suggests conception by Samsung of the invention of claims 1, 3, and 4 of the '311 patent, irrespective of any interleaved chevron pattern. In addition, when Song was asked the question at the hearing, "What about all of the material you have in your{ }report of RX-196C[(CX-782C)]? Did anyone at Fujitsu suggest any of this technology to you?," he replied, "No. None." (Song, Tr. at 1969.)[17] The administrative law judge thus finds that Song's said hearing testimony further supports the evidence that Samsung did not know anything of substance with respect to Fujitsu's MVA technology in November-December 1997 and that Samsung conceived of the subject matter of claims 1, 3, and 4 of the '311 patent itself, prior to any discussions with Fujitsu.

Referring to references RX-34[18] and JX-6[19], relied on by respondents and the staff, the '311 patent claims priority to the Korean application (RX-34); thus, the '311 patent is entitled to a priority date of May 19, 1998. (JX-2 at SSNG0000028.) During prosecution of the application leading to the '311 patent, the Examiner rejected claims 23, 25, and 27 of the application under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,724,452, issued to Takeda, et al. (the '452 patent or the Takeda patent). (JX-6 at SSNG0000415-16, SSNG0000428.) The '452 patent was filed in the United States on June 12, 1998. (JX-6 at SSNG0000428.) Specifically,

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[18] Reference RX-34 is Korean patent application No. 1998-18037 (the Korean application). The Korean application was filed by Samsung on May 19, 1998. (RX-34 at SSNG0000433.)

[19] Reference JX-6 is the United States Patent and Trademark Office (USPTO) prosecution history of the application leading to the '311 patent. The application leading to the '311 patent was filed in the United States on June 7, 2004. (JX-2 at SSNG0000028.)

the Examiner stated:

> Takeda discloses (col. 40, lines 6-25, 49-59) and shows in Figs. 70B and 72, a liquid crystal display comprising:
>
> - a first substrate;
>
> - a first electrode formed on the first substrate and having a plurality of protrusions (applicant's first domain divider);
>
> - a second substrate facing the first substrate; and
>
> - a second electrode formed corresponding to the first electrode on the second substrate and having a plurality of second protrusions (applicant's second domain dividers);
>
> wherein the first and second protrusions have a bent portion in plane view (Fig. 72).
>
> As to claim 25, it is clear from Fig. 72 of Takeda that the first and second domain dividers are interleaved with each other.
>
> As to claim 27, Takeda also discloses the use of apertures as domain dividers.

(JX-6 at SSNG0000415-16.)

In response to the Examiner's rejection, the patent applicants filed a reply, which states:

> This application claims priority from Korean Patent Application No. 98-18037 filed on May 19, 1998. Tanaka [sic, Takeda] was filed on June 12, 1998. Since the priority date of the present application antedates [Takeda's] filing date, [Takeda] does not qualify as prior art under 35 U.S.C. § 102(e). Thus, withdrawal of the rejection is respectfully requested.

(JX-6 at SSNG0000428.) The reply states nothing further with respect to the Korean patent application, e.g., it does not mention any specific figures or provide additional information explaining why the '311 patent is entitled to a claim of priority.

The Examiner then allowed claims 23, 25, and 27, which issued as claims 1, 3, and 5 of

the '311 patent, respectively, based on the patent applicants' reply. (JX-6 at SSNG0000399-400 and SSNG0000473-79.) Regarding allowed claim 23, the Examiner stated:

> As to claim 23, the prior arts of record do not anticipate or render obvious to one skilled in the art a liquid crystal display comprising various elements as claimed, more specifically a first electrode having a plurality of first domain dividers and a second electrode having a plurality of second domain dividers wherein the first domain dividers and the second domain dividers have a bent portion in plane view.

(JX-6 at SSNG0000477.) The Examiner made no specific remarks regarding allowed claim 25 (or 27), but did state:

> Applicant [sic] filed an English translation of the priority document KR 98-18037 to perfect the priority and thus USPAT 6,724,452 and USPAT 6,710,837 are not considered valid prior arts.

(JX-6 at SSNG0000478.) The Examiner did not mention any specific figures or provide additional information explaining why the '311 patent is entitled to a claim of priority based on the Korean application.

Respondents and the staff did not dispute that the Korean application discloses the subject matter of claims 1, 3, and 4 of the '311 patent, and thus that the '311 patent is entitled to a priority date of May 19, 1998. (RFF.IV.10-12, 192, 211A-D; RBr at 44-45; SBr at 68.) Respondents also did not dispute that Figure 11 (or 12) of the Korean application is not included in the '311 patent. (RBr at 44.) Respondents further did not dispute that the written disclosure of the application that resulted in the '311 patent clearly describes a "bent" pattern capable of being "arranged alternately." (RFF.IV.211A-D; RBr at 44-45; SRBr at 13-14.) In addition, the staff did not dispute that claim 1 simply requires bent portions and does not require a chevron pattern. (SRBr at 13-14.)

However, respondents argued that "bent" means "chevron-shaped" and "arranged alternately" means "interleaved." (RBr at 44-45.) According to respondents,{

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Respondents also argued that Figure 11 (or 12) of the Korean application is the {

} Respondents argued that Samsung admitted that an interleaved chevron pattern was disclosed in the Korean application, and thus that{

} Respondents further argued that, because the Examiner specifically referred to Fig. 72 of the Takeda patent in rejecting claims 23 and 25, Samsung necessarily represented to the Examiner that the '311 patent is entitled to the Korean patent application filing date based solely on Figure 11 (or 12) of the Korean patent application. (RRBr at 28-29.) The staff argued that Samsung did not include any of its { } patterns in the Korean application, but did include the chevron pattern. (SRBr at 13, 15-16.) Respondents and the staff thus concluded that the support for the subject matter of claims 1, 3, and 4 of the '311 patent comes from Figure 11 (or 12) of the Korean application. (RBr at 44-45; SBr at 68-69; SRBr at 13-16.) According to the staff, "absent the Korean application and the chevron figures, the applicants would not have overcome the examiner's § 102(e) rejection." (SRBr at 16.)

Contrary to respondents' and the staff's arguments, the Examiner did not mention an "interleaved chevron pattern" in rejecting claims 23 and 25. (RRBr at 29; JX-6 at 415-16.) Rather, the administrative law judge finds that the Examiner referenced Fig. 72 as being prior art

with respect to the limitations of applicants' domain dividers having a bent portion in plane view and being interleaved with each other. (JX-6 at SSNG0000415-16.) Complainant argued that "[t]he claims of the U.S. application were fully supported by the figures and specification filed with the U.S. application without Korean Figures 11 and 12." (CBr at 235; see also CRBr at 111.) The administrative law judge agrees. The administrative law judge finds that there is support for the aforementioned limitations in the disclosure of the Korean application in places other than Figure 11 (or 12). (See, e.g., RX-34 at SSNG0000438-40 and SSNG0000445-50.) In addition, the administrative law judge finds that Figures 3A, 4, and 6 of the Korean application are similar to the{ }patterns in Figure 16 of CX-782C, which is further evidence that Samsung's{ } pattern testing did lead it to a pattern that contains the elements of claims 1, 3, and 4 of the '311 patent.[20] (See, e.g., RX-34 at SSNG0000445-50, SSNG 5011-13.)

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[20] The staff asserted that complainant pointed to the "flower pattern" set forth as Figure 8 in the '311 patent as an example of complainant's possession of a pattern containing a "bent portion" within the meaning of claim 1. (SRBr at 13.) The staff then argued that "there is no evidence that Samsung possessed the 'flower pattern' prior to its collaboration with Sharp." (SRBr at 14.) However, in addition to Figure 8, complainant also pointed to Figure 3 of the '311 patent as an example showing possession of a bent portion. (CBr at 242; CRBr at 113.) Complainant argued that "Figure 3 of the '311 patent is an exact reproduction of several of the 'fourth round' patterns of the ITO report ... varying only in thickness," comparing Figures 3 and 8 to Figure 16 from CX-782C. (CRBr at 113.) The administrative law judge agrees with complainant and finds that Figure 3, as well as Figure 6, of the '311 patent reproduces Figure 16 of CX-782C, a pattern arrived at by Samsung prior to meeting with Fujitsu. Figures 3 and 6 of the '311 patent also appear in the Korean application as Figures 3A and 4. (RX-34 at SSNG0000445-50, SSNG 5011-13.)

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[21] Reference RX-194C is a Samsung report on the minutes of a collaboration meeting between Samsung and Fujitsu. The reference indicates that the meeting took place on December 5, 1997. (RX-194C at SHARP0025652.)

[22] RX-195C is a Samsung report on a Samsung visit to Fujitsu. The reference is dated December 19, 1997 and indicates that the visit took place December 14-16, 1997. (RX-195C at SHARP0025657.)

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{ }The administrative law judge finds that, from the summary and the note, it is unclear whether RX-194C refers to{

} He also finds that it is unclear what

{

} The administrative law judge further finds that there is no indication in those passages, set forth supra, that Samsung possessed substantive knowledge regarding any Fujitsu technology except that which was disclosed pursuant to the 1995 cross-license.

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}The administrative law judge finds that, as in reference CX-782, said disclosure in RX-195C shows that Samsung was working on its own process prior to any interaction with Fujitsu. {

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[23]{

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RX-195C discloses that Samsung did inquire about{

} The administrative law

judge finds that{

} (RX-195C at SHARP0025660, SHARP0025663.) Thus, while Samsung's questions may demonstrate that Samsung was interested in obtaining knowledge regarding Fujitsu's MVA process, the administrative law judge finds that the outcome of the question and answer session as a whole is unclear.

Finally,{

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The staff argued that RX-194C and RX-195C, as well as RX-196C (CX-782C), are evidence that Samsung obtained an interleaved chevron pattern from Fujitsu. (SBr at 65-68.) The staff argued that references RX-194C and RX-195C "provide insight into the parties' collaboration and specifically Samsung's knowledge in December 1997." (SBr at 65.) The staff further argued that RX-195C "describes that Fujitsu and Samsung discussed Fujitsu's MVA technology at the December 15th meeting," (SBr at 65), and that the questions asked by Samsung, as well as the answers they elicited, during the meeting on December 14-16, clearly refer to

critical information regarding Fujitsu's MVA design. (SBr at 65-66.) Finally, the staff argued that RX-196C (CX-782C) shows that "Samsung was determined to obtain and use Fujitsu's MVA technology." (SBr at 69.) However, the administrative law judge has found, supra, that the information (and/or knowledge) elicited during the question and answer session is unclear. In addition, he finds that whether or not Samsung was "determined" to obtain Fujitsu's technology is not relevant to the issue of derivation.

Complainant argued that "Fujitsu had a complex portfolio of MVA technology in 1997." (CRBr at 112.) Based on the information presented in the documents relied upon by respondents and the staff, the administrative law judge agrees. As found supra, it is often unclear what specific technology is referred to in the documents, (e.g., View Angle technology or Vertical Alignment technology). Though respondents argued that "Samsung does not even offer an alternative explanation for what these Samsung documents disclose if not Fujitsu's MVA technology," (RRBr at 25-16), it is respondents' burden to establish by clear and convincing evidence that the documents on which they rely disclose Fujitsu's alleged conception and communication of conception to Samsung.

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} The administrative law judge finds that those

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[24] RX-198C is a Samsung report on a third meeting between Samsung and Fujitsu. Though the reference is dated January 27, 1997, it indicates that the meeting took place on January 26, 1998. (RX-198C at SHARP0025443.)

statements indicate that, at least up to late January 1998, Fujitsu still had not disclosed its MVA technology from which claims 1, 3, and 4 of the '311 patent to Samsung were allegedly derived.

{

} The administrative law judge finds that this statement suggests that the January 26, 1998 meeting is the meeting at which Samsung actually viewed Fujitsu's MVA process technology. {

}

Complainant, however, argued that RX-198C shows that "the tangible evidence of Fujitsu showing Samsung any technology did not occur until their meeting on January 26, 1998." (CBr at 245 (emphasis original); see also CRBr at 108.) Complainant also argued that, by this time, "the

named inventors were already in possession of every inventive concept disclosed in the '311 patent." (CBr at 245 (emphasis original); see also CRBr at 108.) Complainant further argued that "[i]t was not until at the January 26, 1998 meeting that Fujitsu finally agreed to a mutual exchange of information with Samsung." (CRBr at 115.)

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Based on the foregoing, the administrative law judge finds that it has not been established, by clear and convincing evidence, that the '311 patent is invalid pursuant to 35 U.S.C. § 102(f) on the ground that complainant derived claims 1, 3, and 4 of said patent from Fujitsu employees or on the ground that complainant failed to name said employees as co-inventors of the '311 patent, as argued by respondents and the staff.

VI. The '344 Patent

On August 3, 2004, the '344 patent issued from U.S. Patent Application Serial No. 09/877,481, dated January 8, 2001. (JX-1.) The '344 patent claims priority to Korean application number 1997-21708, filed on May 29, 1997 and Korean application number 1997-40665, filed on August 25, 1997. (Id. at SSNG 3888.)

A. Undisputed Facts

The parties have stipulated to the following involving undisputed technology relating to the '344 patent.

> In general, the '344 patent discloses an LCD structure in which apertures are formed in the common electrode or in the pixel electrode of a liquid crystal display to form a fringe field. Storage capacitor electrodes are formed at the position corresponding to the apertures to prevent the light leakage due to the disclination caused by the fringe field. The apertures extend horizontally, vertically or obliquely. The apertures in adjacent pixel regions may have different directions to widen the viewing angle.

B. Experts

See Section V.B supra

C. Person Of Ordinary Skill

See Section V.C supra

D. Claims In Issue

Asserted independent claim 7 reads:

> A liquid crystal display comprising:
>
> a first substrate;
>
> a second substrate, spaced apart from the first substrate;
>
> a pixel region on one of the first substrate and the second substrate; and
>
> a field-generating electrode on the pixel region, the field-generating electrode having a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture;
>
> wherein the first aperture extends upward at angle from a left side of the field-generating electrode and wherein the second aperture extends downward at angle from the left side of the

field-generating electrode and wherein the angle between the left side of the field-generating electrode and an under side of the first aperture is from about 120 to about 150 degrees and wherein the angle between the left side of the field-generating electrode and an under side of the second aperture is from about 30 to about 50 degrees.

(JX-1 at 10:21-40.)

Asserted independent claim 8 reads:

A liquid crystal display comprising:

a first substrate;

a second substrate, spaced apart from the first substrate;

a pixel region on one of the first substrate and the second substrate; and

a field-generating electrode on the pixel region, the field-generating electrode having a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture, wherein a distance between the first aperture and the second aperture is from about 8 μm to about 50 μm.

(JX-1 at 10:41-52.)

E. Claim Construction

1. The Claimed Phrase "pixel region"

As seen in Section VI.D, supra, the claimed phrase "pixel region" occurs in asserted claims 7 and 8 of the '344 patent.

Complainant argued that a "pixel region" is a term unique to the '344 patent for which the patentees provided a specific and clear definition in the specification. (CBr at 12.) Thus, complainant argued that, when referring to the TFT[25] substrate, the '344 patent defines a "pixel

[25] TFT is an abbreviation for "thin film transistor." (JX-1 at 4:11.)

region" as the area bounded by crossing gate lines and data lines, and when referring to the common substrate, said patent indicates that the black matrix defines the claimed "pixel region." (CBr at 12.) Complainant further argued that the terms "pixel" and "pixel region" are different. (CRBr at 7-8.)

Respondents represented that they do not dispute complainant's definition of "pixel region" as given by complainant's expert Smith to mean "either a region defined by adjoining gate lines and adjoining data lines on the TFT substrate, or defined by the black matrix on the common electrode substrate." (RBr at 81(emphasis in original).) Respondents argued, however, that the '344 patent equates a pixel with a pixel region in the specification. (RBr at 82.)

The staff argued that "one skilled in the art at the time of the invention reviewing the '344 patent would have understood that pixel regions may be formed separately on the TFT substrate and the common electrode substrate" and that therefore complainant's construction, viz. "the region defined by adjoining gate and data lines on the TFT substrate, or defined by the black matrix on the common electrode substrate" should be adopted. (SBr at 17-18 (emphasis in original).)

The claimed phrase "pixel region" is contained in claims 7 and 8 of the '344 patent and appears in said claims as part of the larger phrase "a field-generating electrode on the pixel region." Neither respondents nor the staff dispute complainant's argument that the claimed phrase "pixel region" is uniquely defined in the specification of the '344 patent. Moreover, the administrative law judge finds nothing in the record to the contrary.

The claims do not define "pixel region." Referring to the specification of the '344 patent, however, it states:

> An LCD according to embodiments of the present invention includes a TFT (thin film transistor) substrate and a common substrate. On the TFT substrate, a plurality of gate lines and data lines crossing each other are formed, and the gate lines and the data lines define pixel regions. On the common substrate, a common electrode having apertures and a black matrix which defines pixel regions are formed.

(JX-1 at 4:10-16.) Thus, the specification as to the TFT substrate states that " a plurality of gate lines and data lines crossing each other are formed, and the gate lines and the data lines define pixel regions..." and as to the common substrate states that a "black matrix . . . defines pixel regions...." Hence, the specification discloses different definitions of "pixel region" for the TFT substrate and the common substrate, and does not require a pixel region on a TFT substrate to be identical, or even related, to a pixel region on a common substrate. The difference is further shown by reference to the figures. For example, Figure 8 depicts a common electrode 6 with the pixel region P contained within the black matrix 7 (see JX-1 at 5:29-30 ("As shown in FIGS. 8 and 10, a black matrix pattern 7 is formed along the boundary of a pixel region P..."), and Figure 9 depicts a TFT substrate with a pixel region P bounded by gate lines 81 and 82 and data line 9 (see JX-1 at 5:49-55 ("As shown in FIG. 9, a first and a second gate lines 81 and 82 which are separated from each other and extend horizontally and a branch 12 connecting the gate lines 81 and 82 extending in a vertical direction are formed on a transparent glass substrate 20. Two storage capacitor electrodes 11 on the substrate extend obliquely from the gate lines 81 and 82 to the left center of the pixel region P, and are connected to the branch 12."). There is no indication from either figure that a pixel region on one substrate depends on the pixel region on another substrate.

With respect to expert testimony, Sharp's expert did not offer an independent claim

construction for this claimed phrase during the hearing. (Tr. at 1635; CPFF 410 (undisputed in relevant part).) Complainant's expert Smith testified, however:

> Q. Actually, Dr. Smith, how is a pixel region different or similar to the term "pixel"?
>
> A. Well, as I described, a pixel relates to the light illuminating body and area, whereas pixel region is not a term in the art, and therefore, pixel region, I believe, was a term constructed by the inventors exactly in the manner that I show on slide CDX-40 to distinguish, to distinguish itself from pixel region in order to describe various areas on either of the two substrates.
>
> Q. Okay. What is the evidentiary support for your proposed construction and understanding of the term "pixel region"?
>
> A. Yes. My construction actually can be seen directly from the specification on slide CDX-41, the pixel region is defined by the inventors separately on the TFT substrate and on the -- I'm sorry, and on the common substrate, which was the one opposite the electrode that is actuated by the thin film transistor.
>
> So the TFT substrate refers to thin film transistor, but that particular substrate has a pixel region, the inventors defined that to be the intersection of gate lines and data lines as determining what that pixel region is, and I will give an example. On the common substrate, they pose a different criterion that defines a pixel region, and that is by what is known as the black matrix.

(Tr. at 299-300 (emphasis added).)

Based on the foregoing, the administrative law judge finds that the claimed phrase "pixel region" is construed as "the region defined by adjoining gate and data lines on the TFT substrate, or defined by the black matrix on the common electrode substrate."

With respect to respondents' argument that the '344 patent uses the phrases "pixel" and "pixel region" interchangeably in the specification, respondents point to no part of the specification that explicitly defines a pixel region as a pixel. In contrast, as found, supra, the

claimed phrase "pixel region" is defined without reference to the term "pixel" standing alone. Further, the specification uses said term "pixel" in several contexts that do not refer to a "pixel region." (See, generally, JX-1.) Also, there is expert testimony from complainant's expert Smith that a "pixel" is different that a "pixel region":

> JUDGE LUCKERN: I'll interrupt you again. But again. You use this word "pixel," and of course, the paragraph on the technology relating to U.S. patent, the '311 patent and this joint stipulation makes reference to, I'll paraphrase, some embodiments, a tetragonal ring shaped aperture is formed in the common electrode on one substrate and, et cetera.
>
> Well, I'll go ahead and read it, a cross-shaped aperture is formed -- let me start all over.
>
> In some embodiments, a tetragonal ring-shaped aperture is formed in the common electrode on one substrate, and a cross-shaped aperture is formed at the position corresponding to the center of the tetragonal ring-shaped aperture in the pixel electrode on the other substrate. That is what is said in this stipulation.
>
> And my question to you is, again, pixel electrode and this word "pixel," is this something also that a person of ordinary skill in the art in 1999 would have an understanding from textbook, or whatever you say, or not, or is this something claimed by the inventors in this patent? Do you understand my question?
>
> THE WITNESS: Yes, I do. The term "pixel" originated, I believe, from the word picture element, but has come to have a variety of uses, but basically, a pixel is sometimes also called a subpixel, and a pixel might even refer to a number of subpixels.
>
> For example, a red, green, blue combination might be referred to as a pixel, or the subpixels might be referred to as pixels, or even substructures within the pixel might be referred to as pixels if they have separate electrodes.
>
> JUDGE LUCKERN: And your testimony, is that how a person of ordinary skill in the art would have viewed it? Was it sort of a

common term?

THE WITNESS: They would be certainly familiar with the term, but probably look to the context to see exactly which thing you were referring to as pixel because it could subsume a number of different structures.

JUDGE LUCKERN: All right. Your question, Mr. Chu, was, so now, let's look at the first disputed issue, which is common to Claim 7 and 8 of the '344 patent. Go ahead with your question, Mr. Chu.

MR. CHU: And, Your Honor --

BY MR. CHU:

Q. Actually, Dr. Smith, how is a pixel region different or similar to the term "pixel"?

A. Well, as I described, a pixel relates to the light illuminating body and area, whereas pixel region is not a term in the art, and therefore, pixel region, I believe, was a term constructed by the inventors exactly in the manner that I show on slide CDX-40 to distinguish, to distinguish itself from pixel region in order to describe various areas on either of the two substrates.

(Tr. at 297-99 (emphasis added).) Respondents point to no expert testimony rebutting complainant's expert, instead relying on their attorney's interpretation of the '344 patent. Thus, the administrative law judge rejects respondents' argument that the '344 patent equates "pixel" and "pixel region."

2. The Claimed Phrase "aperture"

As seen in VI.D, supra, the claimed term "aperture" appears in asserted claims 7 and 8 of the '344 patent.

Complainant argued that the ordinary meaning of the word aperture is "a continuous opening," and that the patentees adhered to that meaning. (CBr at 16, 27.)

Respondents argued that an aperture is an "opening having one orientation, or a branch or portion of an opening (i.e., opening that may or may not be connected to other opening.[s)]" (RBr at 57.) Respondents further argued that their construction is "consistent with an aperture's well-known function of domain creation" (RBr at 58) and that one of ordinary skill in the art would reasonably conclude that "different legs or linear portions of a [sic] an opening are different apertures. (RBr at 59.) Respondents also argued that the prosecution history shows that the Examiner rejected complainant's construction. (RBr at 65-72.)

The staff argued that the claimed term "aperture" should be construed as "an opening that may or may not be connected to other openings." (SBr at 20.) The staff also argued that "[n]either the claims nor the specification of the '344 patent provide much guidance on this issue." (SBr at 20.) The staff further argued that:

> The prosecution history sheds much more light on the issue. The parties readily acknowledge that the examiner understood the term "aperture" to include branches or portions of a single opening such as one having an "X" or double "Y" shape. Specifically, in an office action dated June 3, 2003, the examiner, in handwritten notes that are not disputed by the parties, indicated her understanding that separate branches or portions of a cut-out can constitute apertures . . .

(SBr at 22.)

Each of asserted claims 7 and 8 of the '344 patent provide for a field-generating electrode having more than one aperture, and the asserted claims also require that the two distinct apertures have different orientations from each other. (JX-1 at 10:27-30, 47-50 ("the field-generating electrode having a first aperture having a first orientation and a second aperture having a second orientation...") Further, claim 8 specifically requires that the first and second aperture are spaced

apart by a distance of about 8 μm to about 50 μm. (JX-1 at 10:51-53 ("wherein a distance between the first aperture and the second aperture is from about 8 μm to about 50μm.").) Thus, the administrative law judge finds that the asserted claims of the '344 patent teach that an aperture is an opening in the field-generating electrode, that each aperture is a separate and distinct structure from another aperture, and that these separate structures can be spaced apart from each other.

Further, the specification describes an "aperture" as an opening formed in the common electrode or the pixel electrode. (CPFF 528, 529, 535 (all undisputed).) The specification also discloses that each continuous opening within a pixel region constitutes a separate and singular aperture, as shown by, inter alia, FIGS. 3, 8 and 10, and the portions of the specification describing said figures. (See JX-1 at FIGS. 3, 8, 10; JX-1 at 4:26-27, 31-33 ("FIG. 3 shows a pixel region, where a common electrode has apertures. ... The common electrode 6 has two longitudinally long linear apertures 15 which are spaced apart from and parallel to each other in a pixel region."); JX-1 at 5:29-34 ("As shown in FIGS. 8 and 10, a black matrix pattern 7 is formed along the boundary of a pixel region P, and a common electrode 6 is formed to cover the entire surface of the common substrate. The common electrode 6 has two obliquely long linear apertures 15 which are spaced apart from each other in a pixel region.").) Thus, in the area relevant to the claims, that is, the "pixel region," the specification discloses separate and distinct openings called apertures, and not a single opening with two separate portions each called an aperture.

As to hearing testimony, the parties agree that the phrase "aperture" was well known at the time the '344 patent was filed. (CPFF 449 (undisputed).) Complainant's expert Smith

testified that "aperture" would be "known by most people taking a second level of physics." (Tr. at 295.) Smith further testified that "aperture" is "a continuous opening" (Tr. at 293-94, 306) and that a cross or X-shaped opening would only be one aperture, not many apertures:

> Q. So just to summarize, your construction is that a cross or an X, for example, is only a single aperture; is that correct?
>
> A. Yes. I think that's the ordinary understanding. And that is my understanding.

(Tr. at 411.) Sharp's witness Flasck[26] also testified that the ordinary meaning of "aperture" is "a continuous opening," as per the following:

> JUDGE LUCKERN: Well, what is the general meaning of aperture and slit then that you feel would be applicable to how it's used in the '344 patent?
>
> THE WITNESS: I believe, as used in the '344 patent, it has the ordinary meaning, number one, and the ordinary meaning to one --
>
> JUDGE LUCKERN: And this is aperture now we're talking about?
>
> THE WITNESS: I'm sorry, yes. Aperture is simply a continuous opening, and that's a common definition. That's also a term used in the art that's readily understood by one of ordinary skill in the art.

(Tr. at 1724-25.) Flasck also testified that an opening in the shape of a cross would be considered one aperture in the context of the '344 patent. (Tr. at 1718.) Finally, respondents' expert Silzars testified:

> Q. So let's take the case of figure 1 of RDX-28 and assume these are apertures. Can you show me where each of the segments that cross the pixel are.
>
> A If -- to make it convenient, it would be perfectly acceptable if you

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[26] Flasck is respondents' witness in this investigation, and an expert retained by complainant in Inv. No. 337-TA-634. (Tr. at 1712.)

drew a rectangle that outlines the pixel, which would be following the gate lines and the data lines. I think that would make it easier then.

Q. So the gate lines then are 32 and 31.

JUDGE LUCKERN: All right. He's telling you how to do it.

THE WITNESS: Yes. Go down 32 -- it's 32, 31, and then the corresponding lines on the other side. So I think if we -- if we have that rectangle, it makes it easier to see what's inside the rectangle.

BY MR. CORDELL:

Q. Okay. So I'll draw a line down 32 in blue and then 32 on the other side --

JUDGE LUCKERN: Why don't we go off the record.
(Discussion off the record.)

JUDGE LUCKERN: All right. Stay on the record. I would like a question and answer, question and answer, question and answer, question and answer.

MR. CORDELL: Yes, Your Honor. For the record, I'm doing as the witness directed, and drawing blue lines on the gate and data lines 32 and 31.

THE WITNESS: And the witness agrees that they are drawn as requested. All right. You're doing a great job.

BY MR. CORDELL:

Q. So which are the apertures within this pixel?

A. Now, this is -- all of these are going to be apertures, I believe, in your question that you asked me before.

Q. How do I label them? So is this --

A. This would be all the line segments that we can identify within your blue square. So it would be the -- the top left-most one that has the hash marks in it, that would be one.

Q. So that's 1.

A. And the white open one below it would be 2. And the next one that is hash-marked but is the entire zigzag would be 3. So coming down and also across. The next down would be 4.

Now we skip down past those. That would also be 4.

Q I'm sorry. This is also 4?

A That's also 4. The next one down would be 3. The remaining segment of 3. And then we would have 5 and 6 corresponding to 1 and 2.

MR. CORDELL: I apologize about my handwriting, Your Honor.

JUDGE LUCKERN: That's all right. Just make sure this record is clear when you're finished as to what you've got there, please.

BY MR. CORDELL:

Q. So just for the record, to clear up my handwriting, I've numbered from top to bottom, 1, 2, 3, 4, 4, 3, 5, 6. Did I say that correctly, Dr. Silzars?

A. Yes.

Q. Thank you. Okay. And, again, those are the apertures that you find in the pixel on RDX-26-A, correct?

A. Yes. If we assume that all of them are apertures, then I would find those in the pixel -- in that pixel area.

(Tr. at 1543-46; see also RDX-26A (emphasis added) .) Thus, when asked by complainant's counsel to identify each aperture in a given area, respondents' witness identified each continuous opening as an aperture, regardless of how many parts or sections that continuous opening had.

Based on the foregoing intrinsic evidence and expert and witness testimony, the administrative law judge finds that the claim term "aperture" is construed as "a continuous

opening in the pixel region."

The staff and respondents have argued that the prosecution history, and specifically certain comments of the Examiner, support their constructions of this claim term. (See, e.g., JX-5 at SSNG 4124-4125 (handwritten notes of the Examiner showing single openings labeled as multiple apertures).) Only the applicants, however, not the Examiner, can disclaim or not disclaim particular subject matter. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1124 (Fed. Cir. 2004) ("It is well settled, however, that it is the applicant, not the examiner, who must give up or disclaim subject matter that would otherwise fall within the scope of the claims.") Neither respondents nor the staff cite to any portion of the prosecution history in which the patentees regarded a single continuous opening as having multiple apertures, even where an opening had a complex shape. Also, the Examiner did allow certain claims, on other grounds. (See JX-24 at SSNG 142769-770.) As the Examiner did not specify a definition of aperture in the notice of allowance, the administrative law judge declines to attempt to read the Examiner's mind as to whether or not the definition of aperture was material to the Examiner's allowance of the claims. Further, an applicant not meeting every argument of an examiner does not, in and of itself, indicate agreement by the applicant with an examiner's position:

> [P]rosecution history ... cannot be used to limit the scope of a claim unless the applicant took a position before the PTO. Schwing GmbH v. Putzmeister Aktiengesellschaft, 305 F.3d 1318, 1324-25 (Fed.Cir.2002) (emphasis added). An applicant's silence in response to an examiner's characterization of a claim does not reflect the applicant's clear and unmistakable acquiescence to that characterization if the claim is eventually allowed on grounds unrelated to the examiner's unrebutted characterization.

3M Innovative Properties Co. v. Avery Dennison Corp., 350 F.3d 1365, 1373 -1374 (Fed. Cir.

2003).

3. The Claimed Phrase "a distance between the first aperture and the second aperture"

As seen in Section VI.D, supra, said claimed phrase occurs in asserted claim 8 of the '344 patent.

Complainant argued that the proper construction of the claimed phrase "a distance between the first aperture and the second aperture" is "the distance of closest separation between the first and second apertures." (CBr at 40; CPFF 605.) Complainant also argued that one of ordinary skill in the art would reach this conclusion because

> a person of ordinary skill understands the elementary principle that when two structures are described as being "spaced apart from . . . each other," basic principles of geometry require that the "distance between" two structures logically refers to the distance of closest separation.

(CBr at 42 (emphasis in original)) and

> because the apertures in the patent control the orientation of liquid crystal molecules, the distance of closest separation between two apertures is an important measurement that affects whether the apertures operate optimally and as intended.

(CBr at 43).

Respondents argued that this limitation:

> should be construed according to the plain language of the claim and the specification ... which requires either that the apertures be separated by a single uniform distance between 8 μm to about 50 μm, or, in the alternative, that the distance between apertures at all points be between 8 μm and 50 μm in the pixel region.

(RBr at 78.) Respondents further argued that where distances between apertures are discussed in the '344 patent specification, "they are discussed in the context of a range of distances, not a

minimum distance." (RBr at 80.)

The staff argued that the claimed phrase should be construed as the "distance of closest separation between the first aperture and the second aperture on the pixel region." (SBr at 27.) The staff further argued that the claim language itself requires "a distance between," which denotes a range of distances, and the word "a" is not typically construed as "all" to mean that all of the distances must be within the specified range. (SBr at 27.)

The language of asserted claim 8 reads:

> wherein a distance between the first aperture and the second aperture is from about 8 μm to about 50 μm.

(JX-1 at 51-53 (emphasis added).) Thus, the language of the claims does not plainly require that each portion of the first aperture is precisely the same distance away from each corresponding point of a second aperture (i.e., parallel), but rather requires a distance between the apertures be about 8 μm to about 50 μm. (See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (holding that the indefinite article "a" in an open-ended claim means "one or more").) Moreover, the language of asserted claim 8 requires that the first and second apertures be non-parallel (see JX-1 at 47-51 ("a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture..."). Thus, the claim language precludes construing the claimed phrase "a distance between the first aperture and the second aperture" as requiring parallel apertures. Therefore, the distance between two apertures could, based solely on the claim language, reasonably be between any point on the first aperture and any point on the second aperture.

As further described in the specification, the embodiment depicted in Figure 8 has two

oblique apertures 15 having different orientations (that is, not parallel). (JX-1 at FIG. 8; JX-1 at 5:32-39.) As in the first embodiment, the two apertures in the third embodiment are "spaced apart from each other in a pixel region." (JX-1 at 5:24–34.) Further, the specification discloses that the distance between the two apertures 15 in the third embodiment may be the same as the distance between apertures in the first embodiment. (See JX-1 at 5:43-44 ("The width and the distance of the apertures 15 may be the same as those of the first embodiment.").) The specification describes the first embodiment as having parallel apertures. (JX-1 at FIG. 3; JX-1 at 4:22-23, 31-33.)

Referring to extrinsic evidence, complainant's expert Smith testified:

> Q. Thank you. Now, let's move on to the third claim construction dispute on the '344 patent, which I believe relates to Claim 8. Could you, please, give us a bit more background on this?
>
> A. Right. CDX-49 refers to the phrase "a distance between the first aperture and the second aperture." My construction is that it is a distance of closest separation between the first and second apertures, whereas, Sharp is arguing that the claim is actually specifying a range of minimum and maximum distances between the apertures as opposed to a minimum distance.
>
> The parties agree, I understand, that the closest distances must be between about 8 to about 50 microns, but Sharp further argues that all distances, whether minimum or maximum and everything in-between, must be between 8 and 50 microns approximately.
>
> Q. So what is the evidentiary basis for your construction?
>
> A. There are a few places. I'd like to go to slide CDX-50. You see that the Claim 8 itself refers to -- this is where that phrase is used, "wherein a distance between the first and second aperture is from about 8 microns to about 50 microns." In other words, they weren't saying the distance, they were saying a distance, and therefore, they weren't talking about a range of distances, but rather a specific

distance.

On slide CDX-51, again, it is referring to distance between apertures for lines spaced apart and parallel to each other in a pixel region. And if I could show you slide CDX-52 with this regard? In my construction of the word "distance" between the two apertures identified on Figure 6 of slide CDX-52, it is a normal geometry understanding, I think, from high school geometry, that the distance between two parallel lines or two objects that are parallel is in fact the minimum distance, the perpendicular distance between them.

If you took the construction that the distance between those two lines is a range between a minimum and a maximum, that would not comport with an ordinary understanding of distance for such objects. On slide CDX-53, the notion of distance between apertures is applied in the same manner exactly, whether the patentee is referring to Figure 6, Figure 10, Figure 3, or Figure 8, and Figure 8 is a figure where you have diverging apertures.

(Tr. at 311-13 (emphasis added).) Thus, Smith testified that a person of ordinary skill in the art would understand that the distance between parallel lines is the perpendicular distance between them, which is the minimum distance, and the distance of closest separation. Moreover, respondents' expert Silzars testified:

Q. So let's talk a little bit about the distance between apertures. Can you remind us of what your opinion is as to the proper construction of the distance between apertures as used in the '344 patent?

A. The construction that I believe is, makes technical sense and is easy to apply without requiring additional interpretation is that if we have two parallel structures that we can define and identify the distance between them. And that distance, by common usage, would be if we take a line and draw it perpendicular to those lines, such as a tie in a railroad, railroad tracks or something that crosses in an orthogonal fashion from one side to the other, we would be able to unambiguously specify that distance as a distance between those two objects.

Q. And it is your opinion, Dr. Silzars, that it is impossible to define a

distance between apertures that are not parallel, correct?

A. It is impossible without providing additional information as to where we should measure that distance. It is certainly not impossible to measure a distance once we have the information of where to measure it.

(Tr. at 1647-48 (emphasis added).) Thus, Silzars has testified that the correct measurement of the distance between parallel lines is the shortest distance, but that the proper distance between non-parallel apertures is "impossible" to measure without further information as to where to measure it. The administrative law judge has found, supra, however, that the '344 patent does provide sufficient information to determine that the distance between non-parallel apertures is the closest separation between the two apertures, as further explained by Smith's credible testimony. Hence, the administrative law judge finds that a person of ordinary skill in the art would understand that the distance between the "first aperture" and "second aperture" required by asserted claim 8, as described by the specification, is the closest separation between the two apertures.

Based on the foregoing, the administrative law judge finds that the claimed phrase "a distance between the first aperture and the second aperture" is construed as "the distance of closest separation between the first and second apertures."

Respondents had argued that "the parent applications of the '344 patent further demonstrate that the '344 patent discloses a range of distances between apertures."[27] (RBr at 80.) The two claims cited to by respondents, viz. claims 26 and 43 of the '431 patent, however, require a single distance that falls within the claimed range, not a range of distances that fall

[27] Application No. 09/877,481, which issued as the '344 patent, is a division of application No. 09/087,408 which issued as U.S. Patent No. 6,285,431 (the '431 patent, or JX-9).

within the claimed range. (JX-9 at 9:59-61 ("26. A liquid crystal display of claim 25, wherein the distance between the apertures in a pixel region is in the range of 8-50 μm.") (emphasis added); JX-9 at 10:54-56 ("43. A liquid crystal display of claim 42, wherein the distance between the apertures in a pixel region is in the range of 8-50 μm.") (emphasis added).)

F. Infringement

Complainant argued that respondents'{ }infringe the '344 patent directly, contributorily, and by inducement. (CBr at 100.) More particularly, complainant argued that each of the{ }practice both asserted claims 7 and 8 of the '344 patent. (CBr at 101.)

Respondents argued that the five products that were analyzed by experts Smith and Silzars were determined to be "representative" of the relevant features of{ } as they relate to the '344 patent, and that claims 7 and 8 are not infringed by the representative products. (RBr at 116; RFF.VI.329.)

The staff argued that each of asserted claims 7 and 8 are literally infringed by the accused products. (SBr at 46-47.)

Regarding claim 7 and the claimed phrase "a first substrate;" complainant's expert Smith testified that the representative accused products have a{ }as illustrated in CDX-58 and CDX-70. (Tr. at 317, 327; CPFF 1054, 1051 (all undisputed); see also CX-350C at 4; CX-351C at 4; CX-359C at 5; CX-360C at 4.) Respondents do not dispute that their{ } have a{ }(CPFF 1055-64, 1067 (all undisputed in relevant part).) Respondents admit that their expert, Silzars, did not discuss non-infringement of the claim 7 of the '344 patent at the hearing. (CPFF 1050

(undisputed in relevant part); RRCPFF 1050(A) ("Dr. Silzars did not discuss non-infringement of the claim 7 of the '344 patent at the hearing. (Silzars, Tr. at 1502: 4-17; 1655:19-23.)").) Based upon the foregoing, the administrative law judge finds that the accused products practice the claimed phrase "a first substrate."

Referring to the claimed phrase "a second substrate, spaced apart from the first substrate" complainant's expert Smith testified that the representative Sharp{

} (Tr. at 318-19; CPFF 1068, 1069 (all undisputed); CDX-59; CDX-71; see also CX 350C at 6; CX-351C at 5; CX-359C at 5; CX-360C at 7.) Respondents did not dispute this testimony and admitted that their expert Silzars did not discuss non-infringement of claim 7 of the '344 patent at the hearing. (RRCPFF 1068(A); RRCPFF 1050(A).) Based upon the foregoing, the administrative law judge finds that the accused products practice the claimed phrase, "a second substrate, spaced apart from the first substrate."

With reference to the claimed phrase, "a pixel region on one of the first substrate and the second substrate; and a field-generating electrode on the pixel region"complainant's expert Smith argued that the representative products infringe even under respondents' proposed construction because said product has a{

} Respondents do not dispute that their expert Silzars did not testify at the hearing about respondents' construction for the claimed phrase "pixel region."

(CPFF 1081 (undisputed).) It is a fact that respondents' expert Silzars testified as follows:

> Q. Okay. So let's go back to talk a little bit more about the '344. We touched on some of them earlier, but you've had a number of constructions that you've offered through your expert reports and in your deposition of the term pixel region, is that right?
>
> A. I do not remember in my -- I think in my reports I offered that construction. I don't believe it's one of the items that we discussed yesterday.
>
> Q. I see, so you did not offer the Court any testimony as to the proper construction of pixel region during your direct, correct?
>
> A. Someone else could double-check that since we dealt with quite a few terms, but I don't believe that was one that we discussed yesterday.

(Tr. at 1635.) Based upon the foregoing, the administrative law judge finds that the accused products practice the claimed phrase "a pixel region on one of the first substrate and the second substrate; and a field-generating electrode on the pixel region."

Regarding the claimed phrase

> "the field-generating electrode having a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture; wherein the first aperture extends upward at angle from a left side of the field-generating electrode and wherein the second aperture extends downward at angle from the left side of the field-generating electrode and wherein the angle between the left side of the field-generating electrode and an under side of the first aperture is from about 120 to about 150 degrees and wherein the angle between the left side of the field-generating electrode and an under side of the second aperture is from about 30 to about 50 degrees."

complainant's expert Smith did testify that the representative products meet the angular limitations of claim 7:

> Q. So briefly, does the representative Sharp{ } practice

the angular limitation of Claim 7 of the '344 patent?

A. Yes. The angular limitation states that the angle between the left side of the field generating electrode and an underside of the first aperture. I've identified the first aperture in yellow.{

}

(Tr. at 320 (emphasis added).) Complainant's expert Smith also testified:

> THE WITNESS: It's '344 patent, Claim 7 is what we're looking at?
>
> JUDGE LUCKERN: Yes.
>
> MR. CHU: And that's JX-1 for the record.
>
> THE WITNESS: If I read from Claim 7, it states that the first aperture extends upward at an angle from the left side of the field generating electrode, and that's what it does, and I can make it a measurement, therefore, and that measurement is within the range required by the claim.{
> } which meets the claim limitations. So I continue to see that it infringes because {
> }

(Tr. at 353 (emphasis added).) Complainant argued that the accused{ }meet said claimed phrase under either party's construction of the term "aperture"; that contrary to respondents' assertion an "aperture" in claim 7 can have a complex, non-linear shape that extends in multiple directions and has an orientation that is different from the orientation of another aperture; and that the X-shaped apertures in Lien provide a clear example of such a complex-shaped aperture, as indicated by the '344 patent, Lien itself and the patentee during prosecution. (CBr at 104-05; CPFF 1093.) Complainant also argued that like the complex

apertures of Lien, the first aperture in respondents'{ }has a{

} Complainant further argued that respondents and their expert did not dispute that its accused{ } meet these limitations of claim 7 of the '344 patent at the hearing. (CPFF 1050.)

Respondents argued that complainant's expert Smith's infringement analysis of one of Sharp's "representative"{ } specifically CDX-73, which contains Smith's analysis and labeling of first and second apertures, is inconsistent with complainant's own claim construction, and that Smith's failure to explain how the various Sharp product he did not analyze were similar to the specific "representative" products he tested resulted in a lack of clarity as to whether other untested products resemble the features of the{ } or the features of one of the other "representative products." (RBr at 117-18.) Respondents also argued that each branch of the X-shaped cut-out of the Lien reference cited by complainant, supra, should be considered a separate aperture; and that the claim language of claim 7 indicates that the "aperture as a whole must extend upward at an angle and have a single orientation", which would be consistent with the specification that discloses primarily linear apertures that would have a single orientation. (RRCPFF 1093(A); RBr at 118; JX-1, '344 patent at 10:27-37; 4:28-33, 65-67; 5:4-9, 2934; 6:14-19, 30-32, 42-49, 63-68.) Respondents further argued that, contrary to his own analysis, complainant's expert Smith appears to have elected{

} and that complainant's expert Smith cannot select only a portion of the aperture to satisfy the limitations of the claims if an

aperture must be a continuous opening that cannot be divided. (RBr at 119.)

The staff argued that the only dispute among the parties with respect to claim 7 of the '344 patent is one of claim construction, centering on the orientation of the first and second apertures of the accused products. (SBr at 46.) The staff also argued that complainant's expert Smith testified that under any of the parties' constructions of the term "aperture" the accused products infringe claim 7; and that respondents' expert Silzars did not offer any opinion with respect to the infringement of claim 7. (Id.) The staff further argued that the evidence demonstrates that "under any proposed construction of the term "aperture" the accused Sharp products infringe claim 7. (Id.) Therefore, the staff argued that complainant demonstrated, by a preponderance of the evidence, that respondents' accused products literally infringe claim 7 of the '344 patent under the staff's proposed construction, and that respondents' expert Silzars did not offer any opinion with respect to infringement of claim 7. (Id.)

The administrative law judge has found that the construction of the claimed term "aperture" is "a continuous opening in the pixel region." See supra. The administrative law judge finds that respondents, in their non-infringement arguments, depended on a claim construction, viz. "opening having one orientation, or a branch or portion of an opening (i.e., an opening that may or may not be connected to other opening)" that the administrative law judge has rejected, supra. The administrative law judge further finds that complainant's expert Smith's testimony is consistent with the claim construction of the administrative law judge, and that there is no support for respondents' argument that Smith was attempting to select only a portion of an aperture to satisfy the limitations of the claims. Further, respondents do not point to any testimony of their expert rebutting Smith's testimony. Moreover, respondents did not cross

examine Smith regarding his infringement opinions with respect to asserted claim 7. (Tr. at 371-386; 404-535.) Thus, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that said claimed phrase 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 the accused products practice all the limitations of asserted claim 7.

Referring to claim 8 and the claimed phrase "a first substrate" complainant's expert Smith testified that for the 46" Sharp LCD TV, the first substrate is the TFT substrate as shown in CDX-62, and{

} Respondents did not set forth an argument on said limitation, and did not object to complainant's proposed findings of fact. (Id.) Based upon the foregoing, the administrative law judge finds that the accused products practice the claimed phrase "a first substrate."

Regarding the claimed phrase "a second substrate spaced apart from the first substrate" complainant's expert Smith testified that the{

} Complainant also argued that respondents do not dispute that their

{

} Respondents

argued that the capacitance of a liquid crystal cell forms between the pixel electrode and the common electrode;{

} Based upon the foregoing, the

administrative law judge finds that respondents do not dispute that the{

} thus, the accused products practice the claimed phrase "a second substrate spaced apart from the first substrate."

Referring to the claimed phrase "a pixel region on one of the first substrate and the second substrate; and a field-generating electrode on the pixel region" complainant argued that the accused LCD devices{

} Complainant also argued that there is no dispute that its LCD panels have a TFT substrate that includes a pixel electrode on the pixel region delineated by the gate and data lines, as shown in CDX-77 and CDX-64. (CBr at 108; CPFF 1056-64; CPFF 1067.) Complainant further argued that CDX-60 shows the pixel region on the first substrate, and that pixel region being on the TFT substrate is defined by the intersection of gate and data lines (CPFF 1078 (undisputed); and that the representative product would still infringe under Sharp's proposed construction because{

} Complainant also argued that respondents' expert Silzars did not testify at the hearing about respondents' construction for "pixel region." (CPFF 1081 (undisputed).) Respondents did not set forth an argument on said limitation, refraining from objecting to complainant's proposed findings of fact. (CPFF 1078, 1080, 1081 (all undisputed).) Based upon the foregoing, the administrative law judge finds that the accused products practice the claimed phrase "a pixel region on one of the first substrate and the second substrate; and a field-

generating electrode on the pixel region."

Regarding the claimed phrase "the field generating electrode having a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture" complainant argued that its expert Smith testified that CDX-78 and CDX-65 depict{

} Complainant also argued that said illustrations{

} Complainant further argued that respondents and their expert do not dispute that this limitation is met. (CBr at 109; CPFF 1050.)

Respondents argued that the "second aperture" referred to by complainant's expert Smith has three branches having multiple orientations and, thus, should be considered as three separate apertures. (RRCPFF 1162 (A), 1163(A).)

The administrative law judge finds that respondents' argument that the "second aperture" referred to by complainant's expert Smith should be considered as three separate apertures is inconsistent with the claim construction found by the administrative law judge, supra. Based upon the foregoing, the administrative law judge finds that the accused products practice the claimed limitation "the field generating electrode having a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture".

Referring to the claimed phrase "wherein a distance between the first aperture and the second aperture is from about 8μm to about 50 μm" complainant argued that{

} Complainant also argued that respondents' expert did not dispute that under complainant's construction of "a distance between apertures" the accused devices meet this limitation of Claim 8. (Silzars Tr. at 1658.) Complainant further argued that respondents' noninfringement argument centers on rewriting the limitation by removing "about" to read: "exactly 8 to exactly 50 μm" as respondents' expert Silzars testified on direct examination. (CBr at 111.) Complainant also argued that respondents' expert Silzars testified that if the distance between the first aperture and the second aperture is the minimum distance under Samsung's proposed construction, then each of the products identified in RDX-296 meets the distance requirement in claim 8. (CPFF 1152 (no objection in relevant part); Silzars, Tr. at 1657-58; RDX-296.) Complainant further argued that the maximum distance is not restricted by Silzars' 55μm cap, but rather, that anything ranging from 53μm to 64μm falls within what one of ordinary skill in the art considers to be "about 50μm" in this technology and, thus, meets the distance limitation even under respondents' second alternative construction. (CBr at 114, citing Smith, Tr. at 362-63.) Complainant supported its argument regarding maximum distance with testimony from respondents' corporate designee on{

}

{ } Complainant also argued that{

}

Respondents argued that their expert Silzars testified that for each of the alleged representative products referred to by complainant's expert Smith, Silzars' independent measurements indicated that{

} Thus, respondents argued that the

{

}

The staff argued that complainant demonstrated, by a preponderance of the evidence, that respondents' accused products infringe claim 8 of the '344 patent under the staff's proposed construction; and that respondents' expert Silzars agreed that the accused products would infringe claim 8 if the administrative law judge adopted complainant's and the staff's claim construction for the distance limitation, infra. (SBr at 46.)

The administrative law judge finds that the distance between the first aperture and the second aperture has an affect on the liquid crystal molecules. Further, the claimed phrase "a distance between the first aperture and the second aperture" has been construed by the

administrative law judge to mean "the distance of closest separation between the first and second aperture." See supra. The administrative law judge finds that under said construction, respondents' expert Silzars does not dispute that the accused devices meet this limitation:

> Q. So if Judge Luckern finds that the distance should be the minimum separation between the first aperture and the second aperture, you would agree that each of the products identified on RDX-296 fall within the scope of Claim 8of the '344 patent, correct?
>
> A. If, yes, if we are referencing the minimum distance between apertures and the range that is required by Claim 8 is the 8 to 50 microns, then each of those five products would fall within that range.

(Silzars, Tr. at 1658 (emphasis added).) Respondents' expert Silzars also testified:

> If the distance between the first aperture and the second aperture is the minimum distance under Samsung 's proposed construction, then each of the products identified in RDX-296 meet the distance requirement in claim 8.

(Silzars, Tr. at 1657-58 (emphasis added); RDX-296.) RDX-296 identifies the largest distance between the apertures and, thus, based upon the adopted claim construction for "a distance between the first and second aperture" as "the distance of closet separation between the first and second aperture," the administrative law judge finds that all accused products practice said claim limitation of claim 8 of the '344 patent.

As to the dispute over construction of the claimed term "about" the administrative law judge finds that the claimed word "about" takes its ordinary meaning of "approximately," because it is a descriptive term commonly used in patent claims to avoid a strict numerical boundary to the specified parameter. See Merck & Co., Inc. v. Teva Pharmas. USA, Inc., 395 F.3d 1364, 1369 (Fed. Cir. 2005). The administrative law judge finds further that respondents'

expert Silzars agreed with this interpretation when he testified that "the claim actually says 'about.' It does not say that this is the maximum range" and admitted that{ } satisfied the distance limitation of claim 8:

> If we use this plus or minus 10 percent, then the upper limit would become 55, and we would be just a little bit beyond the 53. So if we've stretched everything to the maximum, and on top of that, we've added even more variants,{ }

(Silzars, Tr. at 1495 (emphasis added).)

Based on the foregoing, the administrative law judge finds that complainant has shown, by a preponderance of the evidence, that the accused products literally practice each limitation of asserted claim 8 of the '344 patent.

Regarding contributory infringement and inducement to infringe the asserted claims of the '344 patent, the administrative law judge adopts the same reasoning as for the '311 patent. (See section V.F, supra.) Thus, the administrative law judge finds that complainant has not shown either contributory infringement or inducement to infringe with respect to the '344 patent.

G. Validity (Prior Art)

Respondents argued that asserted claims 7 and 8 of the '344 patent are anticipated by U.S. Patent 5,309,264 to Lien et al (Lien or the '264 patent (CX-127).)

Respondents argued:

> The claim charts ... summarize how the Lien patent satisfies the limitations of claims 7 and 8. Those limitations that are in dispute are described below in more detail.

(RBr at 95; see also RBr at 102-106 (said claim charts).) It is argued that the disputes regarding the '264 patent with respect to both claims 7 and 8 are whether or not said patent discloses a

"pixel region" (RBr at 95-96), and whether or not said patent discloses the "angle limitations" of claim 7 (RBr at 98-101), and with respect to claim 8, whether or not said patent discloses the "distance limitations of claim 8". (RBr at 96-98.)

Complainant argued:

> Sharp has not met its especially difficult burden of proving anticipation based on Lien because that reference fails to disclose (i) two apertures having different orientations, as required by claims 7 and 8; (ii) a pixel region, as required by claims 7 and 8; or (iii) a distance between apertures of from about 8 μm to about 50 μm, as required by claim 8.

(CBr at 194.)

The staff argued that the only element in dispute regarding claim 7 is "whether Lien discloses or teaches first and second apertures having different orientations and containing a 'pixel region.'" (SBr at 71.) The staff further argued, with respect to claim 8, that "the only additional element in dispute is whether Lien discloses a distance between apertures within the range of 8 to 50 microns. (SBr at 72.) The staff concluded that each of asserted claims 7 and 8 of the '344 patent is anticipated by the '264 patent. (SBr at 71.)

The '264 patent was filed April 30, 1992 and issued on May 3, 1994. (RFF.V.235 (undisputed).) The issue date of said patent pre-dates the earliest priority date of the '344 patent, May 29, 1997, by more than 1 year. (RFF.V.236 (undisputed).) The administrative law judge finds it significant that the '264 patent is listed on the face of the '344 patent (JX-1, Title page) and was disclosed to the Examiner on June 8, 2001 in an Information Disclosure Statement that was filed concurrently with the application that ultimately issued as the '344 patent (JX-5 at SSNG 3862); that the specification of the '344 patent specifically mentions the '264 patent (JX-1

at 47-53); and that the '264 patent was commended on extensively during the prosecution of the '344 patent, and was, at least in part, the basis for several prior art rejections by the Examiner. (JX-5 at SSNG 4012-4024, 4053-4066, 4091-4104, 4122-4131.)

Referring to the claimed phrase "pixel region," which appears in asserted claims 7 and 8, respondents argued that the specification of the '264 patent "indicates that in Figures 3 through 7, the electrodes on the lower substrate are separated from each other and are bounded by the data and gate lines", and that Figure 1 of said patent further illustrates a pixel electrode bounded on one side by gate lines. (RBr at 95.) Respondents further argued that complainant's expert Smith "admitted that Lien disclosed gate and data lines that define a pixel region." (RBr at 95.) Respondents also argued that the '264 patent "discloses that it is well known in the art that a black matrix may be used to prevent light leakage." (RBr at 96.)

Complainant argued that respondents depended on the '264 patent's disclosure of "pixel" rather than a "pixel region" and that the term "pixel" is not a limitation of claims 7 and 8. (CBr at 201-202.) Complainant further argued that respondents depended on apertures in the common electrode, which would require that the "pixel area" be defined by the black matrix, while respondents point to gate and data bus lines. (CBr at 202.)

The staff argued that the "pixel region" in the '264 patent is clearly defined by data and gate bus lines on the TFT substrate "consistent with the Staff's and Samsung's proposed construction of the term." (SBr at 71.)

The administrative law judge has found that the claimed phrase "pixel region" to be construed as "the region defined by adjoining gate and data lines on the TFT substrate, or defined by the black matrix on the common electrode substrate." (See supra.) Further, the administrative

law judge has found that the '344 patent does not equate the terms "pixel" and "pixel region." (See supra.) The phrase "pixel region" does not, itself, appear in the '264 patent. (See, generally, CX-127.) Thus, in order to disclose a "pixel region," the administrative law judge finds that the '264 patent must disclose both a region defined by adjoining gate and data lines on a TFT substrate and a region defined by a black matrix on a common substrate.

Each of the apertures of the '264 patent disclosed in FIGS. 2-8 is in the "top electrode," which is defined as the common electrode. Thus the '264 patent states:

> In FIG. 2 to FIG. 8, the bottom electrode (the electrode on the lower substrate which also carries the thin film transistors) is shown in dotted lines, while the electrode pattern for the top electrode of a pixel is shown in solid lines. However, it will be understood that the ITO coating which makes up the top electrode for all pixels, and in the prior art is continuous, in the case of the present invention has at least one opening therein, for each pixel, in an electrode which is otherwise continuous across the entire display area.

(CX-127 at 3:59-68 (emphasis added).) In fact, the apertures in the '264 patent are on the common electrode substrate, not the TFT substrate. (CPFF 3573 (undisputed).) Yet, the only mention of "black matrix" in said patent is as follows:

> Twisted nematic liquid crystal displays generally use no compensating film (although it can be used if needed). However, when the electric field is present and the liquid crystal display cells do not transmit light, it is necessary to prevent light leakage around areas where the ITO electrode material has been removed. Generally, as is well known in the art, a black matrix material is used for normally white applications.

(CX-127 at 7:14-21 (emphasis added).) The administrative law judge thus finds that the '264 patent does not disclose how the black matrix may define a pixel region. Moreover, respondents' expert Silzars testified that there is no disclosure of a black matrix in the '264 patent:

Q. You also did not point to the existence of a disclosure of a black matrix in the Lien reference as part of your direct testimony, correct?

A. That is also correct.

(Tr. at 1660.) Further, although the '264 patent does disclose gate and data lines, the administrative law judge finds that the '264 patent does not disclose any region defined by said gate and data lines in the TFT substrate that contains apertures. (CPFF 3573 (undisputed); see, generally, CX-127; see also CX-127 at 3:24-25, 6:26 (stating FIGS. 2-9 show no TFTs, gate lines, or data lines); Tr. at 2077-79 (testimony of complaint's expert Smith).) Based on the foregoing, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that the '264 patent discloses a "pixel region" as defined by the '344 patent.

Respondents argued that FIG. 1 of the '264 patent illustrates a pixel electrode bounded on one side by gate lines. (RBr at 95, 102.) However, the portion of said patent relied on by respondents, viz. "[s]ubstrate 22 has deposited thereon an array of electrodes 26 which define pixels of the liquid crystal display" (CX-127 at 2:43-45), does not speak of regions, but rather of pixels, which the administrative law judge has found, supra, are not the same as "pixel regions." (See supra.) Moreover, merely bounding "one side" of an area by gate lines is insufficient to define an area.

Referencing the claimed phrase "a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture," respondents argued that FIG. 5 of the '264 patent discloses a first aperture extending upwards from an edge of the left side of the field generating electrode, and a second aperture extending downwards from a left side of the field generating electrode. (RBr at 98.)

Complainant argued that the '264 patent fails to disclose a field-generating electrode having two apertures that have different orientations from each other, because FIGS. 5 and 7 of said patent each show apertures with identical orientations. (CBr at 198.)

The staff argued that, as the staff has construed the claimed phrase "aperture" to include branches or portions of a larger structure, such as an "X" shape, the '264 patent "clearly and convincingly discloses apertures with differing orientations." (SBr at 71.)

The administrative law judge has found, supra, that the claimed phrase "aperture" is construed as "a continuous opening in the pixel region." (See supra.) Also, the administrative law judge has found in this section that the '264 patent does not disclose a pixel region in the context of the '344 patent. Further, the figures depicting multiple apertures, viz. FIGS. 5, 6 and 7 of the '264 patent, depict those apertures, and are described in the specification of the '264 patent, as being identical in both shape and orientation within a rectangular area. (See CX-127 at FIGS. 5, 6, 7, 5:34-47, 5:51-62, 63,6:4.) Based on the foregoing, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that the '264 patent discloses a first aperture having a first orientation and a second aperture having a second orientation different from the first orientation of the first aperture.

Referring to the claimed phrase "wherein a distance between the first aperture and the second aperture is from about 8 μm to about 50 μm," respondents argued that FIG. 5 of the '264 patent discloses a first apertures with two "double-Y" cutouts 94a and 94b which are 10 μm apart, as shown by rectangular cutout 91, and thus the distance limitation of claim 8 is anticipated by the '264 patent. (RBr at 96-98.)

Complainant argued that it is ambiguous whether the width of cutout 91 disclosed by the

'264 patent is in the vertical or horizontal dimension (CBr at 204); that cutouts 94a and 94b are in the top electrode while cutout 91 is in the bottom electrode, and the '264 patent does not disclose a relationship between cutout 91 and the distance between cutouts 94a and 94b (Id.); and that the '264 patent discloses that 94a overlies "a portion of electrode 90 above" cutout 91 and that 94b overlies a "portion of electrode 90 below" cutout 91 without disclosing how much overlap exists, and therefore does not disclose the distance between 94a and 94b. (CBr at 206-207.)

The staff argued that the '264 patent clearly discloses a 10 micron width between apertures, as shown by FIG. 5 of the '264 patent and the description of said figure in the specification. (SBr at 72; see also CX-127 at 5:34-38.)

The administrative law judge has construed the claimed phrase "a distance between the first aperture and the second aperture" as "the distance of closest separation between the first and second apertures." (See supra.) With reference to FIG. 5, the '264 patent discloses:

> Referring to FIG. 5 a bottom electrode 90 has a cutout 91 in the shape of a rectangle with a preferred width of 10 microns and with the major direction being across the width of the pixel. Top electrode 92 has two "double-Y" cutout 94a and 94b having a preferred width Y of 5 microns at the end portions thereof and width X of 10 microns at the center portion thereof. Cutout 94a is arranged to overlie that portion of electrode 90 above rectangular cutout 91 in FIG. 5, and cutout 94b is arranged to overlie that portion of electrode 90 below cutout 91b.

(CX-127 at 5:34-44.) Thus, the administrative law judge finds that the cutouts 94a and 94b in the '264 patent are in the top electrode, while cutout 91 is in the bottom electrode, and therefore FIG. 5 of the '264 patent, without explanation in the specification of said patent, cannot be taken to directly show that the distance between 94a and 94b is shown by cutout 91. Thus, the

administrative law judge finds that the '264 patent merely states that cutout 94a is above cutout 91, and cutout 94b is below cutout 91, and does not disclose that cutout 91 represents the distance between apertures 91a and 91b. Respondents rely on FIG. 5 of the '264 patent to show that cutout 91 is the entire distance between cutouts 94a and 94b. Said FIG. 5, however, does not depict a gap between each of cutouts 94a and 94b and cutout 91. Moreover, reference is made to FIG. 6 of the '264 patent, which is disclosed to have cutouts 104a and 104b separated by "a rectangular cutout 101 similar to cutout 91." (CX-127 at 5:52-57.) Said FIG. 6 appears to depict a gap between each of apertures 104a and 104b and cutout 101, and said gap is not explained in the specification of the '264 patent. Thus, the administrative law judge finds nothing in the specification of the '264 patent which discloses a distance of any particular length between the cutouts represented. Therefore, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that the '264 patent anticipates the claimed phrase "wherein a distance between the first aperture and the second aperture is from about 8 μm to about 50 μm."

Based on the foregoing, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that asserted claims 7 and claim 8 are anticipated by the '264 patent.

Referring to the Koma references, respondents argued that the asserted claims are invalid in view of Japanese Patent Pub. No. JP H8-76125 to Norio Koma (Koma, or the Koma reference) either alone or in combination with the '264 patent. (RBr at 107, 113.) It is argued that complainant raised three primary arguments with respect to Koma, viz. that Koma does not disclose an electrode within a pixel region, that Koma does not disclose any angle ranges, and

that Koma does not disclose a distance between apertures. (RRBr at 90.)

With respect to anticipation, complainant argued that Koma does not disclose a pixel region and thus cannot anticipate either claim 7 or claim 8 (CBr at 208-209; CRBr at 97-101); that the Koma reference does not anticipate claim 7 because it does not disclose the angular limitations of that claim (CBr at 209-212); that respondents have presented no testimony at hearing concerning an anticipation argument with respect to claim 8 of the '344 patent (CRBr at 100-101); and that Koma does not disclose a distance between apertures and so cannot anticipate claim 8 (CRBr at 100-101).

The staff argued that the only element in dispute with respect to claim 7 of the '344 patent is whether the specific angle ranges are disclosed in the Koma reference, and that said claim 7 is anticipated by the Koma reference. (SBr at 73.) With respect to claim 8 of the '344 patent, the staff argued that the only element in dispute is whether "Koma discloses a distance between apertures within the range of 8 to 50 microns." (SBr at 73.) The staff further argued that Koma does not anticipate claim 8. (SBr at 73.)

Koma was published on March 22, 1996. (RFF.V.276 (undisputed).) The publication date of the Koma application was more than one year before the earliest foreign priority filing date of the '344 patent. (RFF.V.277 (undisputed).)

The administrative law judge finds two disputed points regarding anticipation of claim 7 of the '344 patent over Koma, viz. "pixel region" and "wherein the angle between the left side of the field-generating electrode and an under side of the first aperture is from about 120 to about 150 degrees and wherein the angle between the left side of the field-generating electrode and an under side of the second aperture is from about 30 to about 50 degrees."

Referring to the claimed phrase "pixel region," respondents argued that a "pixel region" is disclosed in the Koma reference by said reference's description of "an array of pixels, which are bounded by intersecting gate lines and data lines on the TFT substrate." (RBr at 107.) Respondents further argued that Koma describes electrodes formed on both substrates. (RBr at 108.)

Complainant argued that Koma discloses a "pixel" rather than a "pixel region" as required by the asserted claims. (CBr at 208.) Complainant further argued that Koma does not disclose a pixel region on the common substrate because Koma does not disclose a black matrix, as required by the claim construction. (CBr at 209.)

The staff argued that "claim 7 of the '344 patent is anticipated by the Koma reference." (SBr at 73.)

The administrative law judge has found that the claimed phrase "pixel region" to be construed as "the region defined by adjoining gate and data lines on the TFT substrate, or defined by the black matrix on the common electrode substrate." Further, the administrative law judge has explicitly found that the '344 patent does not equate the terms "pixel" and "pixel region."

The phrase "pixel region" does not appear to be disclosed by the Koma reference. (See, generally, RX-472.) Thus, in order to disclose a "pixel region," Koma must disclose both a region defined by adjoining gate and data lines on a TFT substrate and a region defined by a black matrix on a common substrate.

Figure 1 of Koma, which is relied upon by respondents, shows an "alignment control window" with apertures on the common electrode substrate. (See RX-472 at Figure 1, ¶ 22 ("On the other hand, shared electrodes are formed over the entire surface on the opposing substrate

side positioned across the liquid crystal, and an alignment control window (23) with no electrode is formed in a band in the shared electrode.").) To disclose a "pixel region" as per the '344 patent, the common substrate in Figure 1 of Koma must contain a region defined by a black matrix. The administrative law judge, however, finds that Koma does not discuss a black matrix. (See, generally, RX-472; see also Tr. at 1659-1660 (respondents' expert Silzars unable to testify to the existence of the phrase "black matrix" in the Koma reference).) Moreover, Figure 1 of the Koma reference only shows two edges defined by gate and data lines. (See RX-472 at ¶21 ("A gate line (11) and drain line (15) are arranged intersecting one another on the TFT substrate side, and a display electrode (14) is arranged in the area surrounding both lines (11, 15).").) Thus, the administrative law judge finds that Figure 1 of Koma does not show a fully defined area bounded on all sides. Based on the foregoing, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that the Koma reference discloses a "pixel region" as defined by the '344 patent.

With respect to the claimed phrase:

> wherein the angle between the left side of the field-generating electrode and an under side of the first aperture is from about 120 to about 150 degrees and wherein the angle between the left side of the field-generating electrode and an under side of the second aperture is from about 30 to about 50 degrees...

(JX-1 at 10:35-40) respondents argued that:

> Fig. 1 of Koma shows apertures (23) oriented at angles within the ranges of claim 7. (RFF.V.294; RX 472, Fig. 1; RDX-285 to 289.) As noted above, the angles formed by the apertures of Fig 1 can be calculated from the scale provided by the text of the patent. (RFF.VI.296, 297.) The angle between the left side of the pixel and the underside of the second aperture is about 40 degrees and that the angle between the left side of the pixel and the underside

of the first aperture is about 140 degrees. (RFF.VI.299-302.)

(RBr at 112.)

Complainant argued that respondents conceded that there is no explicit disclosure of the angles of the alleged apertures in the Koma reference. (CBr at 210.) Complainant further argued that Koma does not disclose how the alignment control windows are oriented with respect to the left side of the field-generating electrode. (CBr at 210.) Also, complainant argued that "without any indication that the drawings or figures are to scale, it is improper to determine measurements [from] the figures." (CBr at 211.)

The staff argued that Koma "clearly discloses apertures falling within the 30-50 and 120-150 degree range as required by claim 7. (SBr at 73.) The staff further argued that the "apertures in the Koma reference clearly bisect square display pixels forming an approximately 40 degree angle and thus a supplementary angle of 140 degrees." (SBr at 73.)

Respondents' arguments regarding the validity of said claimed phrase over Koma are based solely on the interpretation of Figure 1 of Koma by their expert. Yet, respondents' expert has testified:

Q. There is no explicit disclosure of the angles of the alleged apertures in the Koma reference, correct?

A. That is correct.

Q. That's something that you had to deduce using the other drawing features that Koma provides, correct?

A. Yes.

Q. And Dr. Silzars, what are the, in RDX-287, the diagonal stripes that run all the way across the cell?

A. I was trying to find what those elements referenced in preparation for this testimony, and I'm not sure I have it exactly identified, but if you'd like, I can find them in the patent because they are one of the elements that I think is referenced in the figure.

There are the diagonal elements 18 and 25 that give us a reference direction as being 90 degrees from each other. The other elements are at the same 90 degree angle.

Q. But you don't know what those grooves are, do you?

A. I believe I looked it up at one time, but in reviewing my notes for today, I did not verify what those are.

(Tr. at 1660-1661 (emphasis added).) Thus, at the hearing, respondents' expert testified that there was no explicit disclosure of the angles of the alleged apertures in Koma. It is undisputed that respondents' expert Silzars approximated his angle measurements in Koma based on grove directions 18 and 25 and crosshatched marks. (CPFF 3644 (undisputed).) It is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue. Hockerson-Halberstadt, Inc. v. Avia Group. Int'l, Inc., 222 F.3d 951, 956 (Fed. Cir. 2000). The Federal Circuit has also reversed an anticipation determination based on inferences made from figures not drawn to scale. Nystrom v. Trex Co., Inc., 424 F.3d 1136, 1149 (Fed. Cir. 2005) (replacing prior opn. at 374 F.3d 1105 (Fed. Cir. 2004) on other grounds). As the Court explained:

> The district court erred in not properly applying the principles set forth in our prior precedents that arguments based on drawings not explicitly made to scale in issued patents are unavailing.

Id. The administrative law judge finds no indication in the Koma reference that Figure 1 is drawn to scale. (See RX-472 at ¶ 21-29.) Moreover, he finds no clear indication of the

orientation of any alleged apertures in Figure 1 with respect to the alignment control window. (Id.) Hence, the administrative law judge finds that respondents have failed to show, by clear and convincing evidence, that the Koma reference anticipates this limitation of claim 7 of the '344 patent.

With respect to complainant's argument that respondents have presented no testimony at the evidentiary hearing with respect to anticipation of claim 8 by the Koma reference, the hearing transcript contains, inter alia, the following:

> Q. And do you have an opinion as to whether those apertures relate to the apertures recited in claim 8?
>
> A. Those meet the requirements of -- certainly of claim 7 as we noted already. And --
>
> MR. CORDELL: Your Honor, I'm going to object and move to strike. I don't think that Dr. Silzars offered an opinion about claim 8 with respect to Koma.
>
> JUDGE LUCKERN: All right. You should have let him finish his answer, Mr. Cordell. But in any event, you interrupted him. So I'll -- I'll hear Mr. Rhoa on your, I believe it's a motion to -- you're objecting to a question. We really didn't get very much of substance out there.
>
> How do you respond, Mr. Rhoa?
>
> MR. RHOA: Dr. Silzars did offer opinion with respect to Koma in connection with claim 8. It's mentioned both in his expert report as well as the prehearing statement.
>
> JUDGE LUCKERN: All right. Do you have the citation that you can give to Mr. Cordell?
>
> Mr. Cordell --
>
> MR. CORDELL: I can provide the citation back to counsel, Your Honor. At page 148 of his deposition, Mr. Colaianni asked Dr.

Silzars the following question, beginning at line 20.

> Question: You do not have any opinion that Koma anticipates claim 8, correct?
>
> Answer: I believe that is also correct.
>
> MR. RHOA: Your Honor, at page 21 of Dr. Silzars' expert report dated July 23, 2008 in connection with the '344 patent, he says: I also -- and I'm quoting from the top of page 21.
>
> I also observe that the combination of Lien and Koma, which is a reasonable combination because Lien and Koma deal with the same types of problems and the same art, would have rendered claims 7 and 8 obvious as a whole.
>
> And it goes on. So there's a statement here in his expert report. And I believe it's also in the prehearing statement.

(Tr. at 1474-1476 (emphasis added).) Thus, complainant's counsel moved to strike all testimony regarding validity of claim 8 over the Koma reference, and respondents argued, successfully, against said motion to strike, representing that arguments concerning obviousness, but not anticipation, of the '344 patent over Koma were presented in the pre-hearing statement and their expert's report. Respondents' counsel further disclaimed any anticiption argument with respect to claim 8 over the Koma reference:

> JUDGE LUCKERN: Now, Mr. Cordell, you made reference to the fact that -- actually, you are making reference to something earlier, and maybe it should have been a motion to strike.
>
> What is that that you were making reference to earlier? I have my realtime here, but I want to just make sure I understand what you're objecting to as far as the previous testimony. Do you understand what I'm asking you, Mr. Cordell?
>
> MR. CORDELL: Yes, Your Honor. It's the question that begins at page 20, line 10.

JUDGE LUCKERN: And what does the question --

MR. CORDELL: It says, can we pull up Koma.

JUDGE LUCKERN: All right. It's on my realtime starts at page 20, line 8. But, can we pull up --

MR. CORDELL: Koma.

JUDGE LUCKERN: The last 10 lines of Koma. Then it says, Dr. Silzars, do you see that 10-micron? Yes, I do. Did you consider that? Yes, I did. Could we go back to, and with respect --

Well, so you're objecting to the fact that you are hearing for the first time that Dr. Silzars has considered the last 10 lines of paragraph 21 of Koma, whatever it says here. That is -- that is the gist of your comment right now with respect to what you want stricken?

MR. CORDELL: Yes, Your Honor.

JUDGE LUCKERN: And, again -- I can go back to your argument, but by the time I switch around, it takes time. Why -- why, again, briefly do you feel that this is so new, that you should have heard about it before on this paragraph? Well, it's in particular the 10 lines above paragraph 22, which is the bottom of paragraph 21 of Koma. It's a very long paragraph. I'm actually quoting what Mr. Rhoa put in the record.
Why, again, briefly are you so troubled by this point?

MR. CORDELL: Your Honor, because it is that -- that 10-micron distance in Koma that we believe respondents will point to as part of the validity attack on Koma. It's that fact in particular that Mr. Silzars has never pointed to before. He's never said I'm going to rely on Koma for this purpose.

So, getting it into the record allows Mr. Rhoa then in the posthearing phase to say, gee, my expert did rely on that. So I'm going to put together an anticipation argument even though we never really had one before.

JUDGE LUCKERN: Mr. Rhoa. Is that what you're going to do? Is that what you want to do? Or is that -- how do you want to

respond, also briefly, to what you just heard Mr. Cordell argue?

MR. RHOA: Your Honor --

JUDGE LUCKERN: It's now a motion to strike, I believe. Go ahead.

MR. RHOA: Your Honor, the witness, Dr. Silzars, repeatedly stated in his expert report that he considered the Koma reference. I don't think this is anything new.

And with respect to what he has testified to here, he has testified with respect to obviousness.

JUDGE LUCKERN: Not anticipation.

MR. RHOA: I have not heard Dr. Silzars mention anything about anticipation.

JUDGE LUCKERN: On this particular point.

MR. RHOA: On this particular point.

JUDGE LUCKERN: I mean we didn't -- we had some anticipation with respect to Koma earlier, correct?

MR. RHOA: Right. This particular point with respect to claim 8.

(Tr. at 1485-1488 (emphasis added).) Thus, respondents' counsel represented, on the record, that respondents' expert had not testified to anticipation of claim 8 by the Koma reference. On cross examination, respondents' expert further testified that he had no opinion that Koma anticipated claim 8 of the '344 patent:

Q. Let's look at the Koma reference. Can I have slide 287, please. Now your anticipation argument with respect to Koma was limited only to Claim 7, correct?

A. As a single reference, that's correct.

(Tr. at 1659 (emphasis added).) Based on the foregoing, the administrative law judge finds that

respondents have waived arguing anticipation of claim 8 of the '344 patent over Koma.

Referring to obviousness, respondents argued that Koma, in combination with the '264 patent, "renders claims 7 and 8 obvious even under Samsung's construction." (RBr at 113.) Respondents further argued that "Koma and Lien all are intended to serve the same basic purpose – creation of an LCD having a wide viewing angle." (RBr at 113.)

Complainant argued that the combination of the '264 patent and Koma does not render obvious claims 7 or 8 of the '344 patent because a skilled artisan "would not combine Lien with Koma because, such a combination would require a complete redesign, a lot of work, and computational modeling" (CBr at 212-14); the difference in design methodologies would result in an inoperable device (CBr at 214); and that any such combination still lacks all the limitations of claims 7 and 8 of the '344 patent. (CBr at 215.)

The staff argued that "there was a dearth of evidence regarding how and why those two references would have been combined." (SBr at 74.)

Respondents' expert did testify:

Q. Now, let me have RDX-292. Now, this was your effort to combine Koma and Lien to form an obviousness combination, is that right?

A. That's correct.

Q. Where is this figure that shows a combination of Koma and Lien in your expert report?

A. I can look in my expert report, but it may not have that particular figure in there or that particular combination.

Q. Why don't you just verify that.

A. With regard to Claim 8, we do not have that figure in my expert report.

Q. In fact, you have no obviousness analysis in your expert report at all, correct?

A. I believe there's a brief analysis in my expert report.

Q. Well, there is that statement that Mr. Rhoa and I were debating earlier, correct?

A. Yes.

Q. But beyond that there's no analysis, correct?

A. I believe that's correct.

Q. You don't talk about how Koma and Lien fit together as a matter of technology, correct?

A. That's correct.

Q. You don't talk about how one's process could be modified to incorporate the other's structures, correct?

A. In my report, I do not.

Q. And, in fact, the Koma alignment control electrode 16 is actually at a different level than the pixel electrode, isn't that right?

A. I'm not sure that's right. That I would have to check in Koma, but it's an aperture.

Q. Well, you will agree with me that in order to incorporate another company's pixel design into your structure requires a great deal of work, correct?

A. I am not sure what you mean by your design.

Q. Well, Dr. Silzars, you testified earlier that it would be a big deal to switch a process over from using apertures to one that uses protrusions, right?

A. Yes, it requires a redesign.

Q. And that redesign requires a lot of modelling [sic] and you have to

think about parasitic capacitances and placing route information for the cells themselves, correct?

A. Yes.

Q. And so if you were just going to take the design of Koma and plop it into the cell structure of Lien, that would require a lot of work, correct?

A. On the same level as it would to switch from an aperture to a protrusion, so, yes, it's a redesign, it's a new design. It's incorporating those elements into a design.

(Tr. at 1661-63 (emphasis added).) Thus, respondents' expert testified that he did not analyze how the Koma reference and the '264 patent could be combined and provided no basis for said combination, and that combining said references would be a great deal of work. Since KSR was decided see Section G supra,, the Federal Circuit has announced that, where a patent challenger contends that a patent is invalid for obviousness based on a combination of prior art references:

> the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, . . . and would have had a reasonable expectation of success in doing so.

PharmaStem Therapeutics, Inc. v. Viacell, Inc., 491 F.3d 1342, 1360 (Fed. Cir. 2007).

The administrative law judge finds that respondents have not shown, by clear and convincing evidence, that a person of ordinary skill in the art would have combined the'264 patent and the Koma reference. Moreover, as found, supra, the administrative law judge has found that neither the '264 patent nor Koma disclose a "pixel region." Hence, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that the '344 patent is obvious over the combination of Koma and the '264 patent.

Based on the foregoing, the administrative law judge finds that respondents have failed to show, by clear and convincing evidence, that claims 7 and 8 of the '344 patent are invalid as obvious over Koma or the '264 patent, either alone or in combination.

H. Validity (35 U.S.C. 112)

Respondents argued that "[c]laims 7 and 8 are invalid under 35 U.S.C. § 112, because they do not satisfy the written description requirement and/or are indefinite." (RBr at 83.) Specifically, respondents argued that asserted claim 7 is invalid for lack of a written description because the angle ranges of asserted claim 7 of the '344 patent are not described in the specification (RBr at 84); that there is no support in the '344 patent for the asymmetrical angle range claimed by said claim 7 (RBr at 87); and that the '344 patent does not describe the relationship between the angles and the left side of the electrode recited in claim 7. (RBr at 88.) Regarding asserted claim 8, respondents argued that the '344 patent fails to provide a written description that is commensurate with the scope of asserted claim 8, and fails to describe a comprehensible scheme for understanding the distances between apertures as said claim 8 is being applied (RBr at 90-91); that the term "a distance" in said claim 8 is indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention (RBr at 91); and that the claimed word "about," as interpreted by complainant's expert Smith, would render claim 8 indefinite. (RBr at 92.)

Complainant argued that the specification and figures of the '344 patent show that the inventors had possession of the claimed angular ranges (CBr at 217); that there is no "asymmetrical angles" limitation in claim 7 (CBr at 220); and that the written description inquiry is not a verbatim disclosure requirement. (CBr at 221.)

The staff argued that the specific angle ranges at issue were included in amendments by the applicants following several prior art rejections by the Examiner, but the specification was never amended to include those angle limitations nor was any explanation or reason given as to why the narrowed angle ranges were chosen or were even useful, and therefore the staff argued that "claim 7 does not satisfy the written description requirement of § 112,¶1." (SBr at 75.) The staff argued, however, that claim 7 does not violate the written description requirement for failing to adequately describe asymmetrical ranges, as nothing in the claims or the specification requires the angles to be asymmetrical. (SBr at 76.)

Section 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, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

(35 U.S.C.A. § 112, ¶1.) The purpose of said written description requirement is to "ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification." Reiffin v. Microsoft Corp., 214 F.3d 1342, 1345 (Fed. Cir. 2000). Moreover, as the Federal Circuit stated in Moba, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1320 -1321 (Fed. Cir. 2003), the written description requirement must show that the inventor has invented what is claimed:

> The test for compliance with § 112 has always required sufficient information in the original disclosure to show that the inventor possessed the invention at the time of the original filing. See Vas-Cath, 935 F.2d at 1561 ("Adequate description of the invention guards against the inventor's overreaching by insisting

> that he recount his invention in such detail that his future claims can be determined to be encompassed within his original creation"). The possession test requires assessment from the viewpoint of one of skill in the art. Id. at 1563-64 ("the applicant must *1321 ... convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention") (emphasis in original); Union Oil Co. of Cal. v. Atlantic Richfield Co., 208 F.3d 989, 997, 54 USPQ2d 1227, 1232 (Fed.Cir.2000) ("The written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed' ")
>
> * * *
>
> The patent specification must disclose information sufficient to enable those skilled in the art to make and use the claimed invention. 35 U.S.C. § 112 ¶ 1. That some experimentation is required to practice the claimed invention is permissible, so long as it is not undue. Atlas Powder Co. v. E.I. du Pont De Nemours & Co., 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed.Cir.1984).

Regarding respondents' argument with respect to a lack of support in the specification for the angle ranges required by asserted claim 7, the parties agreed that the oblique apertures of the '344 patent's third embodiment are positioned such that they "make an angle of 0°-90° to the data line and the gate line." (JX-1 at 5:24-45; CPFF 3687 (undisputed in relevant part)[28].) Respondents have admitted that "the specification discloses that the apertures could make any angle between 0° and 180° in relation to the left gate line." (CPFF 3689 (undisputed)[29].)

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[28] Although respondents did not object to CPFF 3687, they provided RRCPFF 3687(A) and (B). Said answers point to disagreement with complainant over how to interpret CPFF 3687 rather than a disagreement with the fact to which respondents did not object.

[29] Although respondents did not object to CPFF 3689, they provided RRCPFF 3689(A), which reads "(See RRCPFF 3682 (including all subparts).)." Said answer points to disagreement with complainant over how to interpret CPFF 3689 rather than a disagreement with the fact to which respondents did not object.

Respondents also have further admitted that the '344 patent describes the first embodiment as having parallel apertures oriented vertically in the common electrode (CPFF 3683 (undisputed)); that the '344 patent describes the second embodiment as having parallel apertures oriented horizontally in the common electrode (CPFF 3684 (undisputed)); and that FIGS. 3 and 6 of the '344 patent respectively illustrate the first embodiment having parallel vertical apertures, and the second embodiment having parallel horizontal apertures in the common electrode. (CPFF 3685 (undisputed).)

Apertures parallel or perpendicular to the electrode are a requirement of, inter alia, non-asserted claim 1 of the '344 patent. (See JX-1 at 8:56-63 (claim 1).) As the specification indicates, the apertures in the third embodiment (i.e., FIG. 8) extend at angles in the pixel region. (See JX-1 at 5:35-39 ("In the third embodiment shown in FIG. 8, each pixel has an aperture extending in the down left direction from the up right edge and an aperture extending in the up left direction from the bottom right edge, and the end of apertures 15 reach the left central edge of the pixel."), FIG. 8.) Thus, the third embodiment in the specification of the '344 patent describes angles that are meant to be different than the angles disclosed in the first and second embodiments, viz. both not parallel and not perpendicular with respect to the left side of the electrode. Therefore, the administrative law judge finds that FIG. 8, and the description of FIG. 8 in the specification, represent angles at a diagonal from the left side of the electrode. Asserted claim 7 requires that "the angle between the left side of the field-generating electrode and an under side of the first aperture is from about 120 to about 150 degrees and ... the angle between the left side of the field-generating electrode and an under side of the second aperture is from about 30 to about 50 degrees." (JX-1 at 10:35-40 (emphasis added).) Hence, the administrative

law judge finds that said claim 7 requires a range of angles that are approximately diagonal to the left side of the electrode, as represented by, inter alia, FIG. 8 and the description in the specification of FIG. 8. Based on the foregoing, the administrative law judge finds that a person of ordinary skill in the art would understand, from the specification, of the '344 patent, the diagonal angle ranges claimed in asserted claim 7.

Regarding respondents' argument with respect to asymmetrical angle ranges, the text of asserted claim 7 requires "wherein the angle between the left side of the field-generating electrode and an under side of the first aperture is from about 120 to about 150 degrees and wherein the angle between the left side of the field-generating electrode and an under side of the second aperture is from about 30 to about 50 degrees." (JX-1 at 10:35-40.) Respondents make the conclusory statement that the angle ranges described are asymmetrical, and that therefore asserted claim 7 requires that the angles described be asymmetrical. There is, however, no requirement in said claim 7 for asymmetrical angles, and nothing in the specification or the prosecution history has been pointed to by respondents to impute such a requirement. In fact, there is no direct relationship between the angles required by claim 7, as each angle is described in relation to the "left side of the field-generating electrode" and not the other angle.

Based on the foregoing, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that asserted claim 7 is invalid for lack of a written description.

With respect to asserted claim 8 of the '344 patent, respondents argued that said claim is invalid under 35 U.S.C. § 112, ¶¶ 1-2 because the claimed "term 'a distance' is indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards

as his invention..." (RBr at 91); and that complainant's interpretation of the claimed word 'about' would render claim 8 indefinite. (RBr at 92.)

Complainant argued that the distance limitation of asserted claim 8 is definite (CRBr at 93) and that the claimed word "about" has its ordinary meaning of "approximately" and does not render the limitation indefinite. (CRBr at 94.)

The staff argued that respondents have "not shown by clear and convincing evidence that claim 8 is invalid under § 112, ¶ 1" based on the staff's construction of the claimed phrases "pixel region" and "a distance between the first aperture and the second aperture is from about 8 μm to about 50 μm." (SBr at 76-77.) Likewise, the staff argued that the term "distance" does not render asserted claim 8 indefinite. (SBr at 77.)

The administrative law judge has construed the claimed phrase "a distance between the first aperture and the second aperture," and therefore rejects respondents' arguments with respect to the indefiniteness of "a distance." See Board of Regents of the University of Texas System v. Benq America Corp., 533 F.3d 1362, 1368 note 4 (Fed. Cir. 2008) ("As we have been able to discern a construction for the term 'syllabic element,' we reject BENQ's argument that this term is indefinite." (internal citations omitted).)

Further, the administrative law judge finds that the claimed word "about" does not render the distance range of claim 8 indefinite under a clear and convincing standard, and that precedent encourages a consideration of functions and technological context in determining the impact of the term "about" when used with a claimed numeric range. As the Federal Circuit stated in Cohesive Techs., Inc. v. Waters Corp., 543 F.3d 1351, 1368 (Fed. Cir. 2008):

> When "about" is used as part of a numeric range, "the use of the

> word 'about,' avoids a strict numerical boundary to the specified parameter. Its range must be interpreted in its technologic and stylistic context." In determining how far beyond the claimed range the term "about" extends the claim, "[w]e must focus ... on the criticality of the [numerical limitation] to the invention." In other words, we must look to the purpose that the "about 30 μm" limitation serves, to determine how much smaller than 30 μm the average particle diameter can be and still serve that purpose. . . . Thus, we ask what function the "about 30 μm" low-end limit on particle size plays in the operation of the claimed apparatus and method.

(internal citations omitted.) Moreover, respondents' expert Silzars was able to articulate a construction for this claimed phrase. (See Tr. at 1446 (testimony that the claimed phrase "about 50 μm" does not mean exactly 50 μm, but rather "means maybe plus or minus 10 percent.").)

Based on the foregoing, the administrative law judge finds that respondents have not shown, by clear and convincing evidence, that asserted claim 8 is invalid for indefiniteness.

VII. The '196 Patent

On November 13, 2007, the '196 patent issued from U.S. Patent Application Serial No. 11/109,680, dated April 20, 2005. (JX-4.) The '196 patent claims priority to Korean application number 99-13650, filed on April 16, 1999. (Id.)

A. Undisputed Facts

The parties have stipulated to the following involving undisputed technology relating to the '196 patent:

> The '196 patent discloses an LCD panel structure that eliminates a gate printed circuit board (PCB) in order to minimize the size of the LCD panel and to simplify and reduce the costs of the assembly process. (JX-4 ('196 patent) at 11:23-30.) The '196 patent teaches a liquid crystal display of compact size. The liquid crystal display has a tape carrier package and a single integrated PCB for processing a gate driving signal and data driving signal. The tape carrier package includes a base substrate, a gate driver IC formed on said base substrate that

outputs a first gate driving signal processed in said gate driver IC, and a second output pattern formed on said base substrate, that outputs a second gate driving signal bypassing the gate driver IC among the gate driving signals.

(JX-4 ('196 patent) at Abstract.)

B. Experts

Samsung's expert is David Smith. See Section V.B, supra. Sharp's expert is Roger Stewart, who was qualified as an expert in LCD technology as it relates to the '196 and '666 patents. (Tr. at 1673.)

C. Person Of Ordinary Skill

For the '196 patent, Smith opined that a person of ordinary skill in the art would have either a bachelors degree in physics or electrical or mechanical engineering or in the allied fields with a number of years of experience with "the electrical matrix wiring properties of these devices" or would have a "higher degree, more analytical skill and less practical experience in the field." (Tr. at 726.) Stewart opined that a person of ordinary skill in the art regarding the '196 patent would have a bachelor's degree in electrical or mechanical engineering with at least three years of industry experience. (Tr. at 1681.)

The administrative law judge concurs with the parties that a person of ordinary skill in the art, regarding the '196 patent, would have a bachelor's degree in electrical or mechanical engineering with several years experience in the wiring properties and mechanics of LCD devices.

D. Claims In Issue

Asserted Issued claims 1- 9 of the '196 patent are set forth infra:

1. A liquid crystal display (LCD) panel, comprising:

a substrate;

a gate line and a data line formed on the substrate;

a gate driving signal transmission pattern formed on the substrate and connected to the gate line for transmitting a gate driving signal thereto;

a data driving signal transmission pattern formed on the substrate and connected to the data line for transmitting a data driving signal thereto;

and, a gate signal transmission pattern formed on the substrate adjacent to the data driving signal transmission pattern for transmitting a gate signal from a first external device to the gate driving signal transmission pattern.

2. The LCD of claim 1, wherein:

the substrate comprises a display region in which the data line and the gate line intersect each other, and a peripheral region formed around the display region, and;

the gate driving signal transmission pattern, the data driving signal transmission pattern and the gate signal transmission pattern are formed in the peripheral region.

3. The LCD panel of claim 2, wherein the peripheral region comprises a first edge portion formed along a first side of the substrate and a second edge portion formed along a second side of the substrate adjacent to the first side, and, the data driving signal transmission pattern is formed on the first edge portion, the gate driving signal transmission pattern is formed on the second edge portion, and, the gate signal transmission pattern is formed extending from the first edge portion to the second edge portion.

4. The LCD panel of claim 3, wherein the gate signal transmission pattern comprises:

an input terminal formed on the first edge portion; an output terminal formed on the second edge potion; and, a main signal pattern coupled between the input terminal and the output terminal.

5. The LCD panel of claim 4, wherein the input terminal of the gate

signal transmission pattern and the data driving signal transmission pattern are formed adjacent to each other.

6. The LCD panel of claim 4, wherein the input terminal of the gate signal transmission pattern and the data driving signal transmission pattern are connected to the first external device.

7. The LCD panel of claim 6, wherein the first external device transmits the gate signal and the data driving signal to the gate signal transmission pattern and the data driving signal transmission pattern, respectively.

8. The LCD panel of claim 7, wherein the first external device receives a data signal and generates the data driving signal.

9. The LCD panel of claim 8, wherein the first external device comprises a driving circuit for generating the data driving signal.

E. Claim Construction

1. The Claimed Phrase "adjacent"

Independent claim 1 of the '196 patent, the only independent claim in issue, with the disputed claim phrase underlined, reads:

1. A liquid crystal display (LCD) panel, comprising:

a substrate;

a gate line and a data line formed on the substrate;

a gate driving signal transmission pattern formed on the substrate and connected to the gate line for transmitting a gate driving signal thereto;

a data driving signal transmission pattern formed on the substrate and connected to the data line for transmitting a data driving signal thereto;

and, a gate signal transmission pattern formed on the substrate adjacent to the data driving signal transmission pattern for transmitting a gate signal from a first external device to the gate

driving signal transmission pattern.

(emphasis added.) As seen from the foregoing, the disputed phrase "adjacent" used in independent claim 1 is in the claimed phrase: "a gate signal transmission pattern formed on the substrate adjacent to the data driving signal transmission pattern for transmitting a gate signal." Sharp contends that the phrase means "next to i.e., with no other conductive lines in between." (Tr. at 1780.) Samsung agrees that the phrase means "next to" but asserts that it is broader, also meaning "near." (Tr. at 741-43.) The staff agrees with Sharp's construction.

The record indicates that the phrase "adjacent" as used in the '196 patent is not a known phrase of the art in the field before the '196 patent. (See Tr. at 741-3, Tr. at 1779.) Stewart further testified that the phrase "adjacent" as used in the claims of the '196 patent, should be construed consistent with the claim language, the specification, and the prosecution history for the '196 patent. (Tr. at 1779-1780, 1795-1800.) Smith, Samsung's expert, testified that:

> A. I think that, if I have person A and person B and Person C standing between them, then I think person A and B are not next to one another.
>
> Q. Because there's a person in-between?
>
> A. Because there's a person in-between.
>
> * * *
>
> If we're talking about the erasers or erasers and eraser holders, they should be separated apart by approximately the pencil width, and if they're separated apart by approximately the pencil width, they're adjacent.

(Tr. at 1019, 1024.) In response to questioning by the administrative law judge Smith testified that:

> When the pencils are apart by a pencil width, they are adjacent. If they're apart by significantly more than a pencil width, they're not adjacent.

(Tr. at 1025.) He further testified that Samsung's construction of the phrase adjacent depends on the width of the objects that are at issue. (Tr. at 1019, 1024, 1025, 1027-28.)

Dictionary definitions are in conflict. Complainant argued that the Oxford Shorter English Dictionary defines adjacent as "Lying near (to), adjoining, contiguous (to)," which complainant's Smith believes is a fair description of adjacency in order to understand the patent. (Tr. at 742; CDX-161; CX-734 (Shorter Oxford English Dictionary 27 (5th ed. 2002) at SSNG 565633) (CPFF-892.).) In contrast, respondents' expert Stewart, referring to the Merriam-Webster's Dictionary Definition of "adjacent," testified that Merriam-Webster's Dictionary states that "adjacent may or may not imply contact but always implies absence of anything of the same kind in between" (RX-818; RDX-529; Tr. at 1799-1800); and that, referring to the Merriam-Webster's Dictionary definition of adjacent states:

> Basically the Merriam-Webster gives up three possibilities, A, B, and C. But what's useful is the statement at the bottom is a qualifier on all three of the [possibilities]. (Stewart, Tr. 1864:17-20, 1865:2-10; RDX-529.) (RR CPFF 892 A-C.)

Referring to claims 3 and 5 of the '196 patent, the administrative law judge finds that the use of "adjacent" in claim 3 of the '196 patent (see VII.D, supra) supports Sharp's construction of the claimed phrase because there is nothing between the two edges of the substrate when they come together in a corner (Tr. at 1884); that claim 5, which ultimately depends from claims 3 and 1, recites "[t]he LCD panel of claim 4, wherein the input terminal of the gate signal transmission pattern and the data driving signal transmission pattern are formed adjacent to each other" (see

VII.D, supra); that the input terminal of the gate signal transmission pattern is made from conductive lines (Tr. at 1887-88); that the input terminal of the data driving signal transmission pattern is made from conductive lines (Tr. at 1887-88); that the '196 patent states: "[i]n the first gate driving signal transmission line 247, an input terminal 247a that receives a signal is defined as one end portion of the first gate driving signal transmission line 247 at the side of the TCP 226" (JX-4 at 4:57-60); that the '196 patent defines input terminals as portions of conductive lines (JX-4 at 4:57-60); and that, thus, the use of adjacent in claim 5 of the '196 patent supports construing the claimed phrase adjacent as next to, i.e., with no other conductive lines in between. (Tr. at 1887-88.)

Also, Figure 4 of the specification of the '196 patent is one embodiment of the invention. The administrative law judge finds that claim 1 of the '196 patent refers to patterns labeled 246 and 247 in Figure 4 as being adjacent. (Tr. at 1028-31; Tr. at 1780-1783; JX-4 at 11:37-49 (Claim 1).) Also, the '196 patent specification discusses "adjacent" tape carrier packages 211 and 211 prime. (Tr. at 1879; JX-4 at 6:50-55, 7:38-45; CDX-162.) The administrative law judge further finds that the '196 patent specification (JX-4:50-55, 7:38-45, Figure 4) discusses "adjacent" TCPs 211 and 211' and "adjacent" gate tape carrier packages, 210 and 210', respectively, (Tr. at 1880); that the '196 patent specification is in the context of "adjacent" TCPs 211 and 211', and "adjacent" gate tape carrier packages 210 and 210', respectively, not in the context of adjacent sets of conductive lines (JX-4 at 6:50-55, 7:38-45, Figure 4; Tr. at 1880); and that there are no intervening TCP's between 211 and 211', or intervening gate tape carrier packages between 210 and 210' in Figure 4 of the '196 patent. (JX-4 at 6:50-55, 7:38-45, Figure 4; Tr. at 1880.)

In addition, the administrative law judge finds that the specification of the '196 patent discloses the function of the disclosed LCD module in response to the output enable (OE) signal (JX-4 at 5:53-60); that the disclosure of the '196 patent (JX-4 at 52-56) is consistent with Sharp's claim interpretation for the phrase "adjacent" (Tr. at 1778-79); that the specification of the '196 patent states that the "other end of the first gate driving signal transmission line 247 extends to one side of the TFT substrate 240 in which the end of the outermost data line group 246 adjacent to the gate line group 245 is disposed" (JX-4 at 4:52-56); that the specification of the '196 patent states that "the end of the outermost data line group 246 adjacent to the gate line group 245" (JX-4 at 4:55-56 (emphasis added)); that when the inventors on the '196 patent stated that "the end of the outermost data line group 246 [is] adjacent to the gate line group 245," (JX-4 at 55-56 (emphasis added)) the inventors were being very careful to make sure that he didn't describe as adjacent something which had any other intervening lines in between (Tr. at 1790); that the inclusion of the "outermost" language in the '196 patent, (JX-4 at 55-56), signifies the leftmost data line group 246 is the reference point for the "adjacent" language (Tr. at 1790); and that the inclusion of the "end" language in the '196 patent, column 4, signifies that the very end of the outermost data line group 246 is the reference point for the "adjacent" language (JX-4 at 4:55-56; Tr. at 1790).

The administrative law judge further finds that RDX-514 demonstrates how the disclosure of the '196 patent (JX-4:52-56) at column 4 from lines 52 through 56 of the '196 patent would be interpreted by one of ordinary skill in the art in relation to Figure 4 of the patent (Tr. at 1780-85); that one of ordinary skill in the art would know that there would be pixels in the corners of the active region of the LCD panel shown in Figure 4 of the '196 patent (Tr. at 1780-

82; RDX-514); that the pixels in the corner of the active region of the LCD panel must be connected to the lines 246 in Figure 4 of the '196 patent in order to function properly (Tr. at 1782-83; RDX-514); 245 and that the pixels in the corner of the active region of the LCD panel must be connected to the lines 245 and 246 in Figure 4 of the '196 patent in order to function properly (Tr. at 1782-83; RDX-514); that while describing RDX-514 and the disclosure in the '196 patent, (JX-4 at 52-56) Stewart testified that the:

> green lines at 246, we know have to fan out to the corner. And we also know that the red lines, 245 must also fan out to the corner. If they don't, these pixels couldn't work. So it is absolutely inherent in the design of this display that there must be a fan out going all the way to the corner of that array . . . the outermost pattern of 245 and 246 will, in fact, be adjacent to each other . . . Those two lines are within just a matter of microns of each other at that corner. With nothing in between.

(Tr. at 1782-83; RDX-514); that in RDX-514, Stewart "add[ed] detail, which all AMLCD designers know is there, in order to show all of the data driving signal transmission path" (Tr. at 1875-76); that element 250 in RDX-503 contains a black matrix (Tr. at 1778:6-12; JX-4 at 4:5-9); that element 250 in Figure 4 of the '196 patent contains a black matrix (Tr. at 1778; JX-4 at 4:5-9); that the red lines connecting 246 to the corner pixel were not shown in Figure 4 because they are obscured by the opaque layer 250 (Tr. at 1784-85; RDX-514); that the green lines in RDX-514 connecting 245 to the corner pixel were not shown in Figure 4 because they are obscured by the opaque layer 250 (Tr. at 1784-85; RDX-514); that the green and red lines in RDX-514 that are fanning to the yellow arrow that says "adjacent" in RDX-514 were not shown in Figure 4 of the '196 patent because they were obscured by the opaque black matrix (Tr. at 1784-85, 1790-91); that one of ordinary skill in the art would know that said green and red lines that are fanning to the yellow arrow that says "adjacent" in RDX-514 would be included in

Figure 4 of the '196 patent because they are required for the operation of the pixels in the corner of the visible region of the LCD panel (Tr. at 1784-85; 1787-88); that lines 246 and 245 shown in Figure 4 of the '196 patent are adjacent at the corner of the visible region of the LCD panel (Tr. at 1788-89); and that there would absolutely not be any conductive lines between the lines 246 and 245 shown in Figure 4 of the '196 patent when they get to the corner of the visible region of the LCD panel. (Tr. at 1788-89.)

The administrative law judge also finds that the specification of '196 patent is clear that there are no intervening conductive lines between the gate signal transmission pattern 247 and the data driving signal transmission pattern 246 (Tr. at 1866-68; JX-4 at Fig. 4; RDX-504); that claim 1 of the '196 patent requires that "a gate signal transmission pattern [be] formed on the substrate adjacent to the data driving signal transmission pattern" (JX-4 at 11:46-48); and that the requirement of claim 1 of the '196 patent that "a gate signal transmission pattern [be] formed on the substrate adjacent to the data driving signal transmission pattern" is demonstrated in Figure 4 of the '196 patent as two groups of conductive lines that are right next to each other with no intervening conductor lines in between them. (Tr. at 1777-78; RDX-504.) Moreover Smith, Samsung's expert, admitted that nowhere in the '196 patent is there any description of anything between the gate signal transmission pattern and the data driving signal transmission pattern. (Tr. at 1029, 1031.)

In addition, the specification of the '196 patent discloses:

> Further, the gate lines 241 [which make up the gate line group 245] are disposed in an effective display region 243 at the same interval with respect to each other while they are disposed in a perimeter region with a smaller interval than the interval of the gate line of the effective display region 243, i.e., the gate lines 241 in the

> perimeter region are concentrated towards output terminals of the TCPs 210 and 210'.

(JX-4 at 4:26-32.) The specification of the '196 patent further discloses that the gate lines, which make up the gate line group 245 continue from the perimeter region into the effective display region 243 of the LCD panel. (JX-4 at 4:26-32.) The specification of the '196 patent also discloses that the gate lines fan out in the effective display region 243. (JX-4 at 4:26-32.) In addition, the specification of the '196 patent discloses that the gate line group 245 is concentrated near the output terminals of the TCPs 210 and 210'. (JX-4 at 4:26-32.)

The administrative law judge also finds that the requirement of claim 1 of the '196 patent that "a gate signal transmission pattern [be] formed on the substrate adjacent to the data driving signal transmission pattern" is demonstrated in Figure 4 of the '196 patent as two groups of conductive lines that are right next to each other with no intervening conductor lines in between them (Tr. at 1777-78; RDX-504); that RDX-504 is an example of how the claimed phrase "adjacent" is used in the specification as required by claim 1 of the '196 patent (Tr. at 1777-78); that the gate signal transmission pattern, labeled 247, is highlighted in brown in RDX-504 (Tr. at 1777-78, 1866; Tr. at 732, 1028-29; CDX-155; JX-4 at Fig. 4); that the data driving signal transmission pattern, labeled 246, is highlighted in green in RDX-504 (Tr. at 1777-78, 1866:13-21; Tr. at 732:21-24, 1028-29; CDX-155; JX-4 at Fig. 4); and that the '196 patent is clear that there are no intervening conductive lines between the gate signal transmission pattern 247 and the data driving signal transmission pattern 246. (Tr. at 1866-68; JX-4 at Fig. 4; RDX-504.)

Referring to the prosecution history of the '196 patent, said history shows only one office

action. (See, generally, JX-8.) In said office action on January 29, 2007, the Examiner rejected claims 27, 28, and 43 based on 35 U.S.C. § 103(a) over U.S. Patent No. 5,910,830 to Nam (Nam), U.S. Patent No. 5,028,916 to Ichikawa (Ichiwaka), and U.S. Patent No. 5,822,027 to Shimada (Shimada). (Id. at SSNG972-81.) On April 27, 2007, the applicant responded to the Examiner's rejection by amending claims 27, 28 and 43. (Id. at SSNG988-89.) By said amendment, claim 27 (subsequently issued as independent claim 1 (see RFF VI.67 (undisputed)) was amended as follows:

> 27. (currently amended) A liquid crystal display (LCD) panel, comprising:
>
> a substrate;
>
> a gate line and a data line formed on the substrate;
>
> a gate driving signal transmission pattern formed on the substrate and connected to the gate line for transmitting a gate driving signal thereto;
>
> a data driving signal transmission pattern formed on the substrate and connected to the data line for transmitting a data driving signal thereto; and,
>
> a gate signal transmission pattern formed on the substrate adjacent to the data driving signal transmission pattern for transmitting a gate signal from a first external device to the gate driving signal transmission pattern.

(Id. at SSNG984 (emphasis in original).) Based on this amendment, the Examiner issued a Notice of Allowability allowing amended claim 27 to issue as independent claim 1, as well as allowing all of the amended claims to issue. (Id. at SSNG1000-1003.)

During the prosecution of the '196 patent the Examiner, in the Office Action of January 29, 2007, stated that Ichikawa teaches "a data driving signal transmission pattern formed on the

substrate and connected to the data line for transmitting a data driving signal thereto (Fig. 7, item 90)." (JX-8 at SSNG 0000974). In addition, it is a fact that the Examiner rejected pending claim 27 and stated that Ichikawa "teaches a gate signal transmission pattern formed on the substrate for transmitting a gate signal to a first external device (Fig. 7 items 78 and 94)" (JX-8 at SSNG 0000974 (emphasis added)); that when the Examiner rejected pending claim 27, the claim required, inter alia, the two limitations of "a gate signal transmission pattern formed on the substrate for transmitting a gate signal from a first external device" (JX-8 at SSNG 0000885 (emphasis added)); and that when the Examiner stated that Ichikawa teaches a gate signal transmission pattern formed on the substrate for transmitting a gate signal to a first external device (Fig. 7 items 78 and 94)" he signified that item 78 was the gate signal transmission pattern and item 94 was the first external device as claimed in the pending claim 27. (JX-8 at SSNG 0000974 (emphasis added).)

Ichikawa states that a "cell signal 96, clock signal 98, horizontal synchronizing signal 100 and vertical synchronizing signal 102 are supplied to the controller 94..." (RX-115 at 6:65-68.) Item 94 in Figure 7 of Ichikawa is labeled a "controller." Thus, the administrative law judge finds that said item 94 would send and receive signals as required of the "external device" of pending claim 27. (RX-115 at Fig. 7.) The administrative law judge further finds that the Examiner referred to item 94 in figure 7 of Ichikawa as a "gate signal transmission pattern" as claimed in the '196 patent. (JX-8 at SSNG0000974.) Thus, during the prosecution of the '196 patent, the Examiner determined that both items 78 and 94 in Figure 7 of Ichikawa were a claimed "gate signal transmission pattern." Moreover, complainant's expert Smith conceded that during the prosecution of the '196 patent, the Examiner indicated that item 78 in Figure 7 of

Ichikawa was the claimed "gate signal transmission pattern." (Tr. at 774.)[30] Further, applicants amended prosecution claim 27 to specify that the gate signal transmission pattern be formed "adjacent to the data driving signal transmission pattern." (CPFF 949 (undisputed).) Also, the applicants referred to amending the claims to require that the "gate signal transmission pattern [be] formed on the substrate adjacent to the data driving signal transmission pattern" as a distinguishing limitation over the Ichikawa reference. (JX-8 at SSNG 0000988; RDX-746.) In addition, the Examiner issued a notice of allowance stating that:

> prior art of record does not teach a liquid crystal display (LCD) panel, comprising:...a gate signal transmission pattern formed on the substrate adjacent to the data driving signal transmission pattern for transmitting a gate signal from a first external device to the gate driving signal transmission pattern.

(CPFF 951 (undisputed) (emphasis added).)

The administrative law judge finds that RDX-519 depicts Figure 7 of Ichikawa showing conductive lines going in and out of the circuit block labeled 92, in between the gate signal transmission pattern and the data driving signal transmission pattern (Tr. at 1796-99; RDX-519; RX-115; JX-8 at SSNG 0000974); that Ichikawa has conductive lines in between the gate signal transmission pattern and the data driving signal transmission pattern (Tr. at 1797); and that the "gate signal transmission pattern" and the "data driving signal transmission pattern" in Ichikawa are "near" each other. (Tr. at 1796-97; RDX-519; RX-115 at Fig. 7.) The administrative law judge further finds that the gate signal transmission pattern and the data driving signal

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[30] RDX-519 depicts Figure 7 of the Ichikawa reference with what the Examiner referred to as the "gate signal transmission pattern," element 78, highlighted in brown and what the Examiner referred to as the "data driving signal transmission patter," element 90, highlighted in green. (Tr. at 1795-99; RDX-519; JX-8 at SSNG 0000974; RX-115.)

transmission pattern of Ichikawa, demonstrated in brown and green in RDX-519, respectively, are near to each other. (Tr. at 1796-97.) Moreover, complainant's expert Smith conceded that in the Ichikawa reference "there is a bus of lines between the thing labeled 90 and the thing labeled 78, that's correct." (Tr. at 1033-34.) It is also a fact that once the claim was narrowed to exclude intervening lines between the gate signal transmission pattern and the data driving signal transmission pattern, the Examiner granted the '196 patent over Ichikawa. (JX-8 at SSNG 0001001; Tr. at 1796-99.) It further is a fact that the Examiner cited the use of "adjacent" as one of the reasons for allowance of the '196 patent. (Tr. at 1796-97, 1799; JX-8 at SSNG 0001001.)

In view of the foregoing, the administrative law judge finds that original claim 27 of the application for the '196 patent did not contain the "adjacent" limitation reading, in relevant part: "a gate signal transmission pattern formed on the substrate for transmitting a gate signal from a first external device" (JX-8 at SSNG885); that the Examiner rejected the claim as obvious finding that two prior art references expressly disclosed all elements of the claim including, most relevantly:

> "a gate driving signal transmission pattern formed on the substrate and connected to the gate line for transmitting a gate driving signal thereto...";
>
> "a data driving signal transmission pattern formed on the substrate and connected to the data line for transmitting a date driving signal thereto...";
>
> "a gate signal transmission pattern formed on the substrate for transmitting a gate signal from a first external device..."; and
>
> "a first signal transmission pattern formed in the peripheral region for transmitting a first signal..."

(JX-8 at SSNG974 (emphasis added)); that the Examiner's rejection was based, in part, on

Ichikawa, (RX-517); that in rejecting claim 27, the Examiner specifically noted that Figure 7 of the Ichikawa disclosed a "data driving signal transmission pattern" (90) and a "gate signal transmission pattern" (78) (JX-8 at SSNG974); that during the hearing, both experts Smith and Stewart acknowledged that RDX-519 captured the Examiner's labeling of both patterns at issue in Ichikawa (Tr. at 1033; Tr. at 1796); that claim 27 was subsequently amended to overcome the Examiner's rejection as follows:

> a gate signal transmission pattern formed on the substrate adjacent to the data driving signal transmission pattern for transmitting a gate signal from a first external device to the gate driving transmission pattern.

(JX-8 at SSNG984 (emphasis in original)); that in allowing amended claim 27 to issue, the Examiner pointed out that the prior art did not teach that the "gate signal transmission pattern formed on the substrate" was "adjacent to the data driving signal transmission pattern" (Id. at SSNG1001 (emphasis added)); and that the phrase "adjacent" was used consistently throughout the patent in various contexts with no structure of similar kind intervening between the two objects being compared. (Tr. at 1792-93.)

Complainant argued that respondents' and the staff's construction of "adjacent" is inconsistent with the prosecution history of the '196 patent. (CRBr at 60.) Specifically, complainant argued that the Examiner referenced item 90 as the "data driving signal transmission pattern," item 78 as the "gate driving signal transmission pattern," and the "gate signal transmission pattern" as item 94 and that, therefore, as the Examiner interpreted Ichikawa's Figure 7, the "data driving signal transmission pattern" and the "gate signal transmission pattern" were on different sides of the LCD panel. (CRBr at 60.) Complainant further argued that how

near items 78 and 90 of Ichikawa are to each other is irrelevant, because the Examiner labeled item 78 as the "gate driving signal transmission pattern," and not a "gate signal transmission pattern." (CRBr at 61.) The Examiner had, however, also called item78 a "gate signal transmission patten." (JX-8 at SSNG 0000974.) Thus, complainant's argument is rejected.

Based on the foregoing, the administrative law judge interprets the claim phrase "adjacent" in independent claim 1, the only independent claim of the '196 patent, as "next to, i.e., with no other conductive lines in between."

F. Infringement

Regarding infringement of the '196 patent, complainant argued that{

}

Respondents argued that none of the Sharp accused products infringe any of the asserted claims of the '196 patent because they do not have a "gate signal transmission pattern" that is adjacent to a "data driving signal transmission pattern" as required by claim 1, the only independent claim asserted by Samsung. (RBr at 137.)

In the staff's view, Samsung did not prove that Sharp's accused display device products infringe claim 1 of the '196 patent under the staff's proposed construction because the "gate signal transmission pattern" is not "adjacent" to the "data driving signal transmission pattern" in

the accused products. (SBr at 47.)

The administrative law judge finds that the evidence shows that the accused devices contain storage capacitor lines (often referred to as CS lines), a common electrode line (often referred to as a COMA line), and "dummy lines" between the "gate signal transmission pattern" and the "data driving signal transmission pattern." (Tr. at 1804-27; RDX-550C; RX398C; RDX-546; RDX-547; RDX-551; RDX-552; RDX-563; and RX-398C.) He also finds that in the accused devices some 15 conductive lines are interposed between the "gate signal transmission pattern" and the "data driving signal transmission pattern" (Tr. at 1808-11; RDX-551); that some 15 of those lines are considered conductive lines and none of those lines are part of either the "gate signal transmission pattern" or the "data driving transmission pattern" because they perform different functions from the lines that make up those respective pattern (Tr. at 1810-11; 1816-17, 1894-95); and that complainant's expert Smith admitted during cross-examination that the COMA line and the CS lines are neither gate nor data lines. (Tr. at 1041-42; Tr. at 1044; RDX-551C, RDX-552.) Because those lines intervene, the administrative law judge finds that the "gate signal transmission pattern" is not "adjacent" to the "data driving transmission pattern." Hence the administrative law judge finds that complainant has not established, by a preponderance of the evidence, that the accused display devices infringe claim 1 of the '196 patent. Because claims 2-9 are dependent from claim 1, without infringement of claim 1 he further finds that there can be no infringement of claims 2-9.

G. Validity

Respondents argued that all of the asserted claims of the '196 patent are anticipated by JP 10-10564 (JP '564 application or RX-163) under the claim constructions set forth by Sharp and

those set forth by Samsung; that the main point of contention regarding JP '564 is whether or not it discloses an active matrix or a passive matrix LCD module; and that JP '564 clearly discloses an active matrix LCD module, and, thus, inherently demonstrates each of the limitations of the claims of the '196 patent. (RBr at 151.) It is further argued that Samsung's expert Smith agrees that JP '654 clearly discloses an active matrix LCD module because it shows the type of connections "universally" used in active matrix LCD modules; and that as further evidence of this fact, when JP '564 was presented to Samsung as prior art to the parent of the '196 patent, no one from Samsung refuted that JP '564 disclosed an active matrix LCD module. (RBr at 152, RRBr at 121.)

Complainant argued that the '564 application does not disclose an active matrix display by clear and convincing evidence; that instead, the reference describes an LCD module having features and characteristics consistent with a passive matrix display, thus failing to disclose several limitations of the asserted claims; that because there is no clear and convincing evidence that the '564 application discloses an active matrix device, Sharp and its expert Stewart cannot show that the missing limitations of the claims are "necessarily present" in the reference; and that therefore the reference fails to expressly or inherently disclose all the limitations of the asserted claims and does not anticipate the '196 patent. (CBr at 255-56.)

Complainant also argued that while the active matrix LCDs include gate and data lines, and thin film transistors (TFTs) at each pixel to control the delivery of charge to the pixel, the '564 application fails to clearly disclose an active matrix LCD; that there is no explicit disclosure in the '564 application of "gate lines," "data lines," "thin film transistors," a "gate driving signal transmission pattern," a "data driving signal transmission pattern," and a "gate signal

transmission pattern," which limitations are features of active matrix displays; that the disclosure of the '564 application, by contrast, is consistent with a passive matrix LCD display that uses very different technology and components; that unlike active matrix LCDs, passive matrix LCD devices do not include "TFTs" at the intersection of the gate lines and data lines to switch on and off each pixel; that passive matrix LCD devices include LCD elements formed at the intersection of scanning electrodes and signal electrodes; that the scanning and signal electrodes are electrodes formed in broad strips, not lines, with the scanning electrodes being on one substrate while the signal electrodes are on the opposite substrate; that respondents' expert Stewart never disputed this point; and that based on those accepted principles, a skilled artisan would read the '564 application as describing a passive matrix with intersecting scanning and signal electrodes. (CRBr at 139-40.)

It is further argued by complainant that respondents' expert Stewart acknowledged that the '564 application does not disclose several limitations of the asserted claims; that he "fabricates" evidence by drawing in the missing features on the figures of the '564 application and then testifying that these missing features are inherently present features of an active matrix display; that in RDX-604 for example, Stewart took the liberty of drawing in the non-disclosed gate lines, data lines, "gate driving signal transmission pattern," and "data driving signal transmission pattern;" that according to Sharp, one reason the '564 application should disclose an active matrix display "is that it discusses using the electrodes in the active region of the LCD module as light shields;" that to the contrary, the '564 application does not describe the pixel and common electrodes of an active matrix display, as Sharp suggests, but rather explicitly discloses the use of scanning electrodes and signal electrodes, which, as Stewart conceded, are features of

passive, not active, matrices; that hence, the '564 application teaches that the "light shield" to which Sharp refers is a separate structure from the scanning and signal electrodes, being located by these electrodes: "the conductor pattern … is mounted at the partial light shield by the scanning electrode and signal electrode in the liquid crystal display element;" that while Sharp also argues that the cross-sectional structure disclosed in the '564 application is inconsistent with a passive matrix display because the reference's figure only depicts TABs connected on the lower substrate without showing any connection to the upper substrate, the absence of separate TAB connections to the lower and to the upper substrates in the '564 application is not inconsistent with a passive matrix device; that complainant's expert Smith testified that skilled artisans in 1998-99 knew about passive matrix architectures where they connected the TAB to one substrate, and used an inter-substrate connection to convey signals from this first substrate to the other substrate; that complainant's expert Smith identified JP-10-221707 (the '707 application), which is a Sharp patent application filed in 1997 and published in 1998 that discloses a passive matrix LCD with an inter-substrate connection; that in particular, complainant's expert Smith explained that the passive matrix device in the '707 application uses an elliptical structure (item 16 in Fig. 7) that provides a conductive connection between the lower and upper substrates; that the '707 application specifically states that "data signals and control signals are transmitted to the signal side glass substrate 2 from the scan side glass substrate 1 via the electrode transition part 16;" and that the use of this inter-substrate connection to convey TAB signals in the '707 application's passive matrix indicates that architecture of the '564 application is consistent with, and likely is, a passive matrix. (CRBr at 139-40.)

The staff argued that it does not believe the '564 application clearly and convincingly

anticipates claim 1 of the '196 patent; that while said reference certainly shows an active matrix LCD and thus reasonable inferences are warranted, such as the presence of data and gate lines, despite the fact that they are not explicitly disclosed, the staff is not convinced from a review of Stewart's testimony and the entire record that the '564 application clearly and convincingly anticipates the '196 patent. (SBr at 78.)

In order to meet its burden Sharp must show that all limitations of the claims at issue are present or, if not expressly disclosed, are "necessarily present" in JP 10-10564 (JC '564). Trinter Inducs., Inc. V. Top U.S.A. Corp. 295 F.3d 1292, 1295 (Fed. Cir. 2002). It is a fact that respondents' expert Stewart admitted that the '564 application does not explicitly disclose an active matrix array. For example, he testified:

> Q. My question was very simple. This reference does not explicitly disclose thin film transistors, correct?
>
> A. I believe this -- the '564 is describing active matrix array. And it's well known that active matrix arrays always include thin film transistors.
>
> And so I think they are disclosed in the '564 -- in the '564 prior art.
>
> Q. The words --
>
> JUDGE LUCKERN: So your answer would be that the prior art, this '564, does explicitly disclose thin film transistors?
>
> MR. JOHNSTON [sic]: No, not explicitly. But I think they are a necessary, what do you call it, the essential necessary part of an active matrix array.
>
> So any active matrix array will, by its very nature, have both data lines and gate lines and thin film transistors in the pixels. That's an inherent, I think is the word, aspect of all active matrix arrays. And I believe the '564 patent for several good reasons is an active matrix display embodiment.

(Tr. at 1904-05 (emphasis added).) Moreover Stewart's testimony that the '564 reference does not explicitly disclose their film transistors is corroborated by the later testimony of complainant's expert Smith:

> Q. Could I have RDX-611 back on the screen? And actually, before we go in there, let me ask you, Dr. Smith, you recall how counsel kept on asking you to assume that the '564 application is an active matrix, do you recall that?
>
> A. Right.
>
> Q. Do you have an opinion whether '564 is an active or passive matrix?
>
> A. I believe it is a passive matrix, and I was responding to assumptions that Mr. Presta made.
>
> Q. How would the person of skill in the art reading the '564 patent interpret it as to whether it is an active or passive matrix?
>
> A. In reading this patent application, the reference is to -- merely to wiring connections, not to what is being wired, not to any -- there is no indication in the article, other than a layered assumptions that this is an active matrix device. If you look at it in isolation, it refers to scanning and signal electrodes. It refers to H side and V side.
>
> It refers to -- it does refer to connection across the edge, but it gives no statement that leads you to believe that. You make certain assumptions, and then you might say, well, under this assumption, it might be active matrix, but there is no basis for that.
>
> Q. Would a person of skill in the art believe that the '564 patent -- the '564 reference clearly and convincingly discloses an active matrix?
>
> A. I don't think it clearly and convincingly discloses it. I think if you make certain assumptions, you say it might be.
>
> That, I believe, is how I would characterize my opinion on it. I took certain assumptions and answered certain questions, but the

text of the '564 is just silent on active matrix language and characteristics.

Q. Were you making the assumption about an active matrix when you answered counsel's question about RDX-611?

A. I think it's fair to say that it -- I was asked to assume it was active matrix and then conclude it was active matrix.

Q. But is your conclusion that RDX -- I'm sorry, that the '564 reference is a passive matrix?

A. I believe explaining what occurred in that exchange is that the '564, I believe, is a passive matrix display, and if you make assumptions, you can say it might be, but it's not clear and convincing might be active, but it's not clear and convincing at all that it is active.

Q. Dr. Smith, in looking at the '564 reference, did you see any express disclosure of an active matrix?

A. No, not at all.

Q. Did you see any express disclosure of a TFT in the '564 reference?

A. No.

Q. Did you see any express disclosure of data line?

A. No.

Q. Did you see any express disclosure of gate lines?

A. No.

Q. So did you see any express disclosure of a data driving signal transmission pattern?

A. I did not.

* * *

Would a person of skill in the art reading the '564 reference believe that those green lines shown on RDX-611 ought to be there?

A. You'll have to make the assumption that it's active, and then you place them there, but without that assumption, you would not put them there.

Q. And would a person of skill in the art make that assumption?

A. No, as I said, you have to follow a line of reasoning that makes various assumptions that the patent doesn't support.

(Tr. at 2209-13 (emphasis added).) Thus, respondents have not shown that the '564 application discloses an active matrix display and, therefore, respondents' arguments based on that assumption are rejected.

Based on the foregoing the administrative law judge finds that respondents have not established, by clear and convincing evidence, that the asserted claims of the '196 patent are anticipated by JP 10-10564. (RX-163.)

H. Enforceability

Respondents argued that the evidence is overwhelming that during the prosecution of the '196 patent Sharp gave specific references, namely the '564 application and JP10-307301 (JP '301), to Samsung and told Samsung that they were prior art to U.S. Patent No. 6,639,589 (the '589 patent), which is the parent of the '196 patent and specifically set forth how they invalidated the claims of the '589 patent; that Seung-Ho Ahn, as head of Samsung's Intellectual Property and External Affairs team, was present at all of the meetings between Sharp and Samsung in which the prior art was discussed; that Ahn breached his duty of disclosure, and committed inequitable conduct by not disclosing at least the '564 application and JP '301 to the Patent Office during the prosecution of the '196 patent; and that, therefore, the '196 patent is unenforceable. (RBr at 158-61.)

Complainant argued that the '564 application and JP '301, relied on by respondents, are not material to the prosecution of the '196 patent because they are cumulative of prior art that was already before the Patent Office and that respondents have not presented any evidence of intent to deceive. Hence, it is argued that there is no inequitable conduct. (CBr at 271.)

The staff argued that while Sharp points to the '564 application and JP '301 that were disclosed to Samsung by Sharp during licensing negotiations in late 2006 and early 2007, and were never disclosed during prosecution of the '196 patent, regardless of the materiality of the references, the staff does not believe an intent to deceive has been demonstrated by clear and convincing evidence; that the patentees disclosed nearly 50 references to the Patent Office during prosecution (SBr at 80-81 citing JX-3); and that the fact that said references were provided to Samsung by Sharp in 2006 and 2007, along with numerous other references, during the negotiations is insufficient "given the current context" to conclude that Samsung had an intent to deceive the Examiner by clear and convincing evidence. (SBr at 81.)

A patent is unenforceable on the grounds of "inequitable conduct" if the patentee withheld material information with the intent to mislead or deceive the PTO into allowing the claims. LaBounty Mfg., Inc. v. U.S. Int'l. Trade Comm., 958 F.2d 1066, 1070 (Fed. Cir. 1992). Both materiality and intent must be proven by clear and convincing evidence. Id.; see also Kingsdown Medical Consultants, Ltd. v. Hollister Inc., 863 F.2d 867, 872 (Fed. Cir. 1988), cert. denied, 490 U.S. 1067 (1989). "The materiality of information withheld during prosecution may be judged by the 'reasonable examiner' standard." McKesson Information Solutions, Inc. v. Bridge Medical, Inc., 487 F.3d 897, 913 (Fed. Cir. 2007) ("Materiality . . . embraces any information that a reasonable examiner would substantially likely consider important in deciding

whether to allow an application to issue as a patent.").

Generally, when withheld information is highly material, a lower showing of deceptive intent will be sufficient to establish inequitable conduct. American Hoist and Derrick Co. v. Sowa and Sons, Inc., 725 F.2d 1350, 1363 (Fed. Cir.), cert. denied, 469 U.S. 821 (1984) (America Hoist). Moreover, "[d]irect proof of wrongful intent is rarely available but may be inferred from clear and convincing evidence of the surrounding circumstances." Critikon, Inc. v. Becton Dickinson Vascular Access, Inc., 120 F.3d 1253, 1256 (Fed. Cir. 1997); LaBounty, 958 F.2d at 1076.

The administrative law judge has found supra that respondents have not established, by clear and convincing evidence, that the '564 application anticipates the asserted claims of the '196 patent. Moreover, U.S. Patent No. 5,838,400 (the '400 patent), one of the references considered during prosecution of the '196 patent, discloses a wiring pattern on an active matrix LCD substrate that connects external devices on two sides of the substrate. (Tr. at 2178; CX-407 ('400 patent) at 11:32-58 (describing Fig. 12B as a component diagram of a TFT liquid crystal module); CDX-297.) There is also expert testimony that the '400 patent discloses a wiring pattern similar to the pattern described in the '564 application if said letter was an active matrix. (See Tr. at 2178.) Thus, the administrative law judge finds that the '564 application is not highly material to the '196 patent, and is also cumulative with prior art that was considered by the Examiner. See American Hoist supra.

With respect to JP '301, relied on by respondents, respondents expert Stewart testified:

> THE WITNESS: I looked at about a dozen prior art patents, and I considered the '564 to be the closest art that I could find in, there were several others, but this was the closest art I could find. And it

> requires an LCD panel. It starts out requiring a substrate, I think that's obvious that any one of these panels is what I call inherent in that it has to have a substrate.

(Tr. at 1832.) The administrative law judge found, supra, that the '564 application does not anticipate the asserted claims of the '199 patent. Hence, he finds JP '301, which respondents' expert Stewart indicated was not as close as the '564 application is less material than the '564 application.

As for any intent by Samsung to deceive the Patent Office, both D. G. Kim, an inventor of the '196 patent, and Hae-Chan Park, an attorney who prosecuted the '196 patent application, confirmed they had never seen the '564 and '301 references. (CX-33C (DG Kim Depo.) at 102-103, 120-121; JX-45C (H.C. Park Depo.) at 190-192.) Park's general practice is to communicate with the client whenever certain documents are filed during patent prosecution. (JX-45C (H.C. Park Depo.) at 126:6-14.) Park does not recall any instance where Samsung instructed him not to disclose a reference that is believed to be material and non-cumulative to the subject matter of a pending application. (JX-45C (H.C. Park Depo.) at 175.) It is Park's practice to include all information cited by his clients, including pending applications that would be identified in an information disclosure statement. (JX-45C (H.C. Park Depo.) at 185-186.) Moreover, if Samsung provided Park with a prior reference that is considered to be pertinent to the examination, it is his practice to submit it to the Patent Office. (JX-45C (H.C. Park Depo.) at 186.) Also, no Samsung employee, who attended any licensing meeting with Sharp, has been substantially involved in the prosecution of the '196 patent. (JX-46C (Ryu Depo.) at 134-135.) Thus, the administrative law judge finds that respondents have not established, by clear and convincing evidence, any intent to deceive the patent office.

Based on the foregoing, the administrative law judge finds that respondents have not established, by clear and convincing evidence, that the '196 patent in issue is unenforceable due to inequitable conduct.

VIII. The '666 Patent

The '666 patent issued from U.S. Patent Application Serial No. 10/980,656, filed on November 3, 2004, and claims priority to Korean application number 2002-44264, filed on July 25, 2002. (JX-3 at 49.) The patent names Jung-Min Choi and Dong-Ho Lee as co-inventors. (JX-7 at 568.)

A. Undisputed Facts

The parties have stipulated to the following as to undisputed technology relating to the '666 patent:

> The '666 patent discloses an LCD device for performing bi-directional display. The LCD device includes first and second display units, and a light supplying unit. The first display unit includes an LCD pane and a transflective film that is disposed under the LCD panel and has layers in which first and second layers having different refractivity indexes are alternately stacked. The transflective film partially reflects and transmit light incident onto the film. The light supplying unit is disposed between the first and second display units, and provide the first and second display units with light generated from a lamp by dividing the light, to thereby regulate a contrast ratio of a luminance between the first and second display units. Therefore, the structure of an LCD panel for performing bi-directional image display can be simplified, and the light loss in the transmission mode can be reduced. (JX-3 ('666 patent) at Abstract.)

B. Experts

See Section VII B supra.

C. Person Of Ordinary Skill

For the '666 patent, Smith opined that a person of ordinary skill in the art would have either a bachelor's degree in physics or electrical or mechanical engineering with a number of years experience in optical systems and some experience with multilayer dielectrics or a masters degree or Ph.D in engineering or physics with experience in optics and optical systems. (Tr. at 804.) Sharp's expert Stewart opined that one of ordinary skill for the '666 patent has a bachelor's degree in electrical engineering, physics, or mechanical engineering with 2-3 years experience in backlight design and manufacturing of flat panel displays. (Tr. at 1678-80.)

Considering the testimony of Smith and Stewart, the administrative law judge finds that a person of ordinary skill has a bachelor's degree in physics or electrical engineering or mechanical engineering with at least two to three years experience in optical systems which would include the manufacturing of flat panel displays.

D. Claims in Issue

Asserted claims 1, 2 and 16 of the '666 patent read as follows:

1. A dual liquid crystal display device comprising:

a first display unit including:

> a first liquid crystal display panel having a first substrate, a second substrate and a first liquid crystal layer between the first and second substrates, and a transflective film disposed under the first liquid crystal display panel, so that the transflective film partially reflects and partially transmits an incident light incident onto the transflective film;
>
> a second display unit including a second liquid crystal display panel having a third substrate, a fourth substrate and a second liquid crystal layer between the third and fourth substrates; and

a light supplying unit disposed between the first and second display units, the light supplying unit generating a first light to provide the first display unit with a first part of the first light and the second display unit with a second part of the first light, and the light supplying unit controlling an amount of the first and second parts of the first light to regulate a contrast ratio of a luminance between the first and second display units.

2. The dual liquid crystal display device of claim 1, wherein the first display unit further includes a first polarizing plate disposed on the first liquid crystal display panel and a second polarizing plate disposed between the first liquid crystal display panel and the transflective film, and the transflective film is integrally formed with the second polarizing plate.

16. The dual liquid crystal display device of claim 1, wherein the light supplying unit comprises:

a light source for generating the first light; a light guiding member for receiving the first light, providing the first display unit with the first part of the first light as a second light, and providing the second display unit with the second part of the first light as a third light; and a luminance controlling member for reflecting a first part of the third light and transmitting a second part of the third light to control the contrast ratio of the luminance between the first and second display units.

E. Claim Construction

1. The Claimed Phrase "transflective film"

Asserted claims 1, 2 and 16 of the '666 patent include the claimed phrase "transflective film." For example, claim 1 recites "...a transflective film disposed under the first liquid display panel so that the transflective film partially reflects and partially transmits an incident light incident onto the transflective film." ('666 patent 20:54-57 (emphasis added).) It is the staff's position that the claimed phrase "transflective film" should be construed as "a multi-layered dielectric film that partially reflects and partially transmits one or more specific polarization

components of incident light." (SBr at 38-39.)

The parties agreed to adopt the staff's construction of "transflective film." However, they did not agree to adopt the rationale behind the staff's construction. Thus, complainant's counsel argued:

> [MR. CORDELL:] [I]t seems like both parties are now adopting the Staffs construction, and I think we've talked out the fact that we're adopting the construction and perhaps not everything behind the construction, which is what I think that Mr. Smith's problem was.

(CPFF 830, citing Tr. at 388 (emphasis added).) Thus, complainant argued that the agreed-upon construction for the claimed term "transflective film" does not exclude Dual Brightness Enhancing Film (DBEF) and does not require any specific refractive index equation. (CBr at 72.)

It is also argued by complainant that DBEF is merely a marketing term used by the 3M company to describe a broad category of films having varying optical properties and characteristics; and that, as complainant's expert Smith explained, "3M's 'DBEF' film is an evolving product line that includes many different types of films under the general title of DBEF." (Id. at 73, citing Tr. at 812.) Complainant further argued that "[b]ecause DBEF is a marketing term used to refer to a broad category of optical films, and because it is not possible to tell which one of those films is being referenced in the '666 patent, it is improper for Sharp's expert to argue that the patentees disclaimed all 3M optical products that are marketed as being 'DBEF' films today, regardless of the films' real world optical properties and operation." (Id. at 74.) Complainant also argued that the DBEF film follows equations (1) disclosed in the '666 patent; and that a DBEF film, because it satisfies the relationship expressed in equations (1) "will also partially transmit and partially reflect where there is a low difference in the refractivity index

for a certain polarization component," thus, meeting the requirements of the claim language and the agreed-upon construction of a "transflective film." (Id. at 74-75, citing Tr. at 1912:9-19; JX-3 at 7:53-63.)

Complainant argued that respondents' interpretation of an excerpt from the '666 patent specification (Id. at 75, citing JX-3 at 8:42-49) as a disclaimer of DBEF, was incorrect because said excerpt "was made only in the context of one embodiment of a transflective film, not all embodiments of transflective films"; and that the excerpt cited discusses only the anisotropic embodiment of a transflective film. (Id.) Complainant further argued that the specification of the '666 patent makes no reference as to how a DBEF film compares to other embodiments of the transflective film, such as the isotropic transflective film; that it is improper to conclude that said excerpt "constitutes a disclaimer of all 'DBEF' films...from being any type of transflective film"; and that the absence of any discussion of the isotropic film in said excerpt undercuts respondents' argument that this sentence affects all transflective films. (CBr at 76; CRBr at 40-41 (emphasis in original).) Complainant also argued that Japanese Publication No. 9-506985 (the '985 publication) relied on by respondents does not even mention the term "DBEF" and, thus, respondents' reliance on said publication to describe the properties of a DBEF film is misplaced; that said publication is cited as "an example of prior art display using a multilayer dielectric film, not as a description of DBEF"; and that respondents distorted Figure 2 from said publication for use in an exhibit by adding a "DBEF" label where it did not exist in the original figure. (CRBr at 43-44.)

Complainant further argued that if respondents thought that an "all-encompassing disclaimer was necessary to the construction, they could have opted out from the agreement

[agreed upon construction] and proposed their own construction"; and that, as respondents did not do so, the agreed upon construction does not exclude DBEF nor does it require any specific refractive index equation. (Id. at 47.) Thus, complainant argued that the "brief" discussion of DBEF in the specification and the equations of the '666 patent or any extrinsic evidence that is relied upon by respondents as the basis of their disclaimer does not rise to the level of a clear and intentional disclaimer supported by intrinsic evidence. (Id. at 48.)

Respondents argued that the proper interpretation of the claimed phrase "transflective film" requires that DBEF is not a transflective film as DBEF is defined by the '666 patent; and that the specification supports this conclusion in the form of a written disclaimer of DBEF and mathematical equations (1) and (2) of the '666 patent. (RBr at 165-67.) It is argued that by disclosing two specific embodiments, an "isotropic" embodiment and an "anisotropic" embodiment, the '666 patent includes an express disclaimer of DBEF. (Id. at 167.) Respondents also argued that the '666 patent "explains that the 'transflective film' according to the 'anisotropic' embodiment mostly reflects a specific-directional (for example, y-directional) polarization component, but partially reflects and transmits the polarization component (for example, the x-directional) which is perpendicular to the specific-directional polarization component." (Id., citing '666 patent at 7:40-63.) Respondents further argued that the second embodiment disclosed in the '666 patent, the isotropic embodiment, "covers a 'transflective film' in which polarization components in the x-direction are partially transmitted and reflected and polarization components in the y-direction are partially transmitted and reflected." (Id. at 168, citing '666 patent at 9:7-18.) Respondents argued that the '666 patent specification clearly distinguished the DBEF film from the "transflective film" claimed in the invention in the

following:

> The DBEF made by 3M company transmits all x-directional polarization components and reflects all y-directional polarization components, while the transflective film 180 according to one aspect of the invention mostly reflects a specific-directional (for instance, y-directional) polarization component, but partially reflects and transmits polarization component, which is polarized in a direction (for instance, x-direction) perpendicular to the specific direction.

(Id. at 169 (emphasis by respondents), citing '666 patent at 8:42-49.) Respondents also argued that the isotropic embodiment need not be explicitly disclaimed by the '666 patent because it would be "obvious to one of ordinary skill in the art" that DBEF films "could not possibly be covered by the isotropic embodiment of the '666 patent. (Id. at 170.) Respondents further argued that the specification requires, for the isotropic embodiment, that both the x and y components of incident light be partially transmitted and reflected, while DBEF is described as transmitting one component and reflecting the other component, not partially transmitting or reflecting either component; and that this teaching of the characteristics of DBEF is confirmed in the prior art '985 publication. (Id. at 170, 172-74.)

Respondents argued that all DBEF films are designed to have the same optical properties with respect to transmission and reflection of incident light, regardless of other potential differences; and that all 3M DBEF films, as respondents' expert Stewart testified, are all "relatively minor variations of a single design." (Id. at 171, citing Tr. at 1695.) Respondents also argued that complainant failed to "cite any evidence to support its expert's conclusory opinion that the family of film marketed under the term 'DBEF' have 'varying optical properties.'" (RRBr at 124 (emphasis in original).) Respondents further argued that the equations of the '666

patent inherently exclude DBEF from the definition of a transflective film because DBEF has different refractive indexes than those of both the isotropic and anisotropic embodiments claimed by the '666 patent; that the '666 patent discloses that the transflective film according to both the isotropic and anisotropic embodiments satisfies the equation $n1_x \neq n2_x$ and explains that all DBEF made by 3M company satisfies the equation $n1_x = n2_x$, which is an express disclaimer of DBEF being a transflective film according to both embodiments disclosed in the '666 patent; and that "none of the films marketed as DBEF will partially transmit and partially reflect one or more specific polarization components of incident light." (RBr at 174-77, citing '666 patent 7:40-49, 8:13-17, 9:7-10; RRBr at 124, citing Tr. at 1695, JX-3 at 7-8.)

Respondents also argued that complainant misconstrued testimony of respondents' expert Stewart to characterize Stewart as admitting that DBEF is defined as a transflective film in the '666 patent; and that complainant misconstrued text in the '666 patent, trying to relate it to DBEF when it actually serves to distinguish DBEF from the transflective film of the patent. (RRBr at 124-26, citing '666 patent 8:42-49, supra.) Respondents also argued that "the '666 patent specifically distinguishes DBEF from the anisotropic embodiment of the 'transflective film' claimed in the patent;" and that "the '666 patent makes it clear that DBEF does not meet the requirements of the isotropic transflective film embodiment of the patent." (Id. at 126.) Thus, respondents argued that "because the '666 patent disclaims the 3M DBEF and all DBEF made by 3M have substantially the same optical properties such that $n1_x = n2_x$, the '666 patent necessarily disclaims all films made by 3M which are marketed as 'DBEF.'" (Id. at 126 (emphasis in original).)

The staff argued that its claim construction is fully supported by the specification because

it describes two embodiments of the film, viz. one with an anisotropic characteristic and another with an isotropic characteristic. (SBr at 39.) The staff argued that the specification distinguishes DBEF made by 3M from the anisotropic characteristics of the first embodiment of the transflective film because the DBEF "transmits all x-directional polarization components and reflects all y-directional polarization components", while the anisotropic element is described as one that "mostly reflects a specific-directional (for instance, y-directional) polarization component, but partially reflects and transmits polarization component, which is polarized in a direction (for instance x-direction) perpendicular to the specific direction." (Id. at 39-40, citing JX-3 at 8:42-44.) The staff also argued that the isotropic embodiment differs from both the anisotropic embodiment and the DBEF film because it has "transmission characteristics independent of a polarized state and a direction of the incident light." (Id. (emphasis in original), citing JX-3 at 8:62-65.) The staff further argued that the specification of the '666 patent differentiates between the two embodiments, but makes it clear that both the anisotropic and isotropic embodiments of the transflective film partially transmit and partially reflect at least one specific polarization of incident light; and that both of these embodiments are distinguished from DBEF because the DBEF "transmits all x-directional polarization components and reflects all y-directional polarization components." (SBr at 40-41, citing JX-3 at 8:42-44.) The staff argued that the index of refraction for the isotropic and anisotropic embodiments is different than that for the DBEF film, which, according to both experts Stewart and Smith, cannot be covered by the embodiments of the patent in light of the equations set forth in the '666 patent. (SBr at 41, citing Tr. at 1008-09, 1691-92; RDX-423.)

As to whether or not the claimed term "transflective film" is a phrase known by one of

ordinary skill in the relevant art prior to the filing of the application for the '666 patent on November 3, 2004, or if the term originated in the '666 patent, Mr. Dong-Ho Lee, one of the two inventors of the '666 patent, testified during his deposition on June 26, 2008 that one of the ordinary skill in the art must refer to the '666 patent specification in defining the claimed phrase "transflective film." (JX-36C (DH Lee Depo.) at 103.) Thus, the relevant excerpt from Mr. Dong-Ho Lee's deposition testimony specifically reads as follows:

Q. To define the term transflective film must we refer to the specification?

MR. CHU: Objection, calls for legal conclusion.

A. I think one must refer to that.

(Id.) Complainant argued that "Mr. Dong-Ho Lee does not state that "one of ordinary skill in the art" must refer to the '666 patent specification. (CRRFF VII.16-B.) However, the administrative law judge can find nothing in the record to indicate that said claimed term "transflective film" had a meaning to a person of ordinary skill in the art prior to the filing of the application for the '666 patent on November 3, 2004.

The specification of said patent does disclose that:

> ..in case that refractivity values of the first and second layers in the x-direction and the z-direction are identical to each other and refractivity values of the first and second layers in the y-direction are different from each other, when a non-polarized light is incident in the direction perpendicular to the film plane, i.e., z-direction, polarization components in the x-direction are all transmitted, polarization components in the y-direction are all reflected based on Fresnel's equation. A representative example of birefringence dielectric multilayered films having the above characteristics is DBEF (Dual brightness enhancement film) made by 3M company. The DBEF has a multilayered structure in which two kinds of films made of different material are alternately

> stacked to form a few hundred layers. In other words, polyethylene naphtalate layer having a high birefringence and polymethyl methacrylate (PMMA) layers are alternately stacked to form the DBEF layer. Since naphthalene radical has a flat plane structure, when these radicals are adjacently placed to each other, it is easy to stack the polyethylene naphtalate layer and the DBEF layer, so that the refractivity in the stacking direction becomes considerably different from those in other directions. On the contrary, since the PMMA is an amorphous polymer and is isotropically aligned, the PMMA has an identical refractivity in all directions.
>
> The DBEF made by 3M company transmits all x-directional polarization components, while the transflective film 180 according to one aspect of the invention mostly reflects a specific-directional (for instance, y-directional) polarization component, but partially reflects and transmits polarization component, which is polarized in a direction (for instance x-direction) perpendicular to the specific direction.

('666 patent at 8:17-49 (emphasis added).) Thus, the specification teaches that the DBEF that is disclosed in the '666 patent is made by 3M company; that said DBEF has a multilayered structure in which two kinds of films made of different material are alternately stacked to form a few hundred layers; and, significantly, that said DBEF transmits all polarization components. Hence, the administrative law judge finds that a person of ordinary skill in the art would understand that the DBEF disclosed in the '666 patent transmits all polarization components.

With respect to the claims of the '666 patent, claim 1 requires "that the transflective film partially reflects and partially transmits an incident light incident onto the transflective film." ('666 patent at 20:55-57.) Claim 1 is an independent claim upon which all the claims of the '666 patent are dependent. Dependent claim 16 further expounds on the characteristics of the transflective film disclosed in the '666 patent by describing that there exists "a luminance controlling member for reflecting a first part of the third light and transmitting a second part of

the third light." ('666 patent at 22:64-66 (emphasis added).) Thus, the administrate law judge concludes that a person of ordinary skill in the art would read the claims of the '666 patent as excluding the DBEF which is disclosed in the '666 patent because said claims disclose only partial reflection and partial transmission of incident light.

Referring to the abstract of the '666 patent, said abstract describes characteristics of the transflective film disclosed by said patent. Thus, it states that the first display unit includes "a transflective film that...has layers in which first and second layers having different refractivity indexes are alternatively stacked"; and that "[t]he transflective film partially reflects and transmits light incident onto the film." ('666 patent, Abstract (emphasis added).) As with the claims, the administrative law judge concludes that a person of ordinary skill in the art would interpret the abstract as excluding the DBEF disclosed in the '666 patent which transmits all x-directional polarization components and reflects all y-directional polarization components because said abstract discloses that the transflective film of the invention of the '666 patent partially reflects and partially transmits incident light.

The specification, in the Summary of the Invention section, discloses two aspects of the claimed invention. One aspect of the invention is a

> "liquid crystal display device comprising: a first display unit including...a transflective film having a plurality of layers in which a first layer and a second layer having different refractivity indexes from each other are alternately stacked, so that the transflective film partially reflects and partially transmits incident light onto the transflective film."

('666 patent at 2:49-59 (emphasis added).) According to another aspect of the invention, there is a liquid crystal display device comprising a first liquid crystal display unit including

> "the first transflective film having a plurality of layers in which a first layer and a second layer having different refractivity indexes from each other are alternately stacked, so that the first transflective film partially transmits a first incident light onto the first transflective film."

('666 patent at 3:3-14 (emphasis added).) The Summary of the Invention section also discloses two exemplary embodiments. The first disclosed embodiment discloses

> "[t]he first transflective film has a plurality of layers in which a first layer and a second layer having different refractivity indexes from each other are alternately stacked, so that the first transflective film partially reflects and partially transmits a first incident light on the first transflective film."

('666 patent at 3:30-37 (emphasis added).) The specification also discloses an exemplary embodiment having an isotropy transflective film with "an optical characteristic in which light components are partially transmitted and reflected independent of polarized state and direction of the incident light." (Id. at 3:54-57 (emphasis added).) Based upon the repetition of the characteristic that the disclosed transflective film partially reflects and partially transmits incident light, with respect to said two aspects and two exemplary embodiments, the administrative law judge concludes that a person of ordinary skill in the art would interpret the Summary of the Invention to exclude the DBEF disclosed in the '666 patent which transmits all x-directional polarization components and reflects all y-directional polarization components.

The specification further includes 16 figures, depicting the exemplary embodiments of the invention. As for Figures 1-10, the specification discloses that transflective film 180, "includes "at least two transparent layers having different refractivity index values from each other, i.e., a first layer 181 and a second layer 182 alternately stacked as shown in Fig. 3"; and that "transflective film 180 partially reflects and partially transmits the incident light incident

thereto." (Id. at 5:55-60 (emphasis added).) The specification further discusses the transmissivity and reflectivity characteristics of transflective film 180, disclosing that:

> when it is assumed that a direction parallel to an elongated direction of the transflective film 180 is x-direction and a direction perpendicular to the elongated direction is y-direction, the first layer 181 having a high refractivity and refractive anisotropy within the film plane and the second layer 182 not having refractive anisotropy each have three main refractive indexes, n_x, n_y, and n_z, that satisfy the following relationships (1):
>
> $n1_x = n1_z \neq n1_y$;
>
> $n2_x = n2_y = n2_z$;
>
> $n1_x \neq n2_x$;
>
> $n1_y \neq n2_y$; and
>
> $|n1_x - n2_x| < |n1_y - n2_y|$
>
> (n1*x*, n1*y*, n1*z* denote main refractive indexes of the first layer in the x-axis, y-axis, z-axis, respectively, and n2*x*, n2*y*, n2*z* denote main refractive indexes of the second layer in an x-axis, y-axis, z-axis, respectively)

(Id. at 7:31-52.) As to said equations, respondents' expert Stewart testified:

> JUDGE LUCKERN: So it is your testimony today that you never admitted that the reference DBEF film is a transflective film?
>
> THE WITNESS: Certainly not in the context of this patent.

(Tr. at 1695:22 (emphasis added).) Complainant's expert Smith also testified:

> Q. But you'll agree that the DBEF that's in the patent -- described in the '666 patent, is the way the specification is written, that is excluded from the invention described in the '666 patent, right?
>
> A. The DBEF that has N1X equal to N2X up here.

Q. The one that's described in the patents?

A. The index properties as described in the patent is excluded from the equation description.

(Tr. at 1013-14 (emphasis added).)

With respect to Figures 11-12 and 14-15 of the '666 patent, said figures do not refer to a transflective film. Figure 13, however, does disclose a transflective film 780 that "partially reflects and partially transmits light thereto." ('666 patent at 16:64-65 (emphasis added).) Additionally, Figure 16 depicts a liquid crystal display device according to another embodiment of the claimed invention, which contains "a first transflective film 780 including at least two transparent layers having different refractivity index values from each other...[which]...partially reflects and partially transmits light incident thereto" and contains "a second transflective film 1380 including at least two transparent layers having different refractivity index values from each other...[which]...partially reflects and partially transmits light incident thereto." (Id. at 20:25-30, 34-39 (emphasis added).)

Based on the foregoing, the administrative law judge finds that a person of ordinary skill in the art would interpret the embodiments of the '666 patent to exclude the DBEF diclosed in the '666 patent because said DBEF does not partially transmit and partially reflect incident light.

Complainant argued that the specification of the '666 patent only discusses the anisotropic embodiment and makes no reference to how the DBEF disclosed on the '666 patent compares to other embodiments of the transflective film, such as the isotropic transflective film. (CBr at 76.) However, the patent specification specifically states:

> In another exemplary embodiment, the LCD device includes an anisotropy transflective film or an isotropy transflective film

> disposed at one of the first and second display units. The anisotropy transflective film has an optical characteristic in which light components in a specific direction are partially transmitted and reflected depending on polarized state and direction of the incident light thereto. The isotropy transflective film has an optical characteristic in which light components are partially transmitted and reflected independent of polarized state and direction of incident light. As a result, by a light restoring process occurring between the transflective film and the backlight, the restored light is transmitted through the transflective film repeatedly, so that transmissivity and light efficiency can be enhanced.

('666 patent at 3:47-62 (emphasis added).) Thus, the specification teaches that each of the isotropic and anisotropic embodiments, the only embodiments of the '666 patent, partially transmit and partially reflect incident light.

F. Infringement

Complainant argued that Sharp's accused dual-display LCD devices practice each limitation in each of the asserted claims of the '666 patent; that as reflected in Order No. 19, the private parties and the staff stipulated that the Sharp dual-display LCD module model number LS022Q3LT01, which is incorporated in at least Motorola's Razr2 v9m (Motorola V9) cellular telephone, was representative of other Sharp dual-display modules; that complainant's expert Smith provided an analysis of this representative dual display LCD module at the hearing; and that in light of Smith's empirical analysis and with his in-court demonstration, said evidence shows that the accused Sharp dual-display LCD devices infringe the asserted claims of the '666 patent. (CBr at 123-4.)

Respondents argued that the parties have entered into a stipulation that the Motorola Razr2 V9m (V9m) is representative of the accused products for the purposes of infringement of the '666 patent; that Samsung accuses the DBEF of the V9m of being a transflective film in

accordance with its interpretation of the agreed upon construction of said phrase "transflective film" while Sharp maintains that DBEF has been disclaimed by the '666 patent and is thus not covered by the asserted claims of the '666 patent; that the V9m does not literally infringe the asserted claims of the '666 patent because at least one element in each of the asserted claims is missing from this product; that complainant has failed to offer any evidence that the accused DBEF is a transflective film under its construction of said term other than "their expert's tortured demonstration before the administrative law judge, which was both meaningless and unreliable;" that complainant's expert Smith asserts that he purchased, disassembled and performed an empirical analysis of a number of Motorola Razr2 V9m cellular phones (the representative Sharp accused product for '666 patent); that although Smith provided some of the photographs taken of the representative V9m product that he took apart in his laboratory as part of his infringement analysis, those pictures do not support his conclusions that the DBEF in the representative V9m product is a "transflective film" as said term is defined by the '666 patent; that the photographs provided by Smith as part of his expert report to show the results of his analysis of the representative Sharp LCD module in Motorola's 9Vm cellular phone only label the film used as a "transflective film," and do not explain the optical properties of the film, nor do they compare the film's properties to the properties of the "transflective film" disclosed in the '666 patent; and that Smith also admitted that he had not ellipsometrically tested the indices of refraction as a function of polarization of the DBEF that is used in the accused product (i.e., the Razr2 V9m) to determine whether respondents infringe the '666 patent. (RBr at 178-79.)

It is argued by respondents that the experiment performed by Smith during the hearing involved the use of two pieces of glass which were cut from a Sharp 37-inch LCD television

display; that while Smith alleges that those pieces of glass include linear polarizers, and therefore can be used as linear polarizers in his experiment, both of those pieces of glass were damaged and, as admitted by Smith, looked like they had been "stepped on by a child;" that Smith stated that he did not know the detailed design of the polarizers used in the Sharp 37-inch television that he had tested and that he did not know whether there were any retarders included with the glass pieces and polarizers from the Sharp television that he used in his experiment; that although Smith stated that he relied on the fact that said polarizers were linear polarizers as a basis for his experiment, Okamoto testified that the polarizers used in the Sharp 37-inch AQUOS televisions have "elliptical polarization," and thus, the entire premise upon which Smith's experiment was based, i.e., that the polarizers used were linear polarizers, is incorrect; and that, as admitted by Smith, the film from the accused product that was being tested by Smith in his experiment before the administrative law judge, was removed from the phone using an X-ACTO blade and was scratched in several places during and after its removal from the phone, which Smith identified as striations or scratch marks. (RBr at 179-80.)

Respondents argued that complainant's expert Smith admitted that the striations or scratch marks on the film can change the optical characteristics of the film; that the experiment itself was set up such that the polarizers and films were not horizontally aligned, but rather were "off axis" as admitted by Smith; that the results of said experiment were as unreliable as the setup of the experiment and of the materials used during the experiment; and that the image which Smith submits evidences that light is at least partially reflected for one or more specific polarizations of incident light does not prove anything of the sort; that there is nothing which links the reflected image to any specific polarization of incident light; that it is unclear what is

even being shown and it is not possible to determine what caused the apparent reflection of light and from where that light was actually reflected, especially given the less than ideal environmental conditions in which this experiment was performed; that the experiment which was intended to show that incident light is at least partially transmitted for one or more specific polarization components of incident light is equally flawed and is insufficient evidence to demonstrate infringement of the '666 patent by the films that were the subject of this experiment; and that although, Smith testified that he would not personally rely on the demonstration that he conducted at the hearing to form the basis of his infringement arguments with respect to the '666 patent, and that he had performed previous experiments in his lab which he alleges demonstrated infringement, Smith did not document any of those alleged pervious tests or their results in his expert report. (RBr at 180-82.)

Respondents further argued that DBEF is not a transflective film as defined by the '666 patent because it does not partially reflect and partially transmit one or more specific polarization components of incident light; that the specification of the '666 patent sets forth two equations which explain the relationships between the three main refractive indices for each of the two embodiments disclosed in the '666 patent, equations (1) at col. 7, lines 40-48 (the anisotropic embodiment), and equation (2) at col. 9, lines 7-10 (the isotropic embodiment); that according to both of those equations, $n1_x \neq n2_x$ (RFF.VII.42-49); that in contrast, the '666 patent describes the relationship between the three main refractive indices of the DBEF made by 3M company at col. 8, lines 13-16, as follows: n1x = n1z= 1.57, n1y = 1.86 and n2x = n2y =n2z = 1.57; that thus, according to said equations, in DBEF, n1x = n2x (666 patent, col. 8:13-17, 25-29; Stewart, Tr. 1691:5-14); that this relationship holds true for all DBEF because, by definition, all DBEF are

designed to have the same optical properties with respect to the transmission and reflection of incident light, regardless of their other potential differences such as thickness, etc.; that respondents' expert Stewart testified at the hearing that the "entire family" of 3M DBEF films has "certain key characteristics in common" and that they are all "relatively minor variations of a single design;" that Stewart concluded in his hearing testimony that the goal of all DBEF is to fully reflect one polarization of light and fully transmit the other, recognizing that no optical film is perfect; that Stewart also testified that every DBEF that has ever existed satisfies the equation n1x = n2x, according to Fresnel's equations of refraction and reflection; and that therefore because all DBEF satisfy the equation n1x = n2x, and both embodiments of the '666 patent dictate that n1x ≠ n2x, the accused representative product does not infringe the asserted claims of the '666 patent because it does not include a "transflective film." (RBr at 183-84.)

Respondents also argued that complainant's expert provided no evidence to support his assertion that the representative product infringes the '666 patent under the doctrine of equivalents; that therefore, complainant's conclusory statements regarding infringement under the doctrine of equivalents are insufficient to prove infringement and should be disregarded; and that because the accused Sharp Dual Display LDC Modules do not directly infringe the '666 patent, either literally or under the doctrine of equivalents, it follows that there is also no indirect infringement. (RBr at 184.)

The staff argued that Samsung did not prove, by a preponderance of the evidence, that Sharp's accused LCD products infringe claim 1 of the '666 patent under the parties agreed upon construction because the accused Sharp products do not contain a "transflective film" as required by claim 1; that the parties have stipulated that the Motorola Razr2 V9m is representative of the

Sharp dual-display modules that are accused of infringing the asserted claims of the '666 patent. (Order No. 19, dated September 23, 2008); that respondents' expert. Stewart opined that the representative Motorola Razr2 V9m cell phone and all of the accused Sharp dual display products do not use a "transflective film" but rather use the "disclaimed" DBEF film manufactured by 3M, citing Tr. at 1704-06; RDX-417C, RDX-419-RDX-421; that Stewart testified that the index of refraction for the DBEF films in the accused displays is $n1_x = n2_x$ citing Tr. at 1707; RX-182; RX-815; Tr. at 1927 ("[b]oth in terms of its performance and in terms of 3M's documentation and 3M's patents, it's clear that N1X equals N2X is a defining characteristic of a DBEF film."); and that as a result, under the agreed upon claim construction, the DBEF film in Sharp's accused products have an index of refraction of $n1_x = n2_x$ (that is it transmits all of one axis of incident light and transmit all of the other axis) and, thus, is not a "transflective film" within the meaning of claim 1. (SBr at 49.)

It is argued by the staff that complainant's expert Smith attempted to demonstrate that the accused and domestic industry products contain a "transflective film" based on his testimony including an "ad hoc" experiment performed in the court, citing Tr. at 903, 952; that Smith admitted during his cross-examination that no test results of the accused products existed using the recently agreed upon claim construction and that he further agreed that there was no testing data in his expert report to conclude whether the products at issue infringe the '666 patent, citing Tr. at 951, 953; that the courtroom experiment should be disregarded in its entirety as unreliable;[31] that the in-court experiment was fraught with a catalog of infirmities; that the

[31] The staff noted that the experiment was never disclosed to Sharp or the staff until after the hearing began.

apparatus for conducting the experiment included a mirror, light, camera, and holders for the accused films and each of these components was off-axis, citing Tr. at 910, 980; that in fact, the accused film was placed on an unstable cardboard index card, citing Tr. at 876, 911-12, 977; that adding to this shaky foundation, Smith further used damaged polarizers cut out of a 37 inch Sharp television and a sample of the accused representative film that was "warped," citing Tr. at 911-912, 977; and that Smith candidly admitted that one of the polarizers used for the experiment "looks like it's been stepped on by a child" and that such cracks could affect the optical characteristics of the polarizer, citing Tr. at 912, 916; CPX-2B. (SBr at 50.)

The staff further argued that Smith acknowledged that he did not know the detailed structure of the polarizers including whether the polarizers contained a retarder or tack layer citing Tr. at 966-67; that Sharp's Okamoto testified that the polarizers for the Sharp 37 inch television used in the "experiment" contain retarders and that the output of those polarizers is a small elliptical pattern, rather than a linear pattern, citing Tr. at 1068; that Smith further admitted that he had access to commercial grade linear polarizers, but elected not to use them in court, citing Tr. at 968; that in addition, the film used in the experiment from the representative accused Motorola phone contained scratch marks and produced an altered optical image because the "film was being kind of handled and warped" according to Smith, citing Tr. at 977 and CPX-3A; and that Smith conceded that there were various light "artifacts" present on the screen displaying the results of the experiment that "could come from smudges on various sides of the display, you know, optical defects on the screen, dirt and various other things," citing Tr. at 900; and that said errors were further compounded by the fact that light was streaming into the court room from large windows during the entire experiment and reflecting off the mirror used in the experiment

citing Tr. at 907-08. Thus the staff argued that said "ad hoc" experiment should be disregarded; that, Samsung has not produced any reliable evidence of infringement of claim 1 of the '666 patent by a preponderance of the evidence; and that because dependent claims 2, 3, 4, 5, 6, 7, 8, and 9 of the '666 patent are dependent from claim 1, without infringement of claim 1 there can be no infringement of these dependent claims. (SBr at 51.)

The administrative law judge has found supra that the DBEF, as it is defined in the '666 patent, is excluded from the claimed term "transflective film" on the ground that said DBEF recited in the '666 patent transmits all polarization components.[32] Thus complainant has the burden with respect to infringement to establish, by a preponderance of the evidence, that the DBEF film in the accused V9m is a multi-layered dielectric film that partially reflects and partially transmits one or more specific polarization components of incident light.

Respondents, relying on RX-183, have argued that the "entire family" of 3M DBEF films have certain key characteristics in common and are all relatively minor variations of a signal design. The administrative law judge, however, finds that the properties of the DBEF II film are not representative of the "entire family" of 3M DBEF films; that 3M's DBEF family of films include numerous films, such as DBEF-E, DBEF-M, DBEF-D440, DBEF-D200, and DBEF-II (CDX-228; Smith, Tr. at 812:5-24; CX-112; RX-813); that Sharp's 3M DBEF-II document undercuts is argument that DBEF-II is representative of all the other films bearing the DBEF marketing name, by comparing the optical properties of the DBEF-II film with those of DBEF-M

[32] See Section V supra for infringement law.

and DBEF-D400 films as seen infra:

	No reflective polarizer	Vikuiti™ DBEF II Film average	Vikuiti™ DBEF-M Film average	Vikuiti™ DBEF-D400 Film average
Axial Luminance (cd/m²)	1.00	1.28	1.31	1.25
Maximum Luminance (cd/m²)	1.00	1.18	1.21	1.13
Integrated Intensity	1.00	1.61	1.63	1.55

(RX-813); that said comparison shows that different DBEF films have different axial luminance (ranging from 1.25 cd/m2 to 1.31 cd/m2), different maximum luminance (ranging from 1.13 cd/m2 to 1.21 cd/m2), and different integrated intensity (ranging from 1.55 to 1.63),(RX-813); that the DBEFF-II specification supports Smith's testimony that 3M's "DBEF" films are part of an evolving product line which encompasses many different types of films under the general marketing title of "DBEF" (CDX-228; Smith, Tr. at 812); that the marketing term "DBEF" represents a variety and category of multilayer dielectric films that is - has evolving properties as the years go on" (Smith, Tr. at 812); that 3M's specification for DBEF II does not state anywhere that the DBEF-II film, or any other DBEF film, transmits all x-directional polarization components and reflects all y-directional polarization components (RX-813; RDX-1017); that 3M's specification for DBEF II indicates that the DBEF II transmits P1 light and reflects P2 light (RX-813; RDX-1017); that 3M's specification for DBEF II contains no description of directional polarization components (RX-813; RDX-1017); that the 3M specification for DBEF-II further demonstrates that "DBEF" is a marketing term referring to a broad category of optical films

(CDX-228; Smith, Tr. at 811-812; Stewart, Tr. at 1689); and that 3M's own technical specification shows three exemplary DBEF films having different optical properties. See RX-813.

Complainant relies on testimony of its expert Smith that the film in the accused Sharp products is an anisotropic transflective film because it is reflective material and the transmissive behavior is dependent upon the state of input polarization. (CPFF 1454.) In support it argued that Smith purchased a number of Motorola V9 cellular telephones at various stores in the United States, disassembled them, and performed empirical testing and analyses of the phones and their components in his laboratory (CPFF 1405.) At the hearing Smith testified:

> Q. And the film that Chief Judge Luckern is supposed to look at to determine if there's infringement in your own writing is DBEF, isn't it?
>
> A. I want to make one thing clear because there is a distinction here, and that is that, if DBEF had N1X equal to N2X, and I think you could find that out from an analysis of the material, then a -- whatever it is called, if it has N1X equal to N2X, it doesn't matter what it was called, it's irrelevant, it wouldn't be an anisotropic transflective film. So that you have established, that N1X equalling N2X means that it is excluded from the equational description of anisotropic film.
>
> Q. And the patent calls that DBEF, doesn't it?
>
> A. Right.
>
> Q. And you call --
>
> A. But -- but --
>
> JUDGE LUCKERN: Wait a minute.
>
> Please. Go ahead. Where do we stand?

THE WITNESS: I was saying, but, and was interrupted, but what I am saying is that, if whatever it is called, whether it's called DBEF or anything else, if that material, that film doesn't have N1X equal to N2X then that argument doesn't apply. It can be called DBEF, but if it doesn't have the N1X equals N2X, if it doesn't meet that requirement, then it isn't excluded.

Q. And you know --

JUDGE LUCKERN: Well, just let's see if we can get an answer to this question, and then you can go on, Mr. Presta. But the question was referring to this exhibit that was on the screen, this is the representative answer, representative sample, I guess, that I'm going to be using to determine whether there's infringement in this case as represented in the first column, the DBEF that we see there, yes or no or what, Doctor?
THE WITNESS: I'm making a simple statement. If the accused films, if I'm using the right language, have this property that N1X equals N2X, then the patent excludes those in its definition of the properties of anisotropic or isotropic transflective film, but just because the -- that description of DBEF in the patent makes that statement about the indices of refraction doesn't mean the several year later DBEF product that is being used has N1X equal to N2X.

If it doesn't have N1X equal to N2X, then it isn't excluded by your argument.

That's the point I'm making.

BY MR. PRESTA:

Q. And you have no idea what the difference is, if any, between the DBEF film that you allegedly analyzed in the Sharp product and the DBEF film in the '666 patent, do you?

A. I have not obtained the detailed -- first of all, that information is available somewhere. I don't have access at this moment to the information of the indices of refraction of the material, nor have I analyzed it with respect to that. There's a technique called ellipsometry by which you could check that.

Q. But you haven't checked it, have you?

A. I have not checked ellipsometrically what the index of refraction is as a function of polarization.

(Tr. at 1010-13 (emphasis added).) Thus Smith testified that he has not ellipsometrically tested the indices of refraction as a function of polarization of the DBEF that is used in the representative product, i.e., the Razr2 V9m, to determine whether Sharp infringes the '666 patent. The expert reports submitted by Smith also do not contain any results and/or other data from any testing done. (Smith, Tr. at 952-953.) In addition, Smith has admitted that the only two things he has presented as evidence to make a determination regarding infringement are his verbal testimony at trial and the experiment he conducted on day 3 of the hearing. (Smith, Tr. at 952.)

Smith asserted that he purchased, disassembled and did an empirical analysis of a number of V9 phones. (Tr. at 815, 816-817, 819-820.) The Motorola Razr2 V9 phone was code named Emerald and contains dual-display module no. 7271203E02. (RX-287C.) The Motorola Razr2 V9 phone uses an LCd module made by Toshiba Matsushita Display. (TMD), and has never used an LCD module made by Sharp. (RX-287C; RX-288C; JX-40C; JX-40C, (Milligan Dep. Tr. July 9, 2008) at 215-216.) On October 28, 2008, Smith testified that he had purchased and tested a V9 phone:

Q. Sir, did you purchase the V9 phone and the Gleam phones in the United States?

A Yes, I did.

Q. Where did you purchase them at?

A. The V9 and the Gleam phones I purchased in various places in Cleveland. I think a Sprint store and then another store. I went to two or three different stores and obtained different sample phones,

but all purchased in Cleveland, Ohio.

Q. Did you perform testing and empirical analysis on the films that you have identified as transflective films in both the accused V9 representative phone and the representative Gleam Samsung domestic industry product?

A. I did.

(Tr. at 819-20.) On October 28, 2008, Smith testified that he had based his infringement opinion on his testing of the V9 film:

A. I mean, Judge Luckern is going to make whatever decision he wants. My statement about the infringement is based on both of the films, the Gleam film and the V9 film, as the observations that I had made prior to this entirely uncontrolled environment with a film that had been roughed up. It showed some form of the way in which I performed the demonstrations.

(Tr. at 949 (emphasis added).) However the Motorola, V9 phone, which Smith claims to have tested, does not contain an LCD dual-display module from Sharp, rather it contains an LCD module from Toshiba Matsushita Display (TMD.) (RX-287C; RX-288C; JX-40C; CX-40C, Milligan Dep. Tr. (July 9, 2008) at 215-216; Smith, Tr. at 819-820, and 949.) CDX-225 and CDX-226 provide some of the photographs taken by Smith of the V9 product that he asserts that he took apart in his laboratory as part of his infringement analysis (CDX-225; CDX-226; Smith, Tr. at 819-820, 820, and 949.) Aside from the photographs, such as the ones reproduced in CDX-225 and CDX-227, Smith appears to have provided no evidence in his expert reports to support his conclusions regarding infringement. (Smith, Tr. at 951-952.) On October 28, 2008, Smith testified that he had not provided any testing results in the record and had instead described performing tests. (Tr. at 951-952.) Moreover, the photographs provided by Smith as part of his expert report to show the results of his analysis appear to merely identify the film used

as a transflective film, and do not explain the optical properties of the film, nor do they compare the module's film properties to the properties of the transflective film disclosed in the '666 patent. (CDX -226.)

In addition to the foregoing, the administrative law judge agrees with the staff based on the record set forth by the staff supra involving the experiment performed by complainant's expert Smith during the evidentiary hearing. Hence, he is giving no weight to said experiment in determining infringement.

Based on the foregoing the administrative law judge finds that complainant has not established, by a preponderance of the evidence, that asserted independent claim 1 and dependent claims 2-9 are directly infringed. He further finds that complainant has not established that said claims are infringed under the doctrine of equivalents. See Lear Siegler, Inc. v. Sealy Mattress Co. Of Mich. Inc., 873 F.2d 1432, 1435 (Fed. Cir. 1989.) Moreover, since complainant has not established that said claims are infringed, there is also no indirect infringement.

G. Validity

Respondents argued that if the claimed phrase "transflective film" is construed to include "DBEF" then the asserted claims of the '666 patent are invalid as obvious over Lee (RX-191, U.S. Patent Publication No. 202/0064037) which they allege discloses a bi-directional LCD device having a guide plate disposed between upper and lower LCD panels and near a flourescent lamp and which has a plurality of hole patterns which produce a bi-directional surface light in upward and downward directions, in view of Kumazaki (RX-190, Japanese Patent Publication No. JP 2000-338483.) It is alleged that RX-190 teaches a double-sided liquid crystal display having "DBEF" formed integrally with a diffusion sheet. (RBr at 185.)

Complainant argued Question No. 26 of educational Order 21 directly asked respondents whether the issue of validity was premised on the ultimate claim construction adopted by the administrative law judge; that in response, respondents not only confirmed that validity was premised on the issue of claim construction, but also conceded that they do not challenge the validity of the '666 patent under the staff's construction of "transflective film":

> Respondents' validity arguments with respect to the '666 patent are all based on Complainant's construction of the term "transflective film." Moreover, respondents do not challenge the validity of the '666 patent under respondents' or the Staff construction of the term "transflective film."

(citing CPFF 4251 (emphasis added); that at the hearing, respondents' expert confirmed that his invalidity opinions do not apply under the staff's claim construction of transflective film:

> Q. You don't believe your invalidity opinions apply under the Staff's claim construction [of transflective film', correct?
>
> A. Correct.

(citing CPFF 4254); and that accordingly, because the parties have agreed to the language of the staff's construction of transflective film, respondents concede that it has no invalidity defense and the '666 patent is therefore valid. (CBr at 255.)

The staff argued that all of the parties have now adopted the staff's claim construction of the term "transflective film; that during his testimony, respondents' expert Stewart admitted that the '666 patent was a valid patent under the parties' agreed upon construction (citing Tr. at 1753-54); and that accordingly, the staff does no believe there is any evidence that the '666 patent is invalid under the agreed upon conclusion. (SBr at 78.)

While the private parties agreed with the staff's construction of the claimed phrase

"transflective film," in issue is whether said phrase is construed to include the DBFF, as it is defined in the '666 patent, and if so the asserted claims are invalid over Lee in view of Kumazaki. The administrative law judge has found, supra, that said claimed phrase does not include the DBFF as it is defined in the '666 patent. Hence, he finds that the respondents have not established, by clear and convincing evidence, that the asserted claims of the '666 patent are invalid as obvious over Lee in view of Kumazaki.

IX. Domestic Industry

Samsung argued that Samsung's domestic industry LCD devices practice claims 7 and 8 of the '344 patent (CBr at 159-66); that Samung LCD devices practice every limitation of claims 6 and 8 of the '311 patent (CBr at 168-60); that Samsung's domestic industry products practice each and every limitation of claims 1, 2 and 16 of the '666 patent (CBr at 174-183); and that Samsung's domestic industry LCD devices practice claims 1, 2, 3, 4, 5, 6, 7, 8 and 9 of the '196 patent. (CBr at 184-93.)

Respondents argued that the Samsung panels do not practice the '196 patent (RRCPFF 333(A), RBr at 161-2); and that the Samsung products do not practice the '666 patent (RRCPFF 336(A), RBr at 195-6.)[33]

The staff argued that complainant Samsung has proved, by a preponderance of the

---

[33] Respondents did not present an argument in their RBBr or RBr as to whether any Samsung products practice the '344 patent. Moreover, respondents specifically state that Samsung fails to meet the technical prong "with respect to two of the asserted patents because it could not establish that the domestic industry products practiced the claims of the '196 and '666 patents." (RBr at 6.) Respondents here did not refer to the '344 patent. Respondents in their rebuttal findings however appear to question at least one of the Samsung's representative products as not meeting the technical prong with respect to the '344 patent. See infra. Hence, the position of respondents as to Samsung meeting the technical prong for the '344 patent is confusing.

evidence, that its{ }practice claims 6 and 8 of the '311 patent (SBr at 52); that complainant has proven by a preponderance of the evidence that Samsung{ } practice claims 7 and 8 of the '344 patent (SBR at 53); that complainant has failed to prove by a preponderance of the evidence that the "representative domestic industry products" practice the '196 patent (SBr at 53); and that complainant has not demonstrated, by a preponderance of the evidence, that the representative { } contains a transflective film as required by the asserted claims of the '666 patent. (SBr at 54.)

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 (Nov. 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 (Feb. 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.[34] 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.

[34] In issue is only the technical prong. See section I supra.

The following is an overview of Samsung's alleged domestic industry products from CDX-23:

(CPFF 332 (undisputed).)

Specifically, Samsung stipulated that it will rely on the following{

} to satisfy the economic prong of the domestic industry requirement for the '196, '344 and '311 patents:

(CPFF 335 (undisputed).) The Samsung dual display modules are found in Samsung's{

} (CPFF 337

(undisputed).)

A. '311 Patent

Respondents' expert Silzars admitted at the hearing that he has not presented any evidence against the fact that Samsung's domestic industry LCD devices practice the asserted claims of the '311 patent:

> Q. Let's start out finding out what we can agree about. Is that okay?
>
> A. I believe so.
>
> Q. All right. We can agree that, during your direct testimony, you did not offer any opinions about the domestic industry products at issue in this case, correct?
>
> A. I believe that's correct.

(Silzars, Tr. at 1501-1502.) In addition to Sharp's admission supra, complainant's expert Smith presented evidence at the hearing demonstrating that Samsung's products practice claims 6 and 8 of the '311 patent. (Tr. at 347-51.) He reached this conclusion after testing two different Samsung{ } which he deemed to be representative of the other Samsung domestic industry LCD devices for purposes of this investigation. (Tr. at 330, 347.) {

} (CPFF 3106, 3109{ } CPFF 3108, 3110{ } (all undisputed); CPFF 3111 (undisputed in relevant part).) {

} (CPFF 3107 (undisputed in relevant part), CPFF 3110 (undisputed).) In fact, even if Sharp's proposed construction of the term "domain dividers" is adopted, Samsung's Domestic Industry LCD Devices still practice this limitation since{ } (CPFF 3106, 3108-10 (all undisputed); CPFF 3107, 3111 (undisputed in relevant part).)

{

} (CPFF 3112-14 (all undisputed); CPFF 3115 (undisputed in relevant part).){

}

{ } (CPFF 3113 (undisputed); see also CPFF 3114 (undisputed); CPFF 3115 (undisputed in relevant part).)

{

} (CPFF 3117; CPFF 3121 (all undisputed).) {

} (CPFF 3118, CPFF 3121. (all undisputed).) {

} (CPFF 3119, CPFF 3122 (all undisputed).) {

} (CPFF 3120-21 (all undisputed).)

For the Samsung{ } each of Samsung's domestic industry LCD devices the administrative law judge finds that Samsung also practices claim 8 of the '311 patent, which calls for "[t]he liquid crystal display of claim 6, wherein the main body and the branch form an obtuse angle." (CPFF 3150, CPFF 3152 (all undisputed).) {

} (CPFF 3151 (undisputed).){

}

{ } (CPFF 3153 (undisputed).)

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 '311 patent.

B. '344 Patent

Complainant argued that respondents' expert Silzars did not present any evidence to rebut the evidence that Samsung's domestic industry LCD devices practice the asserted claims of the '344 patent:

> Q. Let's start out finding out what we can agree about. Is that okay?
>
> A. I believe so.
>
> Q. All right. We can agree that, during your direct testimony, you did not offer any opinions about the domestic industry products at issue in this case, correct?
>
> A. I believe that's correct.

(CBr at 160; CPFF 3003; Tr. at 1501-02 (emphasis added).) Thus, complainant argued that there is no dispute between the parties or their experts that complainant's domestic industry products practice every limitation of claims 7 and 8 of the '344 patent. (CBr at 160.)

Regarding asserted claim 7 of the '344 patent, complainant further argued that its domestic industry devices meet the claim limitation{ } which is undisputed by respondents' expert. (CBr at 160-61; CPFF 3006 (undisputed in relevant part); CPFF 3010, 3011 (all undisputed).) Complainant also argued that its domestic industry devices each have{ }which is not

disputed by respondents' expert. (CBr at 161; CPFF 3006 (undisputed in relevant part); 3012, 3016 (all undisputed).) Complainant argued that each of its domestic industry devices has{

} (CBr at 162.)

Complainant further argued that respondents' expert Silzars did not dispute that complainant's products meet this limitation under either party's construction and there is no dispute that complainant's{

} (Id.; CPFF 3016 (undisputed in relevant part).) Complainant, in addition, argued that the{ } in its domestic industry LCD devices meets the limitation{

} (CBr at 162-63.) Complainant argued that the{

} (CBr at 163.)

Respondents argued that complainant's expert Smith mislabeled the pixel region in DCX-92; and that under Smith's definition of pixel region, data and gate lines should create a boundary of the pixel region. (RRCFF 3018 (A), (F).) Respondents also argued that Smith's drawing of

the pixel region in CDX-92 ignores the white gate line, located near the red arrow labeled "pixel region." (RRCPFF 3018 (G).) Respondents further argued that Smith's domestic industry analysis in CDX-83 is inconsistent with his opinion that Figure 5 of Lien does not disclose an electrode in the pixel region because the apertures in Figure 5 of Lien are located on the color filter substrate, not the TFT substrate which includes the gate and data lines. (RRCPFF 3014 (E).)

Regarding asserted claim 8 of the '344, patent complainant argued that each of its domestic industry devices has{

} (CBr at 163-64; CPFF 3006 (undisputed in relevant part); CPFF 3050, 3051 (all undisputed).) {

} (CBr at 164; CPFF 3006 (undisputed in relevant part); CPFF 3052-53 (all undisputed).) {

}

(CBr at 164-65.)

{

} (CBr at 165, CPFF 3056 (undisputed).)

Complainant also argued that each of its domestic industry devices has{

} (CBr at 165-66; See RRCPFF 1090, 3014, 3015 in response to CPFF 3057, 3058.) Complainant argued that respondents' expert did not dispute that complainant's { } meet this limitation. (CBr at 166.) Complainant further argued that each of its domestic industry devices{

} (CBr at 166-67.) Complainant argued that respondents do not dispute that under either party's construction of{

} (CBr at 167.) Complainant further incorporates by reference the discussion of respondents' incorrect arguments in the infringement section at Part V.B.3. (CBr at 167-68.)

Respondents made the same arguments in RRCPFF 3014 and 3015 that they made, supra, regarding domestic industry of claim 7 of the '344 patent. Respondents further argued that it was unnecessary for their expert Silzars to opine regarding complainant's failure to practice claim 8 under respondents' construction because complainant's expert Smith failed to show

complainant's product practices claim 8 under respondents' construction. (RRCPFF 3064(B).)

The staff argued that under its construction of apertures and pixel regions that complainant has proven by a preponderance of the evidence that complainant's{ } practice asserted claims 7 and 8 of the '344. (SBr at 53.) The staff also argued that complainant's expert Smith testified that complainant's 40-inch and 46-inch televisions practice claims 7 and 8 of the '344 patent; and that Smith was not cross-examined on this topic and respondents' expert Silzars did not offer any contrary opinion during his testimony. (SBr at 53; Tr. at 330-31, 1501-02; CDX-80-97.)

Regarding asserted claim 7 of the '344 patent, and its recitation{ }(CPFF 3010{ } CPFF 3011{ } (all disputed).) Also regarding the claimed phrase{ }(CPFF 3012{ } CPFF 3013{ } (all undisputed).) In addition Samsung's domestic industry devices have{ }

Regarding to the claimed phrase{ }

{ } (CPFF 3019{ } (undisputed).)

Based on the foregoing, the administrative law judge finds that complainant has established that it practices at least claim 7 of the '344 patent.

C. '196 Patent

Complainant argued that its expert Smith confirmed that the representative Samsung domestic industry{ } meet every claim limitation and, therefore, practice each of claims 1-9 of the '196 patent. (CBr at 184.)

Respondents argued that the products that Samsung is relying on to establish a domestic industry related to the '196 patent do not practice said patent; that said products have at least one storage line and at least one common line between the date signal transmission pattern and the data driving signal transmission pattern; and that therefore, they do not have a gate signal transmission pattern that is adjacent to a data driving signal transmission pattern as required by claim 1 of the '196 patent, the only independent claim. (RBr at 161-2.)

The staff argued that under the staff's and respondents' construction of the term "adjacent" in claim 1, the accused televisions do not practice the '196 patent because conductive storage and common lines are interposed between the "gate signal transmission pattern" and the "data driving signal transmission pattern" which are thus not "adjacent", and that because all of the dependent claims at issue are depend from claim 1, Samsung has failed to prove by a preponderance of the evidence that the representative domestic industry products practice the '196 patent. (SBr at 53.)

The administrative law judge has found that the claimed phrase "adjacent" should be interpreted as "next to i.e., with no other conductive lines in between." See supra. He further

finds that Samsung's domestic industry products for the '196 patent contain conductive capacitor and dummy lines interposed between the claimed "gate signal transmission pattern" and the "data driving signal transmission pattern." Thus as respondents' expert Stewart testified:

Q. Were you able to form an opinion as to whether the representative Samsung domestic industry products practice the claims of the '196 patent?

A. Yes.

Q. Do they?

A. No.

Q. Could we turn to RDX-587. Could you just briefly tell the Court whether or not the adjacency is satisfied for this product?

A. It is not.

Q. And why?

A. {

}

Q. {

}

A. { }

Q. So that prevents the adjacency from being met, in your view?

A. Yes.

Q. Is the same true for the 46-inch product?

A. {

}

{

}

Q. Now, we're looking at the{ } that's CX-518C. What is your opinion with respect to adjacency on this product?

A. There's no adjacency on that product, either.

Q. And why is that?

A. {

}

Q. { }

A. Yes.

Q. Okay.

A. They may have different names for them, but they're basically similar lines.

Q. So then, what is your opinion with respect to whether Samsung is practicing any of the claims of the '196 patent?

A. Samsung no longer practices, in these products at least, no longer practices its own patent on this.

(Tr. at 1828-30 (emphasis added).) In addition, Samsung's expert Smith testified:

Q. {

}

--

* * *

Q. And the gate lines, you'll agree with me on that, right?

A. {

}

Q. {

}

A. {

}

Q. And those are conductive lines, aren't they?

A. Yes.

(Tr. at 1052-54 (emphasis added).)

Based on the foregoing, the administrative law judge finds that complainant has not established that the products that Samsung is relying on to establish a domestic industry related to the '196 patent practice the '196 patent.

D. '666 Patent

Complainant argued that each of the Samsung domestic industry representative "LCD devices infringe," which includes the { } analyzes by its expert Smith, viz. { } and that said devices practice each of claims 1, 2 and 16 of the '666 patent. (CBr at 175-84; CPFF 3176.)

Respondents argued that Samsung does not meet the technical prong with respect to the '666 patent because Samsung's products do not contain the claimed "transflective film" as that term is properly construed. (RBr at 195.) It is argued that during a deposition I.S. Lee testified that he is familiar with the{ } and that this{ } as well as the { } incorporate{ } which is manufactured by 3M; that Lee testified that the{ } used in{ } generally have the same refractive properties as{ }; that

complainant's expert Smith admitted that{

}

The staff argued that while complainant's expert Smith testified that the{

} and all of the domestic industry{ } contain a "transflective film" and during his in court experiment, Smith attempted to demonstrate that the{

} contains a "transflective film", the staff does not believe that the experiments performed by Smith in the courtroom regarding the{ } CPX-3A, should be given any weight; that aside from the experiment, Smith did not opine on the optical properties of the{ } and that accordingly, the staff does not believe that Samsung has demonstrated, by a preponderance of the evidence, that the representative{

} contains a transflective film as required by the asserted claims of the '666 patent. (SBr at 54.)

The administrative law judge has found supra that the claimed term "transflective film" does not include the DBEF which is disclosed in the '666 patent. See supra. Complainant's expert Smith did testify:

> Q. Do you recall what specific film is used, to the best of your understanding, in the{ }

A. My understanding is that it -- it is a{ } which as I've described is a DBEF structure with an additional BEF layer that is a prismatic film. And I understand for all of the{ } that I've identified that it has been testified by an additional witness, whose name I don't remember, that those{ } all have similar films.

(Tr. at 937.) Lee, referenced by respondents and from whom respondents took substantive deposition testimony (JX-38C) is employed by Samsung Electronics and is a principal engineer that manages LCD-products to mobile cell phones, personal digital cell phones, personal digital assistants and MP3 use products. (JX-38C at 8-10.) Lee also received an undergraduate degree in mechanical engineering and a master's degree in optical area of physics. (JX-38C at 12-13.) He has been working at Samsung Electronics since 2005. (JX-38C at 13-14.) Lee at Samsung Electronics has been involved in developing LCDs for cell phones and LCD related with mobiles. (JX-38C at 17-18.) Lee testified:

Q. Are you familiar with a Samsung{ }

A. Are you talking about{ }

Q. Yes, I am.

A. Yes.

Q. To your knowledge, is it Samsung's position that the{ } embodies the invention of I-S Lee Exhibit w, the '666 patent?

A. I don't have a full understanding of this entire patent, so I don't know the full - - I don't know the answer to that question.

Q. Does the { } include a transflective film?

* * *

THE WITNESS: Yes.

BY MR. BRETSCHNEIDER:

Q. { }

A. { }

Q. { }

A. { }

Q. { }

A. { }

Q. { }

A. { }

Q. { }

A. { }

Q. { }

A. { }

* * *

Q. Does the{ } film reflect light?

A. Partially, yes.

Q. And does it also partially transmit light?

A. Yes, it partially transmit light.

Q. When light strikes the{ } what percentage of that

light is reflected rather than transmitted?

A. Part of it is reflected and part of it is transmitted.

Q. I understand that. What percent is reflected?

A. Are you asking about percentage?

Q. Yes, I am.

A. I don't know the percentage.

Q. Do you know of any document that would provide the percentage of light that is reflected by the{ }

A. I don't know.

Q. For reference, Mr. Lee, I'm going to refer from now on in this deposition to this I-S Lee Exhibit 2 – I'm going to call it the '666 patent. Is that okay?

A. Yes.

Q. Thank you.

{
}

A. { }

Q. {
}

A. { }

Q. {
}

A. { }

Q. {

}

A. I don't know.

Q. Were you involved in the design of the{ }

A. What do you mean by "design"?

Q. I'm using the word in its ordinary meaning.

A. Together with our coworkers.

Q. Okay. Thank you. I appreciate that.

Were you involved in the decision as to which transflective film to put in the{ }

A. Can you ask the question again more specifically, please?

Q. Along with you coworkers, Mr. Lee, did you take part in deciding which transflective film to use in the{ }

A. I did, along with my coworkers.

* * *

[Q.] {

}

A. {

}

Q. { }

A. Yes.

Q. { }

A. { }

Q. { }

A. { }

Q. Yes, I do.

A. 3M.

Q. {

}

A. { }

* * *

[Q.] {

}

A. { }

Q. { }

A. { }

Q. { }

A. { }

Q. {

}

* * *

{

}

BY MR. BRETSCHNEIDER:

Q. Mr. Lee, are you familiar with the{ }

A. Yes, I know it.

Q. Which – strike that.

A. Is there a transflective film in the{ }

* * *

BY MR. BRETSCHNEIDER:

Q. What transflective film is used in the { }

A. It's { }

Q. Same as in the{ }

A. Are you talking about the transflective film?

Q. Yes, I am.

A. Yes.

Q. {
}

A. { }

* * *

Q. Are you familiar with the{ }

A. Yes.

Q. Does the{ } include a transflective film?

A. Yes.

Q. Which transflective film used does the{ }

A. The transflective film used in the{ }

CHECK INTERPRETER:{ }

THE WITNESS:{ }

Q. The same film as used in the - - transflective film as used in the SCH-u700 and the u740 telephones?

A. Yes.

Q. {
}

A. { }

* * *

Q. Does the{ } transmit all X-directional polarization components incident on the film?

A. Did you say all?

Q. Yes, I said all.

A. It's partially transmitted and partially reflected.

Q. What percent is reflected?

A. I don't know the exact value.

Q. Is it less than 10 percent?

A. I don't know.

(JX-38C at 25-29, 35-36, 38-42 (emphasis added).)

The administrative law judge finds the substantive deposition testimony supra of Lee unrebutted. Thus he finds that complainant has established the technical prong of the domestic industry for the '666 patent.

X. Remedy

Should a violation be found, Samsung seeks a limited exclusive order prohibiting the importation into the United States of respondents' accused LCD devices, and respondents' downstream products containing respondents' accused LCD devices. (CBr at 277.) It is further argued that to the extent certain models of Sharp's downstream products sometimes contain an LCD module manufactured by a third party, Sharp can certify to Customs that the units that it seeks to import do not contain a Sharp manufactured LCD device. (CRBr at 149.)

Seth Kaplan was qualified as complainant's expert on the extension of exclusion orders to downstream products in section 337 investigations. (Tr. at 595.)

Respondents argued that if it were determined that there is a violation of Section 337, the appropriate remedy would be a limited exclusion order directly solely at the Sharp LCD panels and modules specifically found to infringe and to those Sharp-brand LCD televisions and professional displays that incorporate the infringing Sharp LCD panels and modules. (RRBr at 132.)

The staff argued that in the event a violation is found, the appropriate remedy is a limited exclusion order that covers all of Sharp's infringing LCD products that are manufactured abroad by or on behalf of, or imported by or on behalf of, Sharp, or any of its affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns. With respect to whether the remedial orders should extend to downstream accused products, the staff argued that downstream relief should be limited to the following: (i) Sharp LCD devices used in Sharp LCD televisions, professional displays and monitors; (ii) Sharp LCD devices used in Sharp dual-device displays, if any; and (iii) Sharp LCD devices used in Sharp personal navigation devices ("PNDs").

Regarding issuance of any cease and desist order should a violation be found, Samsung argued that it offered documentary and testimonial evidence showing that Sharp maintains commercially significant inventory of "upstream" and "downstream" accused products (CBr at 289-90 (citing CPFF 5005-5008) and CRRFF VIII.21-A-F); and that specifically the quarterly totals identified for the upstream products are:

Material (CX-41C and CX-448C)	Physical Qty 9/2007	Physical Qty 12/2007	Physical Qty 3/2008	Physical Qty 5/2008
Quarterly Totals	50,215	53,040	63,214	53,835

and, the quarterly totals for the downstream products are:

Material (CX-259C and CX-448C)	Physical Qty 9/2007	Physical Qty 12/2007	Physical Qty 3/2008	Physical Qty 6/2008
TOTALS	40,107	63,866	28,492	36,102

(CRBr at 149.) Hence, it is argued that this undisputed evidence establishes the existence of commercially significant inventories that compels the need for a cease and desist order to provide Samsung with a complete remedy.

Sharp argued that at the hearing Samsung's expert Kaplan did not evaluate or present evidence on the number of Sharp products held in Sharp inventories in the United States, or opine on the commercial significance of those inventories; that while Samsung now cites to Sharp records (CX-259C, CX-41(C) those records were never testified to by any witness at trial and thus are without the benefit of any witness's explanation or comparison of the figures on those documents with Sharp sales levels or other benchmarks. Thus, it is argued that Samsung failed to meet its burden to establish that Sharp maintains a "commercially significant" inventory of LCD panels, modules, televisions or professional displays in the United States, and

there is no basis for issuance of a cease and desist order against Sharp. (RRBr at 134-35.)

The staff in its SBr argued that although inventory levels are referenced in Samsung's prehearing brief, the Staff is not aware of any contemporaneous evidence demonstrating a commercially significant inventory of the infringing products in the United States, and thus is of the opinion that a cease and desist order would not be appropriate in this investigation. (SBr at 84.)

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 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 Sharp'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, 2005 ITC Lexis 859, Init. 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).)

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). In addition, the administrative law judge recommends that to the extent certain downstream units imported by Sharp contain Sharp's manufactured infringing liquid crystal display devices, said downstream products should be excluded from importation.

With respect to issuance of any cease and desist order, the administrative law judge finds that Sharp documents CX-41C and CX-259C in evidence do show significant quarterly totals in Sharp's warehouse for LCD televisions and professional displays identified by Sharp, in CX-448C, as accused products. Hence, the administrative law judge recommends an appropriate cease and desist order, should a violation be found.

XI. Bond

Complainant argued that the administrative law judge should find that respondents must post a bond for 100% of the entered value of any importation of infringing products during the Presidential Review period; that a 100% bond is appropriate given the number and variety of products at issue in this litigation; that Sharp identified 142 LCD televisions and professional displays in its response to Samsung's interrogatories; that Sharp also produced data for SEC's U.S. sales that identified eighty additional product models sold in the United States between August 2007 and May 2008; that the LCD televisions and professional displays vary widely in size and specification; that the size of the televisions varies from 10" screens to 108" screens, while the professional displays range in size from 45 inch screens to 65 inch screens; that the specifications for these products also vary widely, whether it is in the branding of Sharp's premier product line, AQUOS, or the quality of image, or resolution, provided by the various LCD devices for used in the televisions or professional displays, e.g. HDTV versus standard

definition; that on the issue of pricing of Sharp LCD products, Mark Crandell in deposition testified that one could take a given product (e.g., LC52D43U) sold to a given customer (e.g. Amazon) in a given quarter and divide the total sales in the quarter by the number of units sold and determine an average price that the average price would not necessarily reflect the price on any given day in the quarter, because "[i]t's a pretty fast business . . . [and] prices are falling in the industry right now," citing Crandell deposition; that Crandell testified that Sharp issues marketing bulletins that set a standard invoice price for a given product model across all marketing channels (for example, audio visual channel, business to business channel, and web-based business channel); and that because Sharp assigns discounts by marketing channel, a particular model sold in more than one channel could have a different price for each channel.

It is argued that additional factors that could affect the price of a given model include purchase volume and competition; that Crandell testified that because the electronics business is "pretty fast paced," Sharp issues these marketing bulletins from as little as three times a year, to as much as three times a month; that the Christmas season is an example of a time that often sees frequent price changes; that Crandell also testified that different model numbers with the same screen size could have different prices because of the varying features each might employ; that the price of a given model can also vary depending on the customer (for example, national chains versus regional chains) and the discounts the particular retailer is offering; that Crandell testified that, if one had the price of a given LCD product model on a given day, and then checked the price two weeks later, the price might have changed; and that said complications in the calculation of the amount of the bond lead to the conclusion that the bond be set at 100% of the entered value.

Respondents argued that while Samsung attempts to rely on deposition testimony about fluctuations in Sharp's model prices over time, Samsung has still not presented any evidence that Sharp LCD panels, modules, televisions or professional displays enjoy any price advantage over competing Samsung LCD products; and that thus Samsung did not meet its burden to establish a need for a bond during the Presidential review period, even assuming a violation were found, and no bond should be required, citing Certain Rubber Antidegradants, Components Thereof, and Prods. Containing Same, Inv. No. 337-TA-533, Comm'n Op. at 39, 40 (July 21, 2006) (Rubber Antidegrants) (holding that the complainant's burden to establish the need for a bond amount in the first place). (RRBr at 135.)

The staff argued that there is no evidence in the record of price differentials or sales of royalty rates; and that if a violation is found the Presidential review period bond should be set at 100%. (SBr at 85.)

Section 337(j)(3) provides for the entry of infringing articles upon the payment of a bond during the sixty-day Presidential review period. 19 U.S.C. § 1337(j)(3). It is, however, the complainant's burden to establish the need for a bond amount in the first place. See Rubber Antidegradants. Any bond is to be set at a level sufficient to "offset any competitive advantage resulting from the unfair method of competition or unfair act enjoyed by persons benefiting from the importation." Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same, Inv. No. 337-TA-242, Commission Opinion on Violation, Remedy, Bonding and the Public Interest, USITC Pub. No. 2034, 1987 WL 450856 (U.S.I.T.C.) at 38 (1987). When reliable price information is available, the Commission has set the bond by eliminating the price differential between the domestic and the imported infringing product.

Certain Digital Satellite System (DSS) Receivers and Components Thereof, Inv. No. 337-TA-392, Final Initial and Recommended Determination on Remedy and Bonding, U.S.I.T.C. Pub. No. 3418, 2001 WL 535427 (U.S.I.T.C.) at 336 (April 2001). Where reliable price information is not available, however, Commission precedent establishes that the bond should be set at 100%. Certain Semiconductor Memory Devices and Products Containing Same, ITC Inv. No. 337-TA-414, Recommended Determination on Remedy and Bonding, 1999 WL 1267282 (U.S.I.T.C.) at 6 (December 13, 1999), Certain Flash Memory Circuits and Products Containing Same, Inv. No. 337-TA-382, USITC Pub. 3046, Commission Opinion at 26-27 (July 1997).

Complainant, in support of its position, rely for the most part on deposition testimony of Mark Crandell. (JX-31C). Crandell was designated to testify on behalf of Sharp on deposition topic no. 23, which relates to "Sales, distributors, and distribution channels for the Accused Products including, but not limited to, Sharp's knowledge or awareness concerning the ultimate destination of the Accused Products shipped or sold by Sharp or others acting on its behalf" (RX-278C; JX-31C, Crandell Dep. Tr. (July 18, 2008) 9-10); on deposition topic no. 31, which relates to "Sharp's business and operations plans; sales estimates; customer service plans; and capital or investment plans relating to the Accused Products" (RX-278C; JX-31C, Crandell Dep. Tr. (July 18, 2008) 9-10) and on deposition topic no. 32, which relates to "[t]he terms of sale under which Sharp sells Accused Products to third-parties to be incorporated into other products." (RX-278C; JX-31C, Crandell Dep. Tr. (July 18, 2008) 9-10.) The term "sale" in deposition topic nos. 23, 29, 31, and 32 "refers to any exchange of goods, services or other property for value and includes transferring goods to another party on a consignment basis regardless of whether title has passed." (RX-278C, T.) Crandall was not designated to testify as to any bond imposition. (RX-

278C, JX-31C, Tr. at 9-10).[35] Moreover an examination of Crandall's deposition testimony shows that it largely relates only to one document, viz. CX-5C.

The administrative law judge finds that the limited deposition testimony of Crandall does not satisfy complainant's burden in establishing that a bond should be set at 100% of the entered value. Moreover, the administrative law judge finds that complainant has not established any need for a bond. See Rubber Antidegradants. Hence, the administrative law judge does not recommend any bond, should the Commission find a violation.

XII. Additional Findings

1. Complainant Samsung Electronics Co., Ltd. (Samsung) is a corporation organized under the law of Korea having its principal place of business in Seoul, Korea. (Dec. 21, 2007 Compl. at ¶ 2.1.)

2. Samsung designs, manufactures, and markets a wide variety of electronic products, ranging from consumer electronics to semiconductors. (Dec. 21, 2007 Compl. at ¶ 2.1.)

3. Samsung employs about 150,000 employees worldwide. (Ahn, Tr. at 157:5-12; CDX-600.)

4. In 2007, Samsung had about 100 billion dollars in revenue, which can vary between 80 to 100 billion, depending on the dollar/yuan exchange rate. (Ahn, Tr. at 157:13-22.)

5. Samsung currently holds more than 20,000 U.S. patents. (Ahn, Tr. at 157:25-158:2.)

6. Samsung is comprised of a semiconductor business unit, digital mobile media

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[35] Crandell is an employee of Sharp and is currently an Associate Vice President of Channel Marketing and Stratigic Sales. (JX-31C at 16.)

business unit, telecommunication business unit, and LCD business unit. (Ahn, Tr. at 155:21-25.)

7. Samsung's four business units operate independently. (Ahn, Tr. at 156:1-3.)

8. Samsung's business units can have client and supplier relationships. (Ahn, Tr.156:3-5.)

9. To make a cellular phone, which is manufactured by telecommunication business, the semiconductor business unit sells the memory ICs, and LCD business unit sells the LCD modules for the mobile phones. (Ahn, Tr. at 156:9-15.)

10. Samsung's LCD business unit employs more than 15,000 people. (Ahn, Tr. at 158:9-13; CDX-100.)

11. Samsung's LCD business unit generates about 17 billion dollars in revenue.(Ahn, Tr. at 158:14-18.)

12. Samsung's LCD business unit manufactures LCD modules for televisions,monitors, notebook PCs, and mobile phones. (Ahn, Tr. at 158:21-24.)

13. Samsung's LCD business unit has been, in terms of sales, the market leader forthe past 6 years. (Ahn, Tr. at 159:3-7.)

14. Samsung's LCD business unit controls more than 1,400 U.S. patents. (Ahn, Tr. at 159:8-11.)

15. Samsung's success in the LCD market may be attributed, in part, to its investmentin research and development. (Ahn, Tr. at 159:20-24.)

16. Samsung's innovations in high contrast ratio, high transmittance ratio, and wider viewing angle technology have resulted in better performing LCDs. (Ahn. Tr. at 159:25–160:11.)

17. Respondent Sharp Corporation (Sharp) is a Japanese corporation with its principal

place of business in Osaka, Japan. (Dec. 21, 2007 Compl. at ¶ 3.1; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.1.)

18. Sharp Corporation is a global electronics manufacturer with a focus on consumer and information products, such as LCD televisions and mobile phones, and on electronic components, such as LCDs and large-scale integrated circuits (LSIs). (Dec. 21, 2007 Compl. at ¶ 3.1; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.1)

19. Sharp admits in its Answer that at least "some" LCD devices and products containing LCD modules and panels are manufactured, assembled, and/or packaged and tested outside of the United States for Sharp Corporation. (RX-415 at 3-4; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.2.)

20. Respondent Sharp Electronics Corporation is a New York corporation with its principal place of business in Mahwah, New Jersey. (Dec. 21, 2007 Compl. at ¶ 3.3; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.3.)

21. Sharp Electronics Corporation is a wholly owned subsidiary of Sharp Corporation. (Dec. 21, 2007 Compl. at ¶ 3.3; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.3.)

22. Sharp Electronics Corporation serves as the United States sales and marketing arm for Sharp Corporation and is also involved in service, manufacturing, and research and development operations in North America. (Dec. 21, 2007 Compl. at ¶ 3.3; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.3.)

23. Sharp Electronics Corporation distributes LCD devices and products in the UnitedStates. (Dec. 21, 2007 Compl. at ¶ 3.3; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.3.)

24. Respondent Sharp Electronics Manufacturing Company of America, Inc. (SEMA)

is a California corporation with its principal place of business in San Diego, California. (Dec. 21, 2007 Compl. at ¶ 3.4; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.4.)

25. Sharp Electronics Manufacturing Company of America, Inc. is a subsidiary of Sharp Electronics Corporation. (Dec. 21, 2007 Compl. at ¶ 3.4; Apr. 11, 2008 Amd. Resp. to Compl. at ¶ 3.4.)

CONCLUSIONS OF LAW

1. The Commission has in personam jurisdiction and in rem jurisdiction.

2. There has been an importation of accused products into the United States which are the subject of the unfair trade allegations.

3. The '311 patent is valid and enforceable.

4. Sharp infringes claims 6 and 8 of the '311 patent.

5. The '344 patent is valid.

6. Sharp infringes claims 7 and 8 of the '344 patent.

7. Sharp does not infringe the asserted claims of the '196 patent.

8. The '196 patent is valid and enforceable.

9. Sharp does not infringe the asserted claims of the '666 patent.

10. The '666 patent is valid.

11. A domestic industry exists with respect to the '311, '344 and '666 patents, but does not exist with respect to the '196 patent.

12. There has been a violation of Section 337.

13. If a violation is found by the Commission, the record supports issuance of a limited exclusion order barring entry into the United Sates of infringing liquid crystal display devices and products containing respondents' infringing devices and the issuance of cease and desist orders.

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 and the issuance of cease and desist orders.

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 February 13, 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: January 26, 2009

IN THE MATTER OF CERTAIN LIQUID CRYSTAL DISPLAY DEVICES AND PRODUCTS CONTAINING SAME

Inv. No. 337-TA-631

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, Stephen R. Smith, Esq., and the following parties as indicated, on March 03, 2009.

Marilyn R. Abbott, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112A
Washington, DC 20436

For Complainant Samsung Electronics Co., Ltd.:

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: _____

Respondents Sharp Corporation; Sharp Electronics Corporation; Sharp Electronics 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: _____

IN THE MATTER OF CERTAIN LIQUID CRYSTAL DISPLAY DEVICES AND PRODUCTS CONTAINING SAME

Inv. No. 337-TA-631

PUBLIC MAILING LIST

Heather Hall LEXIS-NEXIS 9443 Springboro Pike Miamisburg, OH 45342	( ) Via Hand Delivery (✓) Via Overnight Mail ( ) Via First Class Mail ( ) Other: _____
Kenneth Clair Thomson West 1100 Thirteen Street, NW, Suite 200 Washington, DC 20005	( ) Via Hand Delivery (✓) Via Overnight Mail ( ) Via First Class Mail ( ) Other: _____

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