United States District Court,
C.D. California, Western Division.

LG PHILIPS LCD CO., LTD,
Plaintiff.
v.
TATUNG CO. OF AMERICA, Tatung Company and Chunghwa Picture Tubes, Ltd,
Defendants.

No. CV 02-6775 CBM (JTLx)

May 5, 2005.

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ORDER RE CLAIM CONSTRUCTION

CONSUELO B. MARSHALL**, District Judge.**

The matter before the Court is claim construction regarding the side-mount patents and semiconductor patents. The claim construction hearing occurred on January 13-14, 2005, the Honorable Consuelo B. Marshall presiding.

JURISDICTION

This Court has jurisdiction pursuant to 28 U.S.C. s. 1331.

FACTUAL AND PROCEDURAL BACKGROUND

L.G. Philips LCD Co, Ltd. ("LPL") filed this action on August 29, 2002, alleging that Defendants Tatung Co., Tatung Co. of America, and Chunghwa Picture Tubes ("CPT") infringed on its patents. On December 20, 2002, CPT filed an Answer and Counterclaims. On August 31, 2004, this Court granted in part CPT's motion for leave to amend its Answer and Counterclaims and Join LGE as a party. On October 12, 2004, this Court denied LPL's motion to stay further proceedings pertaining to the side-mount patents and set the claim construction hearing for January 7, 2005. On its own motion, the Court continued the claim construction hearing to January 13, 2005.

LEGAL STANDARD

In interpreting an asserted claim, the Court first looks to the intrinsic evidence, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed.Cir.1996). However, all intrinsic evidence is not equal. First, the Court should focus on the claims themselves, both asserted and unasserted, to define the meaning and scope of the patented invention. Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201-02 (Fed.Cir.2002). There is a "heavy presumption" that the ordinary and accustomed meaning of a claim term, as understood by one of ordinary skill in the art, is the correct construction. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002). Dictionaries, encyclopedias and treatises, which are extrinsic evidence, may be employed to "assist the court in determining the ordinary and customary meanings of claim terms." Texas Digital, 308 F.3d at 1202.

Second, the Court should review the specification. Vitronics, 90 F.3d at 1582. A review of the specification will reveal whether or not the inventor has given a term an unconventional meaning. *Id*. However, it is improper to read a limitation into a claim from the specification. Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182 (Fed.Cir.1998). The inventor may act as his or her own lexicographer and use terms in a manner other than their ordinary meaning, so long as any such specific definition is clearly stated in the patent specification or prosecution history. Mycogen Plant Science Inc. v. Monsanto Co., 243 F.3d 1316, 1327 (Fed.Cir.2001). Therefore, for claim construction purposes, the specification is "the single best guide to the meaning of a disputed term." Vitronics, 90 F.3d at 1582.

Third, the Court may consider the prosecution history of the patent. The prosecution history is significant because it reveals "the course of dealing with the Patent Office, which may show a particular meaning attached to the terms, or a position taken by an applicant" to secure the patent. *Markman,* 52 F.3d at 991. As such, the prosecution history may be reviewed to assess whether a patentee "relinquished [a] potential claim construction in an amendment to the claim or in an argument to overcome or distinguish a [prior art] reference." Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 979 (Fed.Cir.1999), *cert. denied,* 529 U.S. 1066, 120 S.Ct. 1672, 146 L.Ed.2d 482 (2000). However, for subject matter to be held relinquished, a court must find that the patentee disclaimed the subject matter with "reasonable clarity and deliberateness." Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 215 F.3d 1281, 1294 (Fed.Cir.2000).

Finally, if and only if a claim remains "genuinely ambiguous" despite the full consideration of the intrinsic evidence, then a court may look toward extrinsic evidence to interpret the claim term itself. Bell & Howard Document Mgmt. Prods. Co. v. Altek Sys., 132 F.3d 701, 706 (Fed.Cir.1997). The need for such a departure from the intrinsic evidence "rarely, if ever, occurs." Vitronics, 90 F.3d at 1585.

ANALYSIS

A. Side-Mounting Patents

The side-mounting patents consist of U.S. Patents Nos. 6,373,537 ('537 patent), 6,00,457 ('457 patent), 6,020,942 ("2 patent), and 5,926,237 ('237 patent).

1. Whether the Side-Mounting Patents Are Limited to Portable Computers

The definition of the terms "liquid crystal display," "liquid crystal panel," "housing" and "outer casing" are disputed because CPT limits them to "portable computers" whereas LPL does not so limit them. The '537 and '237 patents contain claims directed to both an LCD device and to a portable computer, whereas the '457 patent contains claims directed only to the LCD device and the "2 patent contains claims directed only to a portable computer. Since the Court must look first to the claims, the Court finds that claims that recite a "portable computer" are limited to portable computers, but claims that do not recite a "portable computer" are not so limited. The background of the invention also indicates that the portable computer is *an example* of a device that uses an LCD. *See, e.g.,* 1:50-51 ("[t]he liquid crystal display is usually combined with, *for example,* a notebook computer for use as an output screen"; 1:59-61 ("a liquid crystal display is attached to a device *such as a notebook computer* "). With respect to the terms "housing" and "outer casing," the Court notes that independent claims, such as Claim 37 of the '457 patent, which contain the term "housing" do not contain the words "portable computer," whereas dependent claim 40 of the '457 patent states "the housing includes a portable computer." This indicates that the definition of the terms should not be limited to a portable computer.

Defendants look at the specification, rather than first looking to claims, in arguing that the invention described in the specification is directed to an improvement for a portable computer. Defendants' argument is not persuasive, as the Federal Circuit has held that "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.' " Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed.Cir.2004); *accord Gems tar-* TV Guide Int'l Inc. v. ITC, 383 F.3d 1352, 1366 (Fed.Cir.2004). The specification of the sidemounting patents does not contain any "clear disavowal" of products that are not portable computers. In addition, this Court rejects Defendant's argument that the sidemounting patents should be limited to portable computers because that was the purported "object" of the invention. "The fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives." Liebel, 358 F.3d at 908. *See also Ex-* Pass Tech, Inc. v. 3Com Corp., 343 F.3d 1364, 1370 (Fed.Cir.2003) ("The Court's task is not to limit claim language to exclude particular devices because they do not serve a perceived "purpose" of the invention."). Thus, the Court adopts LPL's definitions of the terms "liquid crystal display," "liquid crystal panel", "housing" and "outer casing."

2. Whether Constructions Should Include the Word "Directly"

The word "directly" does not appear anywhere in the claim language. However, Defendants use the word "directly" in construing the terms "attachable to a housing," "fixable to a housing," "joined with," "joining together," "coupled," and "fastening part." Defendants argue that the claim language, in context, indicates that side-to-side direct connection must be present, as the specification does not show any intervening element. The Court finds Defendants' arguments unpersuasive pursuant to *Liebel,* which makes it clear that the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction. Since no such words of manifest exclusion or restriction are used here, the Court adopts LPL's definitions of "attachable to a housing" or "fixable to a housing," "joined," "joined together," "coupled," and "fastening part."

3. Whether the terms "through" and "passing through" should have different meanings

LPL proposes that the term "through" be used in its plain and ordinary way to mean "by way of," and that "passing through" means "extending into." Defendants contend that "through" means "in at one end, side or surface and out the other" and that "passing through" means "moving past or making way in one side and out of the other side." Although the preferred embodiment shown in the drawings uses screws engaging holes to connect the components, the patent clearly contemplates other methods of attaching the components. The '457 patent specification, for example, provides that "an adhesive device, such as double-sided tape can be used instead of the second and third screw holes" and that "the rear case 500 and the second support frame 400 are jointed to each other using hooks and/or other suitable fastening devises, including adhesives." *See, e.g.,* 4:58-60, 4:63-67. Since LPL's definition of "through" covers both screws and adhesives, the Court finds that it is the better definition.

LPL contends that the phrase "passing through," in contrast to "through," is used only in reference to screws and screw holes, which extend into an object. CPT, on the other hand, argues that "passing through" and "through" have the same meaning. The doctrine of claim differentiation indicates that different words or phrases used in different claims are presumed to indicate that the claims have different meaning and scope. Karlin Tech, Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971 (Fed.Cir.1999). Here, it appears that the inventors used the term "through" when generally referring to a fastening part but used "passing through" only when referring to a specific fastening part (i.e., a screw). Therefore, the Court adopts LPL's definitions of "through" and "passing through."

4. Whether the terms "frame," "first frame," and "second frame" should be given their plain and ordinary meanings.

LPL defines "frame" to mean "a support structure." Defendants defines "Frame" as "an open structure or rim for encasing, holding or bordering that encloses a substantial portion of each side edge of another structure." Defendants base their argument on the theory that the meaning of the word "frame" is limited to the description in the specification. Under *Liebel,* this restrictive interpretation is inappropriate. Furthermore, Defendants define "first" and "second" frame to mean "inner" and "outer" frame, even though the inventors did not use those terms. The use of "first" and "second" follow the "common patent-law convention to distinguish between repeated instances of element or limitation." 3M Innovative Properties Co. v. Avery Dennis on Corp., 350 F.3d 1365, 1371 (Fed.Cir.2003). For example, Claim 31 of the "2 patent claims "[t]he portable computer according to claim 13 wherein the fastening part includes first and second screws passing through first and second holes at a same side edge of at lease one of the first and second frames." 8:25-28. Here, the words "first" and "second" are consistently used to distinguish repeated instances of element or limitation. Therefore, the Court gives "frame," "first frame" and "second frame" their ordinary meanings, as set forth by LPL.

5. Whether "liquid crystal display model" is a typographical error

The parties agree on the construction of the claim term "liquid crystal display module." However in one claim, Claim 7 of the '537 patent, the term appears as "liquid crystal display model." Given the context, this is clearly a typographical error. Other parts of Claim 7 refer to the "liquid crystal display module." The Court therefore construes "liquid crystal display model" as "liquid crsytal display module."

6. Whether Definitions are Needed for "Portable Computer," "Side", "Forming" and "Cover"

Defendants propose cumbersome definitions for the terms "portable computer," "side", "forming" and "cover." The Court finds that these definitions create unnecessary confusion and adopts LPL's constructions, which give the terms their plain and ordinary meaning.

B. Construction of the '737 Semiconductor Patent

1. "Source Electrode," "Drain Electrode," and "Gate Electrode"

While LPL construes the electrode to include the line and the pad, Defendants limits the electrode to a single TFT and construes the electrodes as distinct from the lines and the pads. The seventh step of claim 1 of the '737 patent calls for "exposing a part of each of said source electrode, drain electrode and gate electrode." LPL persuasively argues that electrodes are exposed at the pad region for electrical connection, as exposing a gate pad allows electrical control of all TFT gate contacts along the row. One of ordinarily skill would not control each TFT gate/source independently, especially since creating a hole at each TFT to expose the gate electrode would destroy the TFT. Furthermore, the specification of the '737 patent describes a step in which "gate electrode 2 extending along one line and gate electrodes 2' on another line are formed on a transparent insulating substrate 1 such as glass substrate." 3:25-28. This indicates that a structure separate from the TFT is part of the "gate electrode." In addition, the claims in the application for the '449 patent include phrases such as "said pad comprising: a portion of said data electrode" and "a pad including a portion of [said] data electrode." Finally, U.S. Patent 4,705,358 ('358 patent), which also pertains to the same technology as the '737 patent, names the same inventor as the '737 patent, and was filed in the U.S. on the same day as the '737 patent, illustrates a gate electrode from above (i.e. a "bird's-eye-view") and demonstrates that the "gate electrode" may include the gate line. The Court therefore finds that the electrodes may include the lines and pads. Furthermore, the Court is not persuaded by that portion of Defendant's construction which specifies a particular direction for flow of charge carriers (from the source electrode toward the drain). The embodiment shown in Figure 3 of the '737 patent illustrates an arrangement where the direction of flow is reversed. Accordingly, the Court adopts LPL's construction of "source electrode," "gate electrode," and "drain electrode."

2. "Continuously Depositing"

LPL construes the term "continuously depositing" as "[t]he formation of the gate insulting film, the high-resistivity semiconductor film and conducting film without intervening films." Defendants offer a modified construction of this term as meaning that "the deposition of the specified films occurs without any nondeposition related steps between or during the deposition of each constituted film" While LPL's definition requires the films to be only spatially continuous Defendants' definition requires continuity in space, time and sequence. The '737 patent shows "continuously deposited" films as being *spatially* continuous, but it does not show, mention or require the deposition to be performed without an interruption in time or sequence. Moreover, the plain meaning of "continuous" is "uninterrupted extension in space, time *or* sequence." The Court therefore adopts LPL's construction of "continuously depositing."

3. "Oxidizing atmosphere"

Claim 1 of the '737 patent requires "continuously depositing [the films] ... without exposing them to an oxidizing atmosphere." LPL construes "an oxidizing atmosphere" as "an atmosphere that would create *substantial oxidation* on a film." The Court finds that the word "substantial" in this construction is vague and ambiguous. Defendants initially construed this phrase to mean that the films are not permitted to be exposed to " *an oxide,*" although they acknowledged that a *de minimus* amount of oxidation is not an

"oxidation atmosphere." Defendants subsequently modified their construction to be "an atmosphere that would create a *detectable amount* of oxidation on a film." As "detectable" is more precise than "substantial," the Court adopts Defendants' modified construction of this term.

4. "Island region"/"island region on said gate electrode"

At the time the patent application was filed, there were at least two well-known constructs for the semiconductor region in a TFT. In one design, separate islands of semiconductor are created above each TFT's gate electrode. In the other design, a single, unitary semiconductor region extends over all of the TFTs in one large "continent." While LPL construes the term "island region" as used in the '737 patent to include both designs, Defendants' construction limits this term to the first design (i.e. a region located over the gate electrode *of a single TFT*). Defendants also require the island to have been "etched around its entire perimeter."

Defendants' argument is persuasive, as claim 1 recites a process for producing " *a* thin-film transistor." 4:26. *See also* 1:5, 13, 29, 57, 65, 67; 2:9; 3:34-35. Furthermore, in discussing FIG. 3b, the specification provides that "said low-resistivity amorphous silicon film 20 and high-resistivity amorphous silicon film 4 are *left as an island region in the area where a thin-film transistor is to be formed*." 3:34-35. This statement indicates that the "island region" is limited to the area of a single TFT and does not include multiple TFT's. Thus, the Court finds that Defendants' construction more accurately reflects the language of the claim and the specification. Moreover, LPL's construction appears to read the term "island region" completely out of the third step, "in which said high-resistivity semiconductor film and said conducting film are selectively etched so that they are partly left *as an island region* on said gate electrode." The Court therefore adopts Defendants' construction of the term "island region."

5. "Conducting Film Containing at Least a low-resistivity Semiconductor Film"/ "Conducting Film"/ "High-resistivity Semiconductor Film"/ "Low-Resistivity Semiconductor Film"

The '737 patent discloses two preferred embodiments. One embodiment includes four continuously deposited films: an insulating film, a high-resistivity semiconductor films, a low-resistivity semiconductor film, and a conducting film. *See* 2:17-21, Fig. 2a-2e. The other embodiment has three continuously deposited films: an insulating film, a high-resistivity semiconductor films, and a low-resistivity semiconductor film. *See* 2:24-30, Fig. 3a-3d.

Claim 1 of the '737 patent sets forth "a second step for continuously depositing ... a gate insulating film, a high-resistivity semiconductor film and a *conducting film containing at least a low -resistivity semiconductor film* " Claim 2, which is not at issue in this litigation, sets forth a second step wherein "said conducting film is composed of *at least two layers consisting of a low-resistivity semiconductor films and thereon a refractory metal film or transparent conducting film*."

According to LPL, the italicized phrase in Claim 1 above means that the conducting film may consist only of a low-resistivity semiconductor film. CPT, on the other hand, construes this phrase as requiring a conducting film with adjoining layer of low resistivity semiconductor and possibly other adjoining layers. CPT relies on a sentence in the specification discussing Fig. 3a-3d, which states that, "[i]n this example, *no conducting film is formed on low-resistivity amorphous silicon film 20,* but a conducting film such as ITO film may be formed on said low-resistivity film 20 as in the example shown in FIG. 2." FN1 While this sentence does suggest that the conducting film is distinct from the low-resistivity semiconductor film, CPT's interpretation would narrow the scope of Claim 1 to exclude the second embodiment. A claim construction

that excludes a preferred embodiment is "rarely, if ever, correct." Dow Chemical Co. v. Sumitomo Chemical Co., 257 F.3d 1364, 1378 (Fed.Cir.2001). Furthermore, the fact that the conducting film is specifically described as having *two layers* in claim 2 but not in claim 1 indicates that two adjoining layers are not needed for the first claim. Thus, the Court adopts LPL's construction of the term "conducting film containing at least a low-resistivity semiconductor film."

LPL's construction of "conducting film" is consistent with this Court's determination that the conducting film can be the low -resistivity semiconductor film. LPL construes "conducting film" according to its plain meaning, namely, a thickness of electrically conductive material. Defendants' construction of conducting film, on the other hand, restricts it to film "having an electrical resistance several order of magnitude lower than a low-resistivity semiconductor film." In other words, Defendants define "conducting film" as distinct from "low-resistivity semiconductor film." The Court rejects Defendants' construction and adopts LPL's construction since it finds that the conducting film in claim 1 of the '737 patent may consist of the low-resistivity semiconductor film, as discussed above.

LPL's constructions of "high-resistivity semiconductor film" and "low-resistivity semiconductor film" distinguishes these terms based on their relative resistivity. Defendants distinguish the terms according to whether they are "doped" (i.e. intentionally mixed with impurities) or "undoped." The ' 737 patent makes no mention of the terms "doped" and "undoped." Furthermore, LPL presents evidence that it is improper to equate the terms high-resistivity with "undoped" and low-resistivity with "doped." The Court therefore rejects Defendants' method of distinguishing these terms. Defendants also rely solely on extrinsic evidence in defining high-resistivity semiconductor film as having a resistence "many orders of magnitude" greater than the low-resistivity film. The Court finds this language vague and unnecessary. The Court therefore adopts LPL's constructions of the terms "high-resistivity semiconductor film" and "low-resistivity semiconductor film."

6. "Mask"/ "At least a part of the Mask"/ "Said source and drain electrodes serving as at least part of the mask"

Claim 1 requires a step for selectively removing material "with said source and drain electrodes serving as at least part of the mask." The parties dispute whether an electrode covered by photoresist serves as at least part of the mask. Defendants' construction may exclude such an electrode, as it requires that the source and drain electrodes "make a *significant contribution* to defining the edges of the selectively removed region" or alternatively " *shield at least part of the surface* from the action of the removal technique." While the photoresist may be the *outermost* layer of the mask, the electrodes are part of the mask structure, as, they, too, are resistive to the removal technique and in the pattern needed to etch exposed conductive film. LPL construes "mask" as "a pattern above a surface from which material is to be selectively removed. The pattern is made of material that is resistive to the removal technique relative to the material to be removed." The Court finds that this definition best explains the mask, as well as how the electrodes serve as "at least a part of the mask." The Court does not need to construe "said source and drain electrodes serving as at least part of the mask," since this phrase simply combines the terms "source electrode," "drain electrode" and "at least a part of the mask."

7. "Thin Film Transistor"

LPL's and Defendants' construction of "thin film transistor" ("TFT") are very similar. They differ in one respect: LPL specifies that TFTs are not constructed in a single crystal silicon wafer. Since the single wafer is mentioned in the intrinsic evidence and Defendants do not deny that TFTs are constructed in a single

crystal silicon wafer, the Court adopts LPL's construction.

8. "A fourth step for selectively forming a source electrode and drain electrode"

LPL's construction of "a fourth step for selectively forming a source electrode and drain electrode" requires the source and drain electrodes to be "formed together." The Court finds nothing in the claim or specification that supports this interpretation. Although the formation of the source and drain electrodes is listed in one step, nothing suggests that each action within each step must be performed together. LPL's argument that the objective of the invention supports this interpretation is unpersuasive in light of *Liebel,* discussed above. However, the Court also finds Defendants' construction problematic. Defendants construe this phrase as "forming a source electrode and drain electrode in selected regions only by depositing a conducting film or other material such as Al." Figures 1-3 and the specification do indicate that the source and drain electrode are formed in selected regions. *See* 1:15-17, 2:10-14, 3:36-44. However, the specification does not support the second part of CPT's construction. Rather, the specification indicates that source and drain electrodes can be formed via deposition *and subsequent etching of conductive material*. The Court therefore modifies Defendant's construction and defines the phrase as "forming a source electrode and drain electrode in selected regions only," which is consistent with the Court's construction of "selectively forming" below.

9. "Contacting a part of the surface of said island region"

LPL construes "contacting a part of the surface of said island region" to mean "[f]orming an electrical connection to a part of the surface of the island region" while Defendants construe it to require "touching a part of the surface of the island region." The Court finds that Defendants' construction better reflects the plain meaning of the claim.

10. "Forming ... on"

The first step of claim 1 is "for forming a gate electrode on an insulating substrate." LPL argues that the '737 patent uses "forming" in the sense of "providing" whereas Defendants construe "forming" as to give "form or shape to." The Court finds it awkward to define "forming" as "providing" in the phrase "selectively forming a gate electrode 2 on an insulating substrate 1," which is offered as intrinsic evidence by both parties. Defendants' construction is more meaningful in this specific context as well as in the specification and the claims as a whole. Moreover, Defendant's construction is consistent with this Court' definition of "a fourth step for *selectively forming* a source electrode and drain electrode." The Court therefore adopts Defendants' construction of "forming ... on."

11. "Selectively etched"/ "Selectively forming"/ "Selectively removing"

Claim 1 recited a third step wherein "said high-resistivity semiconductor film and said conducting films are *selectively etched* so that they are partly left as an island region on said gate electrode." LPL defines "selectively etched" as the "removal of selected portions of a surface using etching techniques (such as wet etching, plasma etching, reactive ion etching, and ion etching) in order to produce a desired pattern on the surface." Defendants object to this definition because it refers to removal of portions of a *surface,* rather than the *entire film*. While the claim does specifically refer to the etching of the high-resistivity semiconductor film and the conducting films, the Court finds nothing in the language of the claim or the specification that requires etching of the *entire* film. Furthermore, Defendants' construction, which requires etching of the high-resistivity semiconductor film, the conducting film, and the low-resistivity

semiconductor film, is inconsistent with both the language of the claim and with this Court's finding that the conducting film may constitute the low-resistivity semiconductor film. The Court therefore adopts LPL's definition of "selectively etched."

In addition, Claim 1 recites a fourth step for "selectively forming a source electrode and a drain electrode," and a fifth step for "selectively removing said conducting film exposed on said island region." The Court finds no substantive difference between LPL's and Defendants' constructions of "selectively forming" and "selectively removing." However, the Court adopts Defendants' definitions of these respective terms as "forming in selected regions only" and "removing selected regions only" because they convey the meaning in the simplest language.

C. Construction of Disputed Terms of the '449 Patent

1. Gate Electrode/ Source Electrode

Defendants construe the gate/ source/ data electrodes to exclude the lines and pads. Claims 10 and 11 of the '449 patent do refer to the gate electrode, gate pad, source electrode, and source pad individually. For example, claim 10 recites that the liquid crystal display device is comprised of "a first conductive layer ... including: *a gate electrode, a gate pad,* and a source pad." (7:34-39). The specification, however, provides additional information that helps clarify the relationship between the electrodes and the pads. In Figures 2d and 2e, the source pad and source electrode are shown as one connected structure, although they are labeled 7 and 7A respectively. In discussing Figure 2c, the specification states that " *[s]ource electrode 7* thus forms part of a transistor region *and serves as source pad 7A* above the gate insulating film so that the same conductive layer constitutes part of the source wiring and the source electrode of the TFT." (4:1-5). In discussing Figure 2e, the specification states that "ITO pattern 6A is provided on *source pad 2A, which is part of a data electrode of the LCD*." In describing the second embodiment depicted in Figure 3, the specification provides that "source electrode 7 and source pad 2A may be connected to each other in the same step that the pixel electrode is formed." Thus, while the source pads and electrodes are formed separately, they are then connected and the specification's language indicates that they are not necessarily distinct structures. The originally filed application during the prosecution of the '449 patent also supports LPL's position that the electrode should not be defined as excluding the line and pad. The first claim of the original application recites "[a] pad for providing an[ ] electrical connection to a data electrode of a switching device, said *pad comprising: a portion of said data electrode* ...." FN2 The fourth claim in the original application recites "a liquid crystal display device comprising: a data line; and a pad, *said pad including: a portion of said data line* ...." Likewise, the intrinsic evidence does not indicate that the gate electrode must exclude the gate pad. In fact, Figures 2a-2e do not include a separate number identifying the "gate electrode." The Court therefore rejects a construction of "electrode" that specifically excludes the line and pad.

The Court also rejects Defendant's construction of these terms because it specifies a particular direction for flow of charge carriers (from the source electrode toward the drain). The intrinsic evidence does not support such a limitation. Furthermore, as discussed previously with respect to the ' 737 patent, the embodiment shown in Figure 3 of the '737 patent illustrates an arrangement where the direction of flow is reversed. Accordingly, the Court adopts LPL's construction of "source electrode," "gate electrode," and "drain electrode."

2. "Gate pad"/ "Source pad"

According to LPL's construction, pads are provided near the periphery of the TFT array "to receive data from a [gate or data] driving circuit." Defendants contend that this is ambiguous because other parts of the wiring, which are not pads, may also receive data from an external driving circuit. Defendants construe the pads as an element "that is necessary in order to communicate information from an external driving circuit to a [gate or source] electrode." Defendants base this construction on a sentence in the specification which states that " *a pad wiring layer* is necessary in order to communicate information from an external driving circuit to the gate and source." (1:51-53). Since the specification refers to the *pad wiring layer* as being necessary and not the pad, the Court rejects Defendants' construction and adopts LPL's constructions of "gate pad" and "source pad."

3. "On"/ "formed on"/ "disposed on"

LPL defines "on", "formed on" and "disposed on" as "touching a top or side of." LPL contrasts these terms with "overlying," which it defines as "above" something but not necessarily touching it. This Court agrees with Defendants that the specification does not support the distinction made by LPL. For example, the specification states that a "conductive layer is formed *on* the substrate and etched in accordance with a predetermined pattern, thereby forming a source electrode 7 and a drain electrode 8." (5:6-8) (emphasis added). Conductive layer 7 and 8 do not touch the substrate (see Fig. 3), yet the specification uses the word "on." *See also* 2:42-44; 3:50-54; 7:49-50 (all using the word "on" to describe a situation where there is no "touching"). The Court therefore adopts Defendants' definition of "on."

4. "Contact hole is provided through ... layer"/ "Provided through"

The phrases "contact hole is provided through" and "provided through" appear only in claims 1 and 10, always in the context of a contact hole being "provided through" one or more layers of materials. Defendants construe the claim terms to mean that these holes are "made in one side and out the opposite side" of the layers of materials. The Court finds that these phrases should be given their ordinary meaning and therefore adopts LPL's constructions.

5. "Active layer"

Defendants' construction of "active layer" limits this area to the region of the semiconductor layer that forms the channel region between the source and drain electrodes. Figures 2b-e, 3 and 5 of the specification show the active layer 4 extending only under the source 7 and drain 8. However, as LPL points out, these figures do not in any way limit the extension of active layer 4 in the dimension perpendicular to the figure, or in other areas of the substrate not depicted in the cross-section views. Since nothing in the claim or specification limits the active layer to the region of semiconductor layer between the source and drain electrodes, the Court adopts LPL's construction of this term.

6. "Common hole"

LPL construes "common hole" in accordance with its plain meaning as "[a] shared hole." Defendants construe "common hole" to mean "single hole." The court finds Defendants' construction ambiguous, since it suggests that only one hole is permitted. The Court therefore adopts LPL's construction of this term.

7. "Aligned"

LPL construed "aligned" to mean "placed in line with," which is its ordinary meaning. Defendants, on the

other hand, construe "aligned" to mean "substantially co-axial or concentric." Defendants' definition would require the holes to be one on top of the other, whereas LPL's construction would permit the holes to be placed either side-by-side or on top of each other. Although the figures in the specification show these holes to be on top of each other as described by Defendants, the plain language of the claim should not be limited by the figures in the specification. *See Dayco Products,* 258 F.3d at 1327. The Court therefore adopts LPL's construction of this term.

8. "Said second insulating layer having a second contact hole exposing a predetermined portion of said second conductive layer and said first contact hole region"

Defendants' construction of "said second insulating layer having a second contact hole exposing a predetermined portion of said second conductive layer and said first contact hole region" limits the phrase to mean that "the first and second contact holes must overlap." However, none of the embodiments disclosed in the '449 patent teaches that the hole exposing the second conductive layer (i.e. the "second hold") overlaps with the hole in the first insulative layer that exposes the first conductive layer. *See, e.g.,* Fig. 3 and Fig. 5. Since a claim construction that excludes from its scope a preferred embodiment is rarely, if ever, correct, the Court adopts LPL's construction.

9. "Wiring structure"

This term "wiring structure" appears in Claims 1-5 of the '449 patent. LPL's definition characterizes the term as a "slender structure" while Defendants refer to the layer simply as a "structure." Claim 1 begins with "A wiring structure comprising: a substrate" Since the substrate is typically a large slab of glass, which is not "slender," the Court adopts Defendants' definition of this term.

IT IS SO ORDERED.

FN1. LPL submits intrinsic evidence in the form of a scientific article describing ITO (indium tin oxide) as a "semiconductor." This supports LPL's position that the conducting film can be the low-resistivity semiconductor.

FN2. The word "data" corresponds to "source."

C.D.Cal.,2005.
LG Philips LCD Co., Ltd. v. Tatung Co. of America