the second sentence just contrasts them. It says you use the input in order to create this other signal called figure 6. So to me they are quite distinct.

Q. Okay. Now, if you were already putting a modulated input into the gate driver, would there be any reason to modulate it?

A. No. That wouldn't make sense.

Q. Okay. And figure 6 is a modulated waveform?

A. That is.

Q. Turning now to CDX-1032, citing RX-234, did you create this graphic?

A. Yeah. I simply went back to the icon representation of figure or claim 10 of the '626 patent. And we're showing that on the left.

And then on the right, I am comparing that with the teachings of Vignolle. And kind of if we work our way up from the bottom, we have an output which is in a respect similar.

We also, in both cases, we do have gate drivers.

However, if we look, the input to that gate driver is quite different. In our '626 patent, we have a waveform voltage. In contrast, in Vignolle, we have this analog input which says it is also possible to use drivers which have an analog input.

And that could be anything, but typically it might just be an analog voltage level. And then we modulate this input signal in such a way as to create the waveform V_h , which is the sawtooth.

So in summary, the Vignolle does not have the waveform voltage taught in '626 and it doesn't have any upstream circuit at all. So I think it is quite different from what's taught in '626.

Q. So where is the sawtooth waveform generated in the Vignolle patent?

A. That paragraph of Vignolle indicates it is generated within the gate driver itself.

Q. Is there any suggestion to somebody of ordinary skill in the art that it would be generated upstream from the gate driver?

A. No.

Q. Does claim 10, in your view, require that the circuit that generates the waveform be upstream of the gate driver?

A. Yes.

Q. Do you believe -- is there an advantage to, in your opinion, putting the circuit that generates the sawtooth waveform upstream of the gate driver?

A. Yes. Major advantages. I mean, that's the key -- that's one of the key things that allows the teachings of the '626 to have standardized gate drivers and to do the custom waveform shaping somewhere else.

And it also shows you how to have a very low power solution. So I think the differences between these two are very profound. The '626 patent has been widely practiced around the world, and the Vignolle patent has, to my knowledge, not shown any significant commercialization at all.

(Tr. at 2093-98 (emphasis added).) Furthermore, the extrinsic evidence supports the finding that the circuit may include, or be affected by, parasitic capacitance from the display panel as well as the gate driver. Specifically, respondents' expert Flasck testified:

Q. RDX-545. I will just have this up for context, but we're talking about, I am referring to the '626 patent, and the issue obviously of parasitic capacitance, which we were talking about earlier.

And the question I have is that you would agree that an engineer of ordinary skill would always know that parasitic capacitance would affect a circuit that he is designing?

One of ordinary skill in the art would certainly know that parasitic capacitance is everywhere, and depending on the type of circuit

that he is designing, it may or may not be a large problem to deal with, but certainly one of ordinary skill in the art knows that there is parasitic capacitance everywhere.

(Tr. at 2052:3-18 (emphasis added).) In addition, respondents' Moon testified:

- Q. Where do parasitic capacitances exist in the LCD panel?
- A. It can exist practically everywhere. However, to name several places, gate lines, source lines, gate drivers, and source drivers.

(Tr. at 1576-1577 (emphasis added).) Moreover, complainant's expert Stewart testified:

JUDGE LUCKERN: I'm asking what a person of ordinary skill in the art would understand the phrase "parasitic capacitances" to mean.

* * *

THE WITNESS: It – whenever we make any – electronic device always has capacitances associated with it, whether we want it there or not. So many people would call this natural capacitances; other people would just call it parasitic capacitances; other people would just call it parasitic, people could call it; but, it's unavoidable.

In other words, you usually – can't avoid having some capacitances. So many times electrical engineers, if they don't want capacitances there, are annoyed that it's there whether they like it or not. And so sometimes it can be a nuisance. Other times, if you know it's there, you can take advantage of it; you can use it.

But all engineers – all electrical engineers know what it is and are very careful to calculate it and design around it. Any electrical engineer has to take parasitic capacitances into effect in designing electrical circuits.

(Tr. at 753-754 (emphasis added).) Thus, there is testimony that one of ordinary skill in the art would understand that parasitic capacitance always exists in electronic circuitry, including the gate driver and the display panel of a display device and it must be accounted for in analyzing a circuit. Accordingly, the administrative law judge finds that because the claimed circuit is

connected to and functions with the gate driver and display panel, said claimed circuit cannot exclude or be unaffected by parasitic capacitance from the gate driver or the display panel.

Based on the foregoing, the administrative law judge finds that the proper construction of the claim term “circuit” is “a collection of electronic components” and that “said collection of electronic components” can be affected by parasitic capacitance from the gate driver or the display panel.

C. Infringement

The parties have stipulated that, for purposes of analyzing infringement of the '626 patent, the accused TN, PVA, and SPVA LCD modules and downstream products incorporating said modules fall into three categories, viz., Group I, Group II and Group III products. (Order No. 16, Regarding Joint Stipulations As To Representative LCD Modules at 1; see also CFF at VIII.180-184 (undisputed).) Group I products have{

} (Id.) Group II products have{

} (Id.)

Group III products have{

} (Id.)

Complainant argued that all of the Group I, Group II, and Group III products infringe claims 10, 17, and 20 the '626 patent. (CBr at 258 and 265.)

Respondents argued that none of the Group I, Group II, or Group III products infringe any of the asserted claims of the '626 patent. (RBr at 260.)

The staff argued that the evidence showed that all of the Group I, Group II, and Group III

products infringe claims 10, 17, and 20 of the '626 patent. (SBr at 51.) It is argued that Samsung's arguments are based on Samsung's claim construction that the circuit of claim 10 requires generating a sloped waveform when not connected to the LCD panel. (SBr at 50.)

Referring to independent claim 10,{

} (JX-3; CFF VIII.196, VIII.235, and VIII.270 (undisputed).)

With respect to the "gate driver" limitation of claim 10, the administrative law judge finds that representative modules for each of the Groups I, II, and III products include "a gate driver which outputs scanning signals to said scanning signal lines, and drives said scanning signal lines." (See CDX-941; CX-942; CDX-990.) While respondents{

} respondents do not agree that said "gate driver limitation" is practiced by the representative modules of Group III products. (RRCFF VIII.198, VIII.238, and VIII.278.) For the accused products of Group III, respondents argued that{

} (RRCFF VIII.278A-C; Tr. at 1583-1584.) However, respondents{

}

{

} as required

by claim 10. In addition, respondents' Moon testified:

{

}

(Tr. at 1574-1575.) {

}

Accordingly, the administrative law judge finds that the accused products for each of the Groups I, II, and III practice the “gate driver” limitation of claim 10.

With respect to the “circuit” limitation of claim 10, complainant argued that said limitation is practiced by the { } circuit included in each of the Groups I, II, and III products. (CBr at 258.) According to complainant, its expert Stewart performed a complete reverse engineering of the { } circuit in each of the representative modules of Groups I, II, and III products while the circuit is connected to the gate driver, including identifying and measuring the output of the { } circuit while the circuit is connected to the gate driver, to confirm that said circuit generates a waveform voltage having “a sloped portion” as required by claim 10. (CBr at 269-270.)

Respondents argued that none of the accused modules practice the “circuit” limitation of claim 10. (RBr at 249.) According to respondents, testing by their experts shows that the {

} (RBr at 250.) Specifically, respondents’ expert Flasck performed testing on the accused products in each of Groups I, II, and III products and measured the output of the { } circuit with the panel load disconnected from the output of the {

} circuit. (RBr at 256.) According to respondents, testing was performed with the panel load disconnected in order to measure the true output of the “circuit” as the term is construed, i.e., unaffected by parasitic capacitances and other influences from separate elements such as the gate driver and the display panel. (Id.)

The staff argued that complainant's testing was done within the normal operation of the device and showed a circuit having the waveform required by the claims; and that although respondents' testing did not show a sloped waveform, respondents' testing was done with the gate driver and display panel disconnected from the circuit, which is outside of the normal operation of the display device. (SBr at 50.)

The administrative law judge has found supra that the term "circuit" is "a collection of electronic components," and that because "said collection of electronic components" is connected to the gate driver and the display panel and functions with the gate driver and display panel, it can be affected by parasitic capacitance from the gate driver or the display panel. Hence the administrative law judge finds that the proper circumstances under which testing of the accused products should be performed is while the circuit is connected to the gate driver and display panel. Specifically, as complainant's expert Stewart testified regarding the circumstances under which testing was performed:

Q. Okay. . . Then moving on to CDX-943 again, citing CX-1294, could you tell me what this slide is showing?

A. The claim requires a circuit, and this is what we've been calling the upstream circuit. And so the first task was to find out, does it have such a circuit; and I found it out in the printed circuit board and photographed it.

So what you see in the center of the picture, the lower part is one of the photographs I took of that circuit; and, based – in addition to that, I did a complete reverse engineering of that circuit to retrace the electrical, the devices and so forth and how they're connected. That's shown above. And so I convinced myself that, in fact, it does include a circuit that generates a waveform voltage. . . .

* * *

. . . I was very careful as to where I measured this waveform. So

we – that’s one reason we reverse engineered the whole circuit, to know exactly where the circuit was and where its output was. And so I was very very careful to identify the output of the circuit and to measure it at – immediately at the output of the external circuitry, and not just measure the waveform somewhere. . .

* * *

We measured it [the waveform] locally right there on the gate, on the upstream circuit itself. . . .

* * *

Because sometimes signals can be distorted or changed by being routed all the way around a display. And so I wanted to measure it locally, right on the external circuit.

* * *

Q. Okay. And when you measured it locally right on that circuit, did you use those results in connection with your infringement opinion that we’ve been walking through today?

That is correct.

(Tr. at 776-780.) Thus, the administrative law judge finds that complainant’s testing of the accused products was performed as required by claim 10, i.e., while the circuit is connected to the gate driver and display panel. Referring to the results of complainant’s testing, as complainant’s expert Stewart testified with respect to the representative products of Group I:

Okay. Now turning to CDX – well now I’d like to ask you to take a look at the first group. And you said that you looked at a representative television for this group; and what television was that?

A. It’s a{ } Samsung liquid crystal display.

* * *

Q. Okay. Then moving on to CDX-943, again, citing CX-1294, could you tell me what this slide is showing?

A. The claim requires a circuit, and this is what we've been calling the upstream circuit. And so the first task was to find out, does it have such a circuit; and, I found it out in the printed circuit board and photographed it.

So what you see in the center of the picture, the lower part is one of the photographs I took of that circuit; and, based – in addition to that, I did a complete reverse engineering of that circuit to retrace the electrical, the devices and so forth and how they're connected. That's shown above. And so I convinced myself that, in fact, it does include a circuit that generates a waveform voltage. And just to make sure, I also measured the waveform voltage itself, and that's shown in magenta.

And I think we actually --

Q. Moving to the next slide. CDX-944. Is that what you were referring to?

A. Yes. And so I measured that. And so not only does it produce a waveform voltage, but, of course, claim 10 requires that the waveform voltage just isn't any waveform voltage; it must contain a sloped portion. So I measured it, probed it, and put it on an oscilloscope and was able to identify a sloped portion of that waveform.

* * *

Okay. Turning now to CDX-945, could you tell me what this is representing, and -- or go ahead.

A. Well, Claim – I'm just working through all the elements of Claim 10. And one of the other elements is that it provides a – it provides an input to the gate driver. So the output of the upstream circuit also is connected to and provides an input to the gate driver.

{

}

* * *

Q. Turning now to CDX-946, could you tell me what this slide is representing?

{

}

Q. And did that waveform that you measured correspond to the requirements of that part of Claim 10?

A. It did exactly.

(Tr. at 773, 776-777, 779; 781-782 (emphasis added).) For the representative products of Group II, as complainant's expert Stewart testified:

Okay, Now, did you also test the representative group II products?

Yes I did.

I'm moving now to CDX-1054. What was the representative group II product?

{ } And I have details in terms of the particular model numbers and so forth.

* * *

Q. Turning now to CDX-978, which cites CX-1196, CX-1194, could you describe what you are explaining in this slide?

A. Yes, claim 10 requires a circuit which generates a waveform voltage. And so the first step is to find that circuit, does it exist. And I was successful in finding it, and photographing it, and doing, again, a reverse engineering of that chip.

And it – these are one of the photographs I took of the chip. It's based on an integrated circuit, as opposed to the discretized used before. And the chip is made by { } and that gives us additional documentation on that chip, what it does, how it's

connected.

And I was, in fact, about also, for example, to -- I did a full reverse engineering here, but one of the key elements of this circuit is this resistor identified as RD19, { } resistor.. And the patent, of course, tells us that we want to adjust the RC time constant of the sloped region. And so I'm looking for evidence in Samsung's designs that they -- they are deliberately adding this waveform, that it isn't coming as some terrible unfortunate parasitic where something is happening, but I'm looking for evidence that they're actually designing that ramp in. And I find it in this resistor, that it's deliberately added into the design and actually controls the slope rate of the output of the circuit. And, of course, that, in turn, controls the incline region presented to the gate lines, so --

Q. Now, I see you have -- are you finished with your answer?

A. I am.

And I found the output obviously, too. The VON is the output to the gate drivers, shown in magenta, is the output of the circuit.

Did you take measurements at the particular output?

A. Yes, I did.

Moving on to CDX-979, could you tell me what this slide is showing?

A. Yes, this is an oscilloscope picture of that waveform. And, again, I'm confirming that, in fact, it does include the sloped portion and, again, that this sloped portion is being generated and controlled with the { } resistor that Samsung deliberately adds into that design.

Q. Just to be clear, though, Samsung took the position, at least in the opening, that you were just trying to find this signal somewhere in the circuit, and you didn't care where. Did you care where you found the signal?

A. I did. The claim specifies that I have to look at the output of that circuit, and that's exactly where I measured it.

Q. Moving on, then, to CDX-980, citing CX-1196 and CX-1194, could you tell me what this slide is representing?

A. {

}

Q. Now, when you said, as you can see here, for the record, could you just – are you referring to the photograph that’s in the middle of CDX-980, and the magenta line on that photograph?

A. Right. We photographed this region; and, what you see is a magenta line extending from the lower right corner of that photograph. It winds around at the top of the photograph and then comes back into the gate driver. And the gate driver itself is a little hard to see. It’s a little washed out, but there’s a gate driver chip there.

Q. So is the output in the magenta shown in the bottom right the input to the gate driver?

A. This is the – the circuit – what we’re showing on the right side is the – is the reverse engineered circuit drawing for the – the upstream circuit itself. And magenta node here is the output of the circuit. And we’re showing the output of that circuit is connected to and becomes the input. It becomes an input to the gate driver.

Q. Thank you. Turning now to CDX-981, could you describe this for us?

A. Yes, the claim further requires that the output of the gate driver include an incline portion. And, again, we probed through the backside of the flex to get to that node and measured it and confirmed that, in fact, there’s an incline portion there.

(Tr. at 789-795 (emphasis added).) For the representative products of Group III, as complainant’s expert Stewart testified:

Q. Okay. Now I would like to move on to Group III. Did you take a look at the first – first what is the representative product for Group III?

A. It’s a { } And it has lots of module

numbers and part numbers associated with it.

Q. Okay. Did you study that product?

A. Yes, I did.

* * *

Q. Just in summary fashion, what were your conclusions?

A. I came to the conclusion that, although there were significant differences in the design, the{ } also infringes claims 10, 17 and 20 of the '626 patent.

* * *

Turning now to CDX-992, which is citing CX-1196 and 1195. Could you describe this slide?

Yes. Claim 10 requires this, what I keep calling it, upstream circuit.{

}

{

}

But in this case, there certainly is a circuit that generates a waveform voltage, in this case two waveform voltages.

Q. Is there an indication on CDX-992 in the circuit on the bottom right-hand side where you took measurements in connection with your infringement analysis?

A. Yes. I took the measurements on both outputs as indicated by – I took the measurements in accordance with the teachings of claim 10. And also I looked – again I reverse engineered the whole circuit. And one of the things I found, if you look above the – the{ } is shown with a yellow box around it.

Also it is very important to note that right above that are two resistors. They are two{ } resistors, r109 and r107, which appear to me were added for the express purpose of creating the

ramp required in claim 10, which in turn creates the incline portion also required in claim 10.

So it appears to me that there's -- I see evidence that someone has gone to some trouble to deliberately create this ramp. It was not an accident that these ramps occur. They're deliberately designed into this board.

Okay. Turning to CDX-993 . . . citing CX-1195. Can you describe this, please?

* * *

- A. Okay. As before, we need a waveform voltage which includes a sloped portion. And looking at the oscilloscope output, I do have a -- I actually have two waveforms. But both of these include on the -- at the upper falling edge a sloped portion as required by claim -- this element of claim 10.

* * *

- Q. Going to the next slide, CX-995, citing CX-1196 and CX-167, could you tell us why you -- what is shown here and why?

- A. Well, claim 10 requires that the -- this upstream circuit provide an input to the gate driver. So what I can now do is, based on the {
} documentation, I find I have two outputs, clock V, CKV, that's shown in blue, and then I have CKVB, which is shown in orange. And if I now look at Samsung's documentation of their integrated scanners, I find those same signals circled in yellow on the lower right-hand diagram.

And notice that those become the inputs to the integrated scanners, which are shown as AG1, AG2, 3 and so forth. Those are the yellow blocks on the lower right diagram. And in turn they provide outputs to the gate lines themselves going off to the right.

So this confirms that this element of claim 10 is in fact met. That the upstream circuit comprising the {
} chip does in fact provide an input to the gate driver a required by the claim.

* * *

- Q. Okay. Turning to CDX-998, tell us what this is, please.

- A. The claim 10 requires that the -- that the upstream, the sloped

portion of the upstream circuit causes an inclined portion to occur at the output of the gate driver. And that in fact happens.

So I was -- I was -- I was very excited to find this because this -- this design represents almost a revolutionary change in the way Samsung designs these displays. And, yet, all the elements of this claim so far are carefully preserved, despite changing many other things about the design.

Q. Okay. Turning to CDX-999, again referring to CX-167. Just tell us what this is, please.

A. This is the final requirement of claim 10, which requires that the inclined portion inclines from a high level to a second level between the high level and a low level.

And as we see in the enlarged simulation shown in the upper right, you can see the high level, which is the select level, the low, deselect level, and in red between them, you see the second level which is -- which is between.

Q. And does that satisfy the final element of claim 10?

A. Absolutely.

(Tr. at 823-824; 837-844 (emphasis added).) Thus, the administrative law judge finds that each of the Group I, II and III products include a “circuit” that generates a waveform voltage having “a sloped portion” as required by claim 10; that said waveform voltage is “input to the gate driver” as required by claim 10; and that said waveform voltage “causes the scanning signals output from the gate driver to include an inclined portion that inclines from a high level to a second level” as required by claim 10. (See also CDX-943-948; CDX-976-983; CDX-990C; CDX-992-993; CDX-995C;{ })

Although respondents argued that testing by their expert shows that the{ } circuit of each of the Groups I, II, and III accused products{ } as required by the claim, respondents’ testing was only

performed with the panel load disconnected from the output of the{ } circuit. (RBr at 250, 256.) Specifically, respondents' expert Flasck testified:

Q. Looking at RDX-548C, can you explain what you have illustrated here, Mr. Flasck?

A. Yes. I examined the representative products, the representative accused products of Samsung. . . . I inspected the product, made sure that the display device worked.

{

}

And when I did that, I measured a square wave pulse, which is what's to be expected from that circuit, and that's illustrated in this oscilloscope screen capture.

(Tr. at 1968-1969 (emphasis added).) Thus, the administrative law judge finds that respondents' testing of the accused products, i.e., with the panel and gate driver disconnected from the circuit, was not performed under the circumstances required by claim 10. Tests of an accused device under unusual conditions or outside the normal operation of the device are not usually relevant to an infringement analysis. Golden Blount, Inc. v. Robert H. Peterson Co., 438 F.3d 1354, 1363 (Fed. Cir. 2006) ("it matters not that the assembled device can be manipulated into a non-infringing configuration . . ."); cf. e.g., Hilgraeve Corp. v. Symantec Corp., 265 F.3d 1336, 1344 (Fed. Cir. 2001); High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc., 49 F.3d 1551, 1556 (Fed. Cir. 1995) (finding that an accused device does not infringe if it does not infringe in its normal configuration, even if it may be altered into an infringing configuration under unusual circumstances).

Based on the foregoing, the administrative law judge finds that the results of complainant's

testing showed that each of the Group I, II and III accused products practice the “circuit” limitation of claim 10.

For dependent claim 17, which depends from independent claim 10, as complainant’s expert Stewart testified with respect to each of the Groups I, II, and III accused products:

Q. Turning now to CDX-950, could you tell me what this slide is representing?

A. The dependent claim 17 tells us more about that upstream circuit, and requires specifically that it included a switch which selectively provides the circuit input voltage having a first level to the circuit output.

{

}

Q. {

A. That’s correct.

Q. So did you have an opinion, then, as to whether the elements of Claim 17 were met by the [Group I] representative{ } product?

A. They clearly are, I found it. And we measured it, and we also measured the entire circuit in which it was embedded.

* * *

Q. Did you check whether the group II representative product infringed Claim 17?

A. Yeah, Claim 17 requires this switch between the input and the output. And we went back through the documentation of the Intersil chip, and that’s shown on the left side. And we found the output is this thing called { } basically connected in – at that point which provides that switch.

So we found the switch, and we also measured its function.

Q. And for the record, the{ } data sheet is CX-1086. Did you also check to see whether dependent Claim 20 was infringed?

A. We did. And we confirmed that this switch stopped providing, or turns off, basically, at the beginning of the sloped portion of the output waveform.

Q. So did you have an opinion, turning to CDX-1054, whether the group II product infringes the asserted claims?

A. Yes, the representative product infringes Claims 10, 17 and 20 of the '626 patent.

* * *

Q. Turning to CDX-1001, I see we have dependent claim 17. Did you analyze whether this representative product in Group III infringes claim 17?

A. I did.

Q. And what did you find?

A. Well, claim 17 requires this switch, switching the circuit input voltage having a first level to the circuit output. And fortunately, I do have documentation. Even though the{ } was – appears to be a proprietary design done just for Samsung, it does – I do have documentation as to what's inside of it. And the – it basically includes a charge sharing design, which is a very elegant way to generate these waveforms, and a more power efficient way of doing that.

But as part of that there is a tristate driver which is shown in the – in the – on the data sheet shown in the right. And that device is right underneath the thing marked VON 1. You see this little triangle thing. And what that does is it's a necessary characteristic of this tristate device. That before you can do the charge share, you have to switch the output clock V to a high impedant state. So we know – one in the normal skill in the art knows that that tristate device includes a switch which either connects or disconnects the node CKV from the power supply.

Q. Okay. And were you referring to the bottom right-hand side of CDX-1001 as being the{ } data sheet?

A. Yes. I'm sorry. What I have is the reverse engineering drawing is on the left side, lower. And then on the right side lower are the details that are inside that chip, so I can actually find this switch.

Q. Okay. On the left side you were referring to CX-1193 as being the reverse engineered circuit?

A. Yes.

Q. And on the right side, the{ } data sheet is CX-800?

A. Yes.

Q. Thank you. So were you able to find all the elements in claim 17 in this product?

A. I did.

(Tr. at 787-788; 798; 846-847 (emphasis added).) Thus, the administrative law judge finds that the{ } circuit of each of the Group I, II and III products “receive a circuit input voltage having the first level” and comprises “a first switch that selectively provides the circuit input voltage to a circuit output,” as required by the claim. (See also CDX-950; CDX-985;{ } Accordingly, the administrative law judge finds that complainant has established, by a preponderance of the evidence, that each of the Group I, II and III accused products practice dependent claim 17.

For dependent claim 20, which depends from dependent claim 17, complainant’s expert Stewart testified with respect to each of the Groups I, II, and III accused products:

Q. Okay. Turning now to dependent Claim 20, could you tell me whether – what this slide is representing and what your conclusions were with respect to dependent claim 20?

A. Correct, Claim 20 requires that that switch stops providing the input voltage at the start of the sloped portion of the waveform. And we observed that in two ways. First of all, you can see from the waveform itself that{ }

{

}

Q. So did you have an opinion, then, as to whether Claim 20 was infringed by the representative group I product?

A. My opinion is that claim 20 is, in fact, infringed by the 52 inch product.

* * *

Q. . . . Did you also check to see whether dependent Claim 20 was infringed [by the representative group II product]?

A. We did. And we confirmed that this switch stopped providing, or turns off, basically, at the beginning of the sloped portion of the output waveform.

* * *

Q. Going to CDX-1002, citing CX-1195, did you consider whether claim 20 was infringed by this same product [the representative group III product]?

A. Yes.

Q. Can you tell us what your conclusion is.

A. Yes. My conclusion was that the – this switch, by the very nature of how the charge – the charge here works, does in fact stop providing the circuit input voltage to the circuit output at a timing of the sloped waveform – sloped portion of the waveform.

Q. So are all the elements of claim 20 present in this product?

A. Yes, they are.

Q. Now, can you tell us -- we're now on slide CDX-1054. Can you just summarize what your conclusion was relative to your analysis of the Group III representative product?

A. My analysis of the representative product, the{ } was that claims 10, 17 and 20 were all – of the '626 patent are all infringed by that representative product.

(Tr. at 788; 798; 849 (emphasis added).) Thus, the administrative law judge finds that the {
 } circuit of each of the Group I, II and III products have a switch that “stops providing an input
voltage to the circuit output at a timing of the sloped portion of the waveform voltage,” as
required by the claim. (See also CDX-951; CDX-986; CDX-1002.) Accordingly, the
administrative law judge finds each of the Group I, II and III accused products practice dependent
claim 20.

Based on the foregoing, the administrative law judge finds that complainant has shown,
by a preponderance of the evidence, that the accused products practice all the limitations of
independent claim 10 and dependent claims 17 and 20.

D. Domestic Industry

Complainant argued that its domestic industry LCD television modules and the
televisions that include said modules (domestic industry products) practice the asserted claims of
the '626 patent, and that accordingly complainant has satisfied the technical prong of the
domestic industry requirement. (CBr at 303.)

Respondents argued that complainant's domestic industry products do not practice the
asserted claims of the '626 patent. (RBr at 261.)

The staff argued that the evidence shows that complainant's domestic industry products
practice asserted claims 10, 17, and 20 of the '626 patent. (SBr at 55.)

Sharp's domestic industry television modules function in essentially the same way with respect
to the '626 patent. (Stewart, Tr. at 956; { } (Tameka Dep. at 186).) Specifically, { }
provides a list of Sharp's U.S. products that embody the teachings of the '626 patent. (Stewart,
Tr. at 853.) { }

{

}

Referring to independent claim 10, the parties agree that the representative domestic industry products include “a plurality of pixels,” “video signal lines for supplying data signals to the pixels,” and “scanning signal lines intersecting said video-signal lines,” as required by the claim. (JX-3; CFF VIII.382 (undisputed).) Thus, the administrative law judge finds that complainant’s domestic industry products practice said limitations of claim 10.

With respect to the “gate driver” limitation of claim 10, complainant’s testing showed that the representative domestic industry products include “a gate driver which outputs scanning signals to said scanning signal lines, and drives said scanning signal lines.” (CFF at VIII.384 (undisputed); CX-1295 at SHARP 0034908.) Respondents did not dispute the results of said testing. Thus, the administrative law judge finds that complainant’s domestic industry products practice the “gate driver” limitation of claim 10.

With respect to the “circuit” limitation of claim 10, the results of Stewart’s testing showed that complainant’s domestic industry products include a circuit that “generates the waveform voltage” (Stewart, Tr. at 858), that said waveform voltage provided by said circuit to the gate driver “show[s] the sloped portion” (Stewart, Tr. at 859), that complainant’s domestic industry products also include an output from the gate driver that includes an “inclined portion” (Stewart, Tr. at 860), and that said waveform voltage provided by said circuit to the gate driver causes said “inclined portion” in the scanning signals output from the gate driver. (Stewart, Tr. at 860-70.)

While respondents did not dispute the results of complainant’s testing, respondents

argued that complainant's testing was not performed under the construction of the term "circuit," as recited in independent claim 10, and that as a result, complainant's testing erroneously took into account the "undesirable distortion of the vertical, non-sloped signal caused by the parasitic capacitance" from the gate driver and the display panel. (RBr at 261-262.) The administrative law judge has found supra that the term "circuit" is "a collection of electronic components," and that because "said collection of electronic components" is connected to the gate driver and the display panel and functions with the gate driver and display panel, it can be affected by parasitic capacitance from the gate driver or the display panel. In light of this construction, the administrative law judge found supra that the circumstances under which testing of the accused products should be performed is while the circuit is connected to the gate driver and display panel. Accordingly, similar to complainant's testing of the accused products for purposes of infringement, the administrative law judge finds that complainant's testing of its domestic industry products was performed under circumstances as required by claim 10, i.e., while the circuit is connected to the gate driver and display panel. Therefore, based on complainant's test results, the administrative law judge finds that complainant's domestic industry products practice the "circuit" limitation of claim 10.

With respect to dependent claim 17, which depends from independent claim 10, the administrative law judge finds that complainant's test results show that its domestic industry products "receives a circuit input voltage having the first level" and comprises "a first switch that selectively provides the circuit input voltage to a circuit output," as required by the claim. (CDX-1018.) Thus, the administrative law judge finds that complainant's domestic industry products practice dependent claim 17.

With respect to dependent claim 20, which depends from dependent claim 17, the administrative law judge finds that the complainant's test results show that its domestic industry products have a switch that "stops providing the circuit input voltage to the circuit output at a timing of the sloped portion of the waveform voltage," as required by the claim. (CDX-1019.) Thus, the administrative law judge finds that complainant's domestic industry products practice dependent claim 20.

Based on the foregoing, the administrative law judge finds that complainant has established the technical prong of the domestic industry requirement as it relates to the '626 patent.

E. Validity

Respondents argued that asserted independent claim 10 is anticipated by U.S. Patent No. 5,995,075 to Vignolle (Vignolle or RX-234.) (RBr at 263.) Specifically, respondents argued that Vignolle is similar to the '626 patent in that Vignolle is also directed to reducing the negative image effects of nonuniform pushdown caused by parasitic capacitances in a LCD device; that Vignolle addresses this nonuniform pushdown problem by relying on an analog sloping waveform input to the gate driver to generate a sloped output from the gate driver, shown in Figure 6 of Vignolle; and that Vignolle makes clear that said analog sloping waveform shown in Figure 6 is "input to the gate driver," as required by claim 10, rather than generated within the gate driver. (RBr at 264, 267.) While respondents acknowledged that Vignolle does not explicitly disclose "a circuit" as required by claim 10 for generating said analog sloping waveform input to the gate driver, they nevertheless argued that Vignolle inherently discloses said "circuit." (RBr at 265.) According to respondents, some circuit distinct from the gate driver

must necessarily generate the analog sloping waveform disclosed in Vignolle; and that a person of ordinary skill in the art would understand “a circuit,” as required by claim 10, to be necessarily present in the disclosure of Vignolle. (RBr at 268.)

Each of complainant and the staff argued that independent claim 10 is not anticipated by Vignolle. (CBr at 298-303, SBr at 67.)

It is a fact that Vignolle has already been considered by the Examiner during application of the ‘626 patent and that the Examiner chose not to reject the ‘626 patent application over Vignolle. Moreover, the gate driver itself creates the waveform shown in Vignolle FIG. 6. See Stewart’s testimony (Tr. at 2093-98) set forth in Section XII.B.1 supra. Hence, there is no need for a separate circuit in Vignolle, which is distinct from the gate driver, to create the waveform shown in FIG. 6. Rather, the input to the gate driver is merely an analog waveform, not the waveform shown in Vignolle FIG. 6.

Based on the foregoing the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that claim 10 is anticipated by Vignolle.

Respondents further argued that asserted dependent claims 17 and 20 are obvious over Vignolle in view of U.S. patent No. 5,896,117 to Moon (Moon or RX-233.). (RBr at 272.) With respect to dependent claim 17, respondents argued that although Vignolle does not explicitly disclose “a first switch that selectively provides the circuit input voltage to a circuit output,” Moon discloses said limitation by disclosing a signal mixing circuit 30 with switches MN31, MN32, MP31, MP32 that selectively provides the circuit input voltage a circuit output. (RBr at 273-274.) With respect to dependent claim 20, respondents argued that although Vignolle does not explicitly disclose “the first switch stops providing the circuit input voltage to the circuit

output at a timing of the sloped portion of the waveform voltage,” Moon discloses said limitation by disclosing that the transistor switches MN31/32 and MP31/32 stop providing the circuit input voltage to the circuit output at a timing of the non-horizontal portion of the waveform voltage. (RBr at 275.)

Complainant argued that dependent claims 17 and 20 are not rendered obvious over Vignolle in view of Moon because Vignolle does not disclose all of the elements of independent claim 10, and hence respondents cannot successfully argue that dependent claims 17 and 20 are obvious in view of the combination of Vignolle and Moon. (CBr at 303.)

The staff argued that dependent claims 17 and 20 are not rendered obvious over Vignolle in view of Moon. (SBr at 67-68.) According to the staff, not only does Vignolle fail to disclose all the elements of independent claim 10, Moon does not show the circuit characteristics recited in each of the dependent claims 17 and 20. (Id.)

Respondents’ expert confirmed at trial that respondents’ sole argument is that the Moon reference discloses the elements of claims 17 and 20 (i.e. switch that selectively provides the circuit input voltage to a circuit output and stops providing the circuit input voltage to the circuit output at a timing of the sloped portion of the waveform voltage. See Flasck Tr. at 1989-1997. The administrative law judge finds that because respondents have not met their burden in showing that Vignolle discloses each and every limitation of independent claim 10, respondents cannot show that the combination of Vignolle and Moon renders dependent claims 17 and 20 obvious.

Based on the foregoing, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that the asserted claims 10, 17 and 20 of the ‘626

patent are invalid.

XIII. Remedy

If a violation of section 337 is found complainant Sharp seeks the entry of a limited exclusion order prohibiting the importation into the United States of Samsung's infringing LCD modules and panels, including Samsung-branded LCD television, LCD digital information displays (DIDs) and LCD computer monitors. (CBr at 314-16.) It is also argued that Samsung maintains significant inventories of its downstream products in the United States and thus the entry of a cease and desist order should be recommended. (CBr at 336-38.)

Respondents Samsung argued that if a violation is found any limited exclusion order should only extend to Samsung professional displays that contain a Samsung-manufactured LCD module; that any limited exclusion order should not extend to:

- any third party LCD products that contains a Samsung-manufactured LCD module;

- any Samsung LCD products that contains a third party-manufactured LCD module, whether licensed or not; or

- any Samsung LCD television or computer monitor that contains a Samsung-manufactured LCD module.

(RBr at 285.) It is also argued that the Commission should not enter a cease and desist order absent evidence of commercially significant inventory in the United States owned or under the control of Samsung.

Samsung, in support, argued that the parties have stipulated that any limited exclusion order should not extend to any downstream LCD product manufactured by a party other than

Samsung¹⁷; that with respect to Samsung, Sharp only seeks exclusion of three categories of Samsung LCD downstream products, viz. LCD televisions, LCD professional displays (DID) and LCD computer monitors. (RFF 7035); that significant numbers of these products use third party modules, and should not be subject to exclusion because Sharp has not proved that any third party module infringes any asserted claim of the patents-in-issue, or, in the alternative, because all LCD modules purchased from{ } are licensed to the patents-in-issue; that many Samsung-manufactured LCD modules use twisted nematic, and not PVA/SPVA technology; and that because only the '626 patent pertains to twisted nematic technology, to the extent that the '626 patent is found to be invalid, unenforceable or not infringed, Samsung LCD products that use Samsung twisted nematic LCD modules should not be subject to a limited exclusion order. (RBr at 285-86.)

The staff argued that any exclusion order issued in this investigation should extend to Samsung's downstream LCD TVs, monitors and DID products. (SBr at 75.) It also argued that the evidence has shown that Samsung maintains a commercially significant inventory of accused products in the United States warranting entry of a cease and desist order. (SBr at 75.)

The Commission "has broad discretion in selecting the form, scope, and extent of the remedy in Section 337 proceedings." Certain Integrated Circuit Telecommunication Chips, Inv. No. 337-TA-337, (Comm'n Op.) at 21 (August 3, 1993). Pursuant to its statutory authority found at 19 U.S.C. § 1337 (d), the Commission may exclude from importation goods and products that form the basis for a finding of a violation of Section 337 which includes products

¹⁷ Samsung noted that at the hearing, the following witnesses testified live or by designation on issues primarily directed to remedy: Brian Napper (RPFF 7001 to 7009), John Hansen (RPFF 7010 to 70140,) David Das (RPFF 7015 to 7022), Pablo Temprano (RPFF 7023 to 7025), Andrew Weise (RPFF 7026 to 7028), and Michael Ling (RPFF 7029 to 7031).

that have been found to infringe the patents-in-issue directly, contributorily or by inducement after importation has occurred. Certain Flash Memory Circuits, Inv. No. 337-TA-382, (Comm'n Opn.) at 26 (June 26, 1997) ("The Commission has the authority to enter an exclusion order, a cease and desist order, or both."). Indeed, absent special circumstances, the statute requires such exclusion:

If the Commission determines . . . that there is a violation of this section, it shall direct that the articles concerned . . . be excluded from entry into the United States, unless, after considering the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers, it finds that such articles should not be excluded from entry.

19 U.S.C. § 1337(d) (emphasis added). Hence, a remedy excluding Samsung's infringing products from entry is mandatory if a violation of section 337 is found, unless the Commission finds that public interest factors militate against such remedy.

In addition, the scope of an investigation is defined by the notice of investigation. Certain Chemiluminescent Compositions, Inv. No. 337-TA-285, Commission Order (Jan. 13, 1989) (scope of investigation is defined by the notice of investigation). Thus any exclusion order may cover all products within that scope, i.e., "the articles concerned." 19 U.S.C. § 1337(d)(1). Moreover, Commission remedial orders have covered all products that infringe and are not limited to specified models or 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, Commission Opinion at 56 (August 7, 2006) (public version)).

The Commission also has the authority to issue cease and desist orders where a respondent has a sufficient inventory of infringing goods in the United States," Certain NAND

Flash Memory Circuits, Inv. No. 337-TA-526, Initial Determ. at 255 (Oct. 19, 2005) (citing Certain Plastic Encapsulated Integrated Circuits, Inv. No. 337-TA-315, U.S.I.T.C. Pub. No. 2574, Comm'n Op. at 37 (November 1992).); Certain Crystalline Cefadroxil Monohydrate, Inv. No. 337-TA-293, Comm. Op. At 6 (Jan. 19, 1990).

To determine whether an exclusion order should extend to a respondent's downstream products, the Commission has applied the test first articulated in Certain Erasable Programmable Read-Only Memories, Components Thereof Products Containing Such Memories, and Processes For Making Such Memories (EPROMs), Inv. No. 337-TA-276, Comm'n Op. (May 1989), aff'd sub nom. Hyundai Elec. Indus. Co. v. U.S. Intl Trade Comm'n, 899 F.2d 1204 (Fed. Cir. 1990).

The EPROMs factors that are weighed as part of that analysis include:

- (1) The value of the infringing articles compared to the value of the downstream products in which they are incorporated;
- (2) The identity of the manufacturer of the downstream products (i.e., are the downstream products manufactured by the party found to have committed the unfair act, or by third parties);
- (3) The incremental value to the complainant of the exclusion of downstream products;
- (4) The incremental detriment to respondents of the exclusion of downstream products;
- (5) The burdens imposed on third parties resulting from exclusion of downstream products;
- (6) The availability of alternative downstream products which 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;
- (8) The opportunity for evasion of an exclusion order which does not include downstream products; and
- (9) The enforceability of an order by U.S. Customs.

EPROMs at 124-126.

In the event a violation is found, the administrative law judge recommends the issuance of a limited exclusion order prohibiting the importation into the United States of infringing

articles, regardless of brand name, “that are manufactured abroad or imported by or on behalf of [the respondents], or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns.” See Certain Laser Bar Code Scanners and Scan Engines, Components Thereof, and Products Containing Same, Inv. No. 337-TA-551, Limited Exclusion Order, ¶ 1 (May 30, 2007). Moreover, he recommends that said order should not be limited to specifically-identified products, but rather extend to all infringing products. See e.g., Certain Integrated Repeaters, Switches, Transceivers and Products Containing Same, Inv. No. 337-TA-435, Commission Opinion at 23, USITC Pub. 3547 (Oct. 2002).

Samsung’s downstream products in issue are products that would incorporate Samsung LCD module which is the accused article and which is a component of a finished product which could be an LCD TV, an LCD digital information display (DID) or a professional display or an LCD computer monitor. (Hansen, Tr. at 537).¹⁸ With respect to the exclusion of any Samsung’s downstream products, the first EPROMs factor is the value of the infringing articles compared to the value of the downstream products in which they are incorporated. In evaluating EPROMs factor 1, the Commission considers the value of the infringing components relative to the targeted downstream products, both in terms of the monetary value of the components and the importance of said components to the operation of the downstream products in which they are incorporated. Certain Baseband Processor Chips and Chipsets, Transmitter and Receiver (Radio) Chips, Power Control Chips, and Products Containing Same, Including Cellular Telephone Handsets, Inv. No. 337-TA-543, Comm’ Op. (June 7, 2007) at 36 re’d on other grounds sub

¹⁸ The private parties have stipulated that Samsung has imported “LCD modules and finished products into the United States and does not contest importation of such products for purposes of Section 337(a)(1)(B)” (emphasis added). See Order No. 12 which issued on December 10, 2009.

nom., Kyocera Wireless Corp. et al., v. International Trade Comm'n 545 F.3d 1340 (Fed. Cir. 2008). (Baseband). However, the Commission has never set a minimum percentage of value that it considers to be significant, but rather considers the percentage value along with the functional significance of the component part. Id. at 37.

A quantitative analysis measures the cost of the infringing component and compares it to the cost of the downstream product into which it is incorporated. (CFF.XI.87 (undisputed).) A stipulation of the parties, entered as Order No. 6, establishes a range of values that show the cost of the LCD panel comprises from{ } percent of the cost of the downstream products. (CFF.XI.86; (undisputed); CDX-I 112C.) The administrative law judge finds that this is a significant share of the cost of the downstream product. (Hanson, Tr. at 607.) The significance of the cost of the infringing articles is underscored further by the fact that Order No. 6 sets forth the relationship of the cost of the LCD panel to the cost of the downstream product and the cost of the LCD module would make this percentage even higher because the module includes the panel and additional components including the backlight, which would increase the cost of the module over that of a panel relative to the downstream product. (Id.)

As for the qualitative value of the infringing device to the downstream product, the accused articles are essential for the functionality of the downstream product. While respondents argued that Order No. 6 addressed only LCD televisions and professional displays and not computer monitors (RRBr at 140), as complainant's expert Hansen testified:

- Q. Okay. Let's turn to the qualitative element of factor one. Do you have an opinion regarding the qualitative value of the accused devices relative to the downstr
- A. I do.
- Q. What is that?

- A. In my opinion, the accused devices are qualitatively significant.
- Q. And can you explain why?
- A. The downstream products at issue are essentially visual display devices, so their primary function and purpose is for viewing, and I think it's fairly obvious that, for example, you can't have a functioning television set without a TV screen, so in my opinion, the accused articles are essential for the functionality of the downstream product.
- Q. How about for computer monitors and information displays?
- A. It would be the same for all three product categories.

(Tr. at 612-13 (emphasis added).) Moreover, Samsung's expert Napper believed that the EPROMs factor one analysis weighs in support of a limited exclusion order for the LCD TVs, the LCD computer monitors and the LCD professional displays. Thus he testified:

- Q. Now, how do these calculations with respect to the licenses bear on your assessment of the qualitative component of EPROMs one?
- A. I identified a number of different components and contributions to the LCD modules. Through my qualitative analysis, I've identified what I believe to be some royalty rates that applied specifically to the patents-in-suit, but I also recognized, in my analysis, that the LCD module is sort of the viewing platform for the downstream product, so I've taken that into account as well.
- I believe, at the end of the EPROM factor one analysis, I believe it weighs in support of a limited exclusion order for the LCD TVs, the LCD computer monitors, and the LCD professional displays. I don't believe it weighs quite as heavily as Mr. Hansen's analysis and my impression of his opinion.

(Tr. at 1694 (emphasis added).)

Based on the foregoing the administrative law judge finds that the first EPROMs factor weighs in favor of downstream relief.

The second EPROMs factor is the identity of the manufacturer of the downstream products, i.e., whether it can be determined that the downstream products are manufactured by the respondent or by a third party. Complainant is only seeking an exclusion order against those downstream products manufactured by and on behalf of Samsung. Thus, whether a product is manufactured by respondents should be readily determinable for example thru a certification process, See Certain Audio Digital-to-Analog Converters, Inv. No. 337-TA-499, Commission Opinion at 28 (March 3, 2005) (DACs), Commission Opinion at 19. Hence, the administrative law judge finds that EPROMs factor two weighs in favor of complainant's requested relief.

The third EPROMs factor is the incremental value to a complainant of the exclusion of downstream products. In Baseband the Commission determined that EPROMs third factor weighs heavily in favor of the requested downstream exclusion. Baseband at 66. In this investigation if the exclusion order does not extend to downstream products, in particular LCD televisions and professional displays, Sharp would have no effective relief. However as Sharp's expert Hansen testified:

A. In my opinion, factor three weighs in favor of an exclusion order extended to downstream LCD televisions, DIDs, and computer monitors.

Q. And why is that?

A. Because I believe Sharp would receive incremental value from the exclusion, and there's another issue, when I'm looking at factor three, that I think is extremely important, and that is, because the infringing articles are incorporated into downstream products outside of the United States, if the exclusion order does not extend to downstream products, Sharp would be left with no effective relief.

Q. And just to make the point here, where are the Sharp -- I'm sorry. Where are the Samsung downstream products manufactured?

- A. We spoke about this a little bit before, but the LCD panels are manufactured in{ } and those are then subsequently incorporated into or assembled into downstream products in{ }

(Tr. at 635-6.) Based on the foregoing, the administrative law judge finds that the EPROMs third factor facts weighs in favor of complainant's requested relief.

The fourth EPROMs factor is the incremental detriment to a respondent of exclusion of downstream products. On this point Samsung's expert Napper agreed that any benefits to Samsung from its trade in the infringing articles should not be considered because those are natural consequences of infringement. See Tr. at 1759. Samsung's Napper did testify:

- Q. Now, how, in your view, would there be an incremental detriment under factor four in light of -- in the event of an exclusion order, with respect to this legitimate commerce that you've testified to?
- A. Well, the LCD marketplace, TVs and computer monitors, in particular, has been marching towards larger sizes over the last few years, and if there's an exclusion order that issues with respect to LCD TVs and computer monitors in particular, they would mostly encompass the larger screen sizes in the retail channel.

And the retailers are very interested in having a wide variety of choices for the consumers when they come into the store.

Taking away the larger screen sizes by an exclusion order will have an effect on the smaller sizes. In turn, it will also potentially impact the -- or will impact the retailer relationships, retailers may want to go to alternative suppliers because Samsung will not be able to supply the entire spectrum of the screen sizes that we saw before from the Consumer Reports.

So it is something that would be harmful to this legitimate commerce and perhaps even more so for the computer monitors because about two-thirds of the computer monitors are essentially legitimate commerce, and so there's just more of an impact to them in the United States if an exclusion order were to issue on the

computer monitors.

Q. Do you see the professional displays affected in the same degree?

A. Actually, I don't. The professional displays I have analyzed and looked at, and essentially, all the professional displays that would be subject to an exclusion order by Samsung include a Samsung module, and therefore, there's really very little legitimate trade or legitimate commerce for the professional displays, and it's one reason why I think that factor four does not weigh against an exclusion order for professional displays.

Q. Could you then briefly summarize your overvalue view for factor four?

A. I think factor four weighs against the issuance of an exclusion order for the computer monitors, probably mostly -- or more weight on those in terms of the level of legitimate commerce for LCD computer monitors, but also would weigh against an exclusion order related to the Samsung LCDs as a result of the impact on legitimate commerce.

(Tr. at 1710-12 (emphasis added).) However, as to any harm to legitimate commerce involving computer monitors. Napper admitted that he never attempted to quantify the impact on Samsung's legitimate trade from a downstream exclusion order. See Tr. at 1759. Moreover, he doesn't think that said impact even exists. Id. Based on the foregoing, the administrative law judge finds that the EPROMs fourth factor weighs in favor of complainant's requested relief.

The fifth EPROMs factor considers the burdens imposed on third parties resulting from exclusion of downstream products. (CFF. XI.148 (undisputed).) Complainant has admitted that it is not seeking an exclusion order for non-Samsung-branded products. (CBr at 331.) Hence, the administrative law judge finds that in so not seeking such an exclusion order injury to third parties based on the requested relief would be diminished. Samsung's Napper however testified that third party module suppliers to Samsung would have to help to certify and work with

Samsung to specifically identify a module into a downstream LCD TV product or computer monitor which would place a burden on third party suppliers. See Tr. at 1713. Certification however, is not uncommon in remedial orders. Moreover, Napper gave no details as to why he concludes that certification is a burden. Napper further testified:

{

}

Q. If you could turn to RDX-26? Could you describe how you think there will be a compromise with respect to the investment in SLCD by{ }

A. Right. I think I said{ }
I think that's right, but the real test, will{ }
be compromised or impacted?

And I believe it would because panels want to get maximum capacity in joint ventures in fabrication, if they can't get a maximum capacity, and they're impacted in their stranded capacity, if you will, that's a real cost and a real cost, that, one, would be shared by Samsung, yes, which is not what EPROM factor five looks at.

But it certainly will impact{ } as well, so I believe that's a burden and that this particular EPROM factor would weigh against a limited exclusion order for LCD TVs and computer monitors.

(Tr. at 1713-15.) Napper however admitted that{ } and Samsung are “competitors” in the LCD TV marketplace in North America. See Tr. at 1766. Napper also testified:

Q. In fact, Mr. Napper, you would be surprised -- you would not be surprised, it says right here, you would not be surprised if, as a result of a downstream exclusion order,{ } were able to increase its market share, sell more LCD TVs?

A. I would say that's correct. Again --

Q. And that's a benefit to{ }?

JUDGE LUCKERN: Let him finish his answer. Did you finish your answer?

THE WITNESS: I did not, Your Honor.

* * *

THE WITNESS: Given the economic environment, that's a question mark in my mind, but given the performance of TVs, just generally, in this last holiday season, so -- but it wouldn't surprise me if{ } were able to take advantage of Samsung not being in the marketplace.

BY MR. JOHNSTON:

Q. It would certainly be an opportunity for{ } to increase its market share?

A. In some pockets, that's correct. It would really depend upon --

* * *

THE WITNESS: It would just depend upon the mix of the products that Samsung is no longer able to sell in the United States, what screen sizes are they, you'd have to look at it more closely, but it wouldn't surprise me.

BY MR. JOHNSTON:

Q. And that would be a benefit to{ }?

A. Well, assuming they are profitable on their LCD TV product line.

Q. It would be their choice to either sell more TVs and get whatever benefit they could or not?

A. You just -- I quibble with the word "benefit" because it may not be a benefit to them, but down the road maybe, potentially.

Q. All right. So as far as you know, { } would be a net beneficiary, if there were a downstream exclusion order here?

A. Based upon the two billion dollars invested in the SLCD and given the current market environment, I don't believe that{ } would be a beneficiary.

- Q. You've done no study to determine that, have you, sir?
- A. Well, I know that the plant was operating at capacity, and so, again, stranded production costs are -- in fact, I saw some information in Sharp's and the report you just showed me, stranded production costs can be quite an impact on LCD companies.
- Q. Have you done a study of the analysis, of the impact on{ } since your deposition?
- A. I've looked at it further, and I've looked at other companies, like the Sharp information you just recently produced, that is consistent with the production capacity of being stranded and, therefore, being a cost to those companies.
- Q. At the time of your deposition, you'd not done any study to determine whether a downstream exclusion order would be a net benefit or not to{ } correct?
- A. I didn't have the information to quantify any possibly increase in sales vis-a-vis the stranded capacity, that's correct.
- Q. And you still haven't quantified those?
- A. I have not quantified those. I said that.

(Tr. at 1767-70 (emphasis added).) Based on the foregoing, the administrative law judge finds that the fifth EPROMs factor weighs in favor of complainant.

The sixth EPROMs factor is the availability of alternative downstream products that do not contain the infringing articles and weighs in favor of complainant. As to this factor, there are many LCD panel suppliers, and the majority of LCD television manufacturers obtain LCD panels from multiple sources. See Hanson, Tr. at 641-45. Samsung's Napper even admitted that said sixth factor would weigh "in a minor fashion towards issuance of an exclusion order for the Samsung LCD TVs, the Samsung LCD computer monitors, and the Samsung LCD professional displays". (Tr. at 1716.) Hence, the sixth EPROMs factor weighs in favor of complainant.

The seventh EPROMs factor is the likelihood that the downstream products actually contain the infringing articles and are thereby subject to the exclusion order. (CFF .XI.164 (undisputed).) The central issue with respect to said factor is the effect of a downstream exclusion order on products entered under the same HTS number that do not contain an infringing article. See Baseband at 104. Experts of both complainant and respondents agree that infringing LCD televisions represent about { } based upon units, of the total LCD televisions entering the United States. See CBr at 333, RBr at 293. Hence, for any particular article imported under the HTS number, there is a limited likelihood that it would contain an infringing article. There is no dispute that there are imported downstream products that actually contain infringing articles. However, a certification requirement can lessen the possibility that legitimate commerce in non-infringing downstream products would be impacted. See Baseband at 105. Hence, the administrative law judge finds that said seventh EPROMs factor favors the downstream relief requested.

EPROMs eighth factor deals with whether an exclusion order pertaining to the infringing article would likely be evaded if the exclusion order is not extended to downstream products. Thus, if there is a clear opportunity for evasion such that relief would essentially be denied if the exclusion order is not extended to the downstream market, then this factor weighs heavily in favor of downstream relief. See Baseband at 105. Based on the present record, the administrative law judge finds that virtually all infringing articles are imported only after being incorporated into downstream products. Thus like the EPROMs third factor supra, the EPROMs eighth factor weighs in favor of complainant's requested relief.

EPROMs factor nine assesses the enforceability of any exclusion by Customs. Generally,

this assessment has not been determinative in a decision to issue a downstream exclusion order but it has been used to more narrowly tailor the Commission's remedy to assist Customs in enforcement of any remedial order issued. Baseband at 108. Although all exclusion orders issued by the Commission impose an administrative burden on Customs, that burden may be substantial dependent upon the HTS numbers involved and the volumes of both infringing and noninfringing articles imported under them. However, even where the burden is substantial Commission precedent supports the use of a certification provision to reduce the burden placed on Customs by an exclusion order. Then parties importing noninfringing products falling under for example two HTS numbers would be able to certify that their products are not excluded by the order. Baseband at 115. In this investigation{

} (Hansen, Tr. at 650-51.) With respect to downstream Samsung models that{ } any exclusion order can include a certification requirement to minimize the burden of enforcement and Samsung should be allowed to and be able to certify which of its products include non-infringing modules. Thus the burden on Customs can be mitigated thru the certification by Samsung.

In summary the administrative law judge finds that the evidence shows a balance of the EPROMs factors weighs in favor of excluding accused LCD modules that are incorporated into downstream LCD televisions, LCD computer monitors and LCD professional displays.¹⁹

¹⁹ Sharp admitted that ti does not contest that it licenses certain of the patents-in-issue to LCD panel and module manufacturers, including{ } It further admitted

With respect to any cease and desist order, the administrative law judge finds that Sharp established that Samsung maintains a commercially significant inventory of accused products in the United States, and distributes, markets, advertises, and sells the accused products in the United States. For example, the evidence shows that Samsung maintains inventories{
} (CX-93C, Ex. 5 to Ling Dep. (Sept. 25,2008); CX-104C, Ex. 8 to Ling Dep. (Sept. 25,2008); CX-98C, Ex. 9 to Ling Dep. (Sept. 25,2008); CX-344C, Ex. 18 to Ling Dep. (Sept. 25,2008); CX-92C, SSNG0346015-198; CX-100C, SSNG0565310-627; CX-93C, SSNG0345677-685.) Hence, the administrative law judge recommends entry of a cease and desist order.

XIV. Bond

Section 337(j)(2) provides that articles subject to an exclusion order may be imported under bond during the 60-day Presidential review period. 19 U.S.C. § 1337(j)(3). The bond is to be set at an amount sufficient to protect the complainant from injury. Id. Reasonable royalty rates are often used to determine the bond amount during the Presidential review period. Certain Digital Satellite System (DSS) Receivers and Components Thereof, Inv. No. 337-TA-392, Initial Determination at 244 (October 20, 1997). Alternatively, price differentials have been utilized to calculate the proper bond rate. Certain Audible Alarm Systems for Divers, Inv. No. 337-TA-365, Comm'n Opinion, USITC Pub. 2903 at 7 (August 1995). When there is insufficient evidence in the record to determine a reasonable royalty rate, or the record indicates that the calculation of a price differential is impractical, the Commission has set a bond of 100%. See, e.g., Certain

that it does not seek to exclude any Samsung products that contain LCD panels or modules manufactured by Sharp's licensees. (CRBr at 138.)

Variable Speed Wind Turbines and Components Thereof, Inv. No. 337-TA-376, Commission Opinion at 27 (September 23, 1996); Certain Wire Electrical Discharge Machining Apparatus and Components Thereof, Inv. No. 337-TA-290, Commission Opinion at 20 (March 16, 1990). Sharp bears the burden of proof on this issue. See Certain Rubber Antidegradants, Components Thereof and Products Containing Same, 337-TA-533, Com'n Op. at 39-40.

Complainant argued that documents in the record and testimony show that it would be extremely difficult to conduct a reliable price comparison between Samsung and Sharp products in this investigation because of the vast number of products sold by Samsung and Sharp; that each of those products offers a different variety of features, making an “apples-to-apples” comparison extraordinarily difficult, if not impossible; that many of the products about which discovery was taken are no longer being sold, making price comparisons relating to future sales impossible; that because the purpose of the bond is to protect Sharp from injury for the continued sales of Samsung products during the Presidential Review period, even if such evidence could be marshaled (which it cannot), it would not prove useful to the Commission because that evidence would be outdated; and that while at the hearing, Samsung offered Napper’s testimony regarding royalty rates based upon his review of cross-license agreements of Sharp, Napper admitted on cross-examination that the licenses to use the patents received by Sharp as part of these cross-licenses were a benefit to Sharp. Complainant further argued that Napper did not quantify the value of said cross-licenses to Sharp and hence did not account for that valuable consideration in his calculation of the imputed royalty rates; that Napper only focused on U.S patents, despite the fact that the cross-licenses were worldwide licenses not limited to intellectual property rights in the United States and thus Napper failed to consider much of the value received

by Sharp under the licenses and dramatically understated any potentially applicable royalty rate. Hence complainant argued that the failure on the part of Napper to quantify said value means that the proffered royalty rates should be given no weight in considering the proper amount of the bond that Samsung should be required to post during the Presidential Review period and that the Presidential Review bond should be set at 100 percent. (CBr at 299-42.)

Respondents argued that while respondents' Hansen offered no testimony about whether or if any bond should be required, Samsung presented evidence about the royalties Sharp requires of its licensees; that Samsung has produced evidence that Sharp licenses its LCD patent portfolio, including all four of the patents-in-issue, at royalty rates of{ } and that in the event of a violation, the bond, if any, during the Presidential Review period, should be set at an amount no more than{ } of entered value.

The staff argued that while Samsung argued for a reasonable royalty bond based on Sharp's license agreements that are in the record, citing RX-345C & 346C ({ } license), RX-347C ({ } license), RX-348C & 349C ({ } license), Samsung's expert Napper did not provide any opinion or analysis regarding how these licenses should be used to calculate a rate, citing, Tr. 1659-60; and that while it appears "at this time" that a bond of 100% is warranted because evidence to compute a precise bond was not presented, the staff will revisit this issue if further information is presented in the private parties post hearing brief. (SBr at 76.) However the staff later argued that Napper did not quantify the value of those cross-licenses to Sharp and thus did not account for that valuable consideration in his calculation of the imputed royalty rates; that Napper only focused on United States patents, despite the fact that the cross-licenses were worldwide licenses not limited to intellectual property rights in the United States; that

hence Napper failed to consider much of the value received by Sharp under the licenses and may have understated any potentially applicable royalty rate; and that therefore, the royalty rates suggested by Napper should not be used in considering the proper amount of the bond that Samsung should be required to post during the Presidential Review period. (SRBr at 14.)

The administrative law judge finds that the documents produced by complainant shows that it would be difficult to conduct a reliable price comparison between Samsung and Sharp products in this investigation due to the number of products sold by the private parties and the variety of features in the products. As far as the{ } license agreements analyzed by respondents' Napper the administrative law judge finds that Napper only focused on U.S. patents and made no account as to the value of the patents held by{ } in any country in the world other than the United States. In addition the definition of "Sharp Licensed Patents" in the{ } license agreement states:

{

}

(RX-345C at SHARP 7695 (emphasis added).) Under this definition,{

} The administrative law judge finds no evidence to support a claim that all of the patents-in-issue are covered by this license agreement and further undercuts Napper's imputed royalty rate analysis.

Based on the foregoing, the administrative law judge recommends the entry of a bond in the Presidential Review period bond at 100 percent of the entered value of Samsung's infringing LCD products which include downstream LCD TVs, LCD professional displays and LCD

computer monitors.

XIV. Additional Findings

A. The Parties

1. Complainant Sharp Corporation (Sharp) is a corporation organized under the laws of Japan, with its principal place of business at 22-22 Nagaike-cho, Abeno-ku, Osaka 545-8522, Japan. (Complaint at ¶ 2.1.)

2. Respondent Samsung Electronics Co., Ltd. (SEC) is a corporation organized under the laws of Korea, with its principal place of business at 250, Taepyeongno 2-ga, Jung-gu, Seoul, 100-742, Korea. (Complaint at ¶ 5.1.)

3. Respondents Samsung Electronics America, Inc. (SEA) and Samsung Semiconductor, Inc. (SSI) are United States corporations. (Complaint at ¶ 5.2, 5.3.)

4. SEA has its principal place of business in New Jersey, and SSI has its principal place of business in California. (Complaint at ¶ 5.3.)

B. Witnesses

1. Sharp Witnesses

5. Roger G. Stewart was qualified by the administrative law judge as an expert in LCD technology. (Stewart, Tr. at 732.)

6. Dr. Aris K. Silzars was qualified as an expert with respect to LCD technology. (Silzars, Tr. at 105.)

7. John Hansen was qualified as an expert in the fields of financial and economic analysis. (Hansen, Tr. at 586.)

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}

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12. { }
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15. { }
16. { }
17. { }
18. { }
19. { }
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21. { }

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22. {
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23. { }
24. {
}

25. Takahiro Sasaki is employed by Sharp Corporation. (Sasaki, Tr. at 2136.)

26. During the 1997 and 1998 timeframe, Sasaki was employed by Fujitsu Corporation, where he developed LCDs. (Sasaki, Tr. at 2136.)

27. Sasaki has been developing LCDs for about 15 years. (Sasaki, Tr. at 2136.)

28. Sasaki is a named inventor of the '364 patent. (Sasaki, Tr. at 2136.)

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34. { }

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37. {

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38. Yoshinori Tanaka is employed by Sharp Corporation. (Tanaka, Tr. at 2181.)

39. Tanaka testified:

Q. Who was your employer in the 1997 to 1998 time frame?

A. Fujitsu Corporation. (Tr. at 2181.)

40. Tanaka majored in Semiconductors. (Tanaka, Tr. at 2182.)

41. {

}

42. {

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43. {

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44. {

}

45. Toshihiro Yanagi is an inventor of the '626 patent. { }

46. {

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47. {

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48. {
}

49. {
}

2. Samsung Witnesses

50. Brian Napper was qualified as an expert in financial and economic analysis by the administrative law judge. (Napper, Tr. at 1657-1658.)

51. Authur Flasck was qualified as an expert in liquid crystal display technology. (Flasck, Tr. at 1230-1231.)

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(JX-34C at 11.)

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64. {

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68. {

}

69. Weis does not work with stand-alone LCD modules.

70. {

}

(JX-48C at 18.)

71. {

}

CONCLUSIONS OF LAW

1. The Commission has in personam and in rem jurisdiction.
2. There has been an importation of accused liquid crystal display modules into the United States which are the subject of the unfair trade allegations.
3. The asserted claims of the '192 patent are infringed.
4. The asserted claims of the '626 patent are infringed.
5. The asserted claims of the '703 patent are infringed.
6. The asserted claims of the '364 patent are infringed.
7. A domestic industry exists with respect to the '192 patent.
8. A domestic industry exists with respect to the '626 patent.
9. A domestic industry exists with respect to the '703 patent.
10. A domestic industry exists with respect to the '364 patent.
11. The priority date of the '364 patent is December 5, 1997.
12. The asserted claims of the '364 patent are not invalid.
13. The asserted claims of the '192 patent are not invalid.
14. The asserted claims of the '626 patent are not invalid.
15. The asserted claims of the '703 patent are not invalid.
16. The '364 patent is enforceable.
17. In the event a violation of Section 337 is found, the evidence shows that the appropriate remedy comprises a limited exclusion order that extends to respondents' downstream LCD televisions,

LCD computer monitors, and LCD professional displays, and a
cease and desist order.

18. The evidence has shown that the appropriate Presidential Review
Period bond is 100% of entered value.

ORDER

Based on the foregoing, and the record as a whole, it is the administrative law judge's Final Initial Determination that there is a violation of section 337 in the importation into the United States, sale for importation, and sale within the United States after importation of infringing liquid crystal display devices and products containing respondents' said devices. It is also the administrative law judge's recommendation, should a violation be found, that a limited exclusion order issue barring entry into the United States of infringing liquid crystal display devices and products containing respondents' infringing liquid crystal display devices, viz. respondents' downstream LCD televisions, LCD computer monitors and LCD professional displays and that a cease and desist order should issue. He further recommends that the appropriate Presidential Review Period bond be 100 percent of the entered value.

The administrative law judge hereby CERTIFIES to the Commission his Final Initial and Recommended Determinations. The briefs of the parties, filed with the Secretary, are not certified, since they are already in the Commission's possession in accordance with Commission rules.

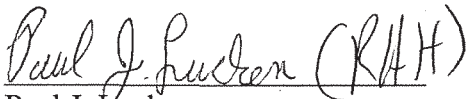
Further it is ORDERED that:

1. In accordance with Commission rule 210.39, all material heretofore marked in camera because of business, financial and marketing data found by the administrative law judge to be cognizable as confidential business information under Commission rule 201.6(a), is to be given in camera treatment continuing after the date this investigation is terminated.

2. Counsel for the parties shall have in the hands of the administrative law judge those portions of the final initial and recommended determinations which contain bracketed

confidential business information to be deleted from any public version of said determinations, no later than June 26, 2009. Any such bracketed version shall not be served via facsimile on the administrative law judge. If no such bracketed version is received from a party, it will mean that the party has no objection to removing the confidential status, in its entirety, from these initial and recommended determinations.

3. The initial determination portion of the Final Initial and Recommended Determinations, issued pursuant to Commission rules 210.42(a) and 210.42-46, shall become the determination of the Commission, unless the Commission, within that period, shall have ordered its review of certain issues therein or by order has changed the effective date of the initial determination portion. The recommended determination portion, issued pursuant to Commission rule 210.42(a)(1)(ii), will be considered by the Commission in reaching a determination on remedy pursuant to Commission rule 210.50(a).


Paul J. Luckern
Chief Administrative Law Judge

Issued: June 12, 2009


**IN THE MATTER OF CERTAIN LIQUID CRYSTAL
DISPLAY MODULES, PRODUCTS CONTAINING
SAME, AND METHODS FOR USING THE SAME**

Inv. No. 337-TA-634

PUBLIC CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **Public Version Final Initial and Recommended Determinations** has been served by hand upon Commission Investigative Attorney, Bryan F. Moore, Esq., and the following parties as indicated, on

August 5, 2009.


Marilyn R. Abbott, Secretary *JNB*
U.S. International Trade Commission
500 E Street, SW, Room 112A
Washington, DC 20436

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**IN THE MATTER OF CERTAIN LIQUID CRYSTAL
DISPLAY MODULES, PRODUCTS CONTAINING
SAME, AND METHODS FOR USING THE SAME**

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