

**United States Court of Appeals
for the Federal Circuit**

EIDOS DISPLAY, LLC, EIDOS III, LLC,
Plaintiffs-Appellants

v.

**AU OPTRONICS CORPORATION, AU OPTRONICS
CORPORATION AMERICA, CHI MEI INNOLUX
CORPORATION, CHI MEI OPTOELECTRONICS
USA INC., CHUNGHWA PICTURE TUBES, LTD.,
HANNSTAR DISPLAY CORPORATION,
HANNSPREE NORTH AMERICA, INC.,**
Defendants-Appellees

2014-1254

Appeal from the United States District Court for the
Eastern District of Texas in No. 6:11-cv-00201-LED-JDL,
Chief Judge Leonard Davis.

Decided: March 10, 2015

ROBERT TYLER GOODWYN, McKenna Long & Aldridge
LLP, Washington, DC, argued for plaintiffs-appellants.
Also represented by GASPARE JOSEPH BONO, CASS WALKER
CHRISTENSON, ROBERT C. NISSEN.

CHRISTOPHER BENSON, Austin, TX, argued for defend-
ants-appellees. Defendant-appellee Chunghwa Picture

Tubes, Ltd., also represented by DANIEL LEVENTHAL, PAUL ANDREW DYSON, ERIC B. HALL, Norton Rose Fulbright, Houston, TX. Defendants-appellees AU Optronics Corporation, AU Optronics Corporation America, also represented by MARVIN CRAIG TYLER, BRIAN A. DIETZEL, GEOFFREY WILLIAM HEAVEN, Wilson, Sonsini, Goodrich & Rosati, PC, Austin, TX. Defendants-appellees Chi Mei Innolux Corporation, Chi Mei Optoelectrics, USA Inc., Hannspree North America, Inc., Hannstar Display Corporation, also represented by MING-TAO YANG, JACOB ADAM SCHROEDER, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Palo Alto; EDWARD ROBERT YOCHES, Washington, DC.

Before WALLACH, TARANTO, and CHEN, *Circuit Judges*.

CHEN, *Circuit Judge*.

Plaintiff-Appellants Eidos Display, LLC and Eidos III, LLC (Eidos) appeal from the district court's grant of a motion for summary judgment, finding the asserted claim of U.S. Patent No. 5,879,958 (the '958 patent) to be invalid as indefinite. Because the claim, when read in light of the specification and prosecution history, informed with reasonable certainty those skilled in the art at the time the patent was filed about the scope of the claimed invention, we *reverse* the district court's grant of summary judgment of indefiniteness, and *remand* to the district court for further proceedings consistent with our decision.

BACKGROUND

Eidos alleges AU Optronics Corporation, AU Optronics Corporation America, Chi Mei Innolux Corporation, Chi Mei Optoelectronics USA Inc., Chunghwa Picture Tubes, Ltd., Hannstar Display Corporation, and Hannspree North America, Inc. (collectively, "Display Manufacturers") infringe claim 1 of the '958 patent. The '958 patent is directed toward manufacturing processes

for an electro-optical device, such as a liquid crystal display (LCD).

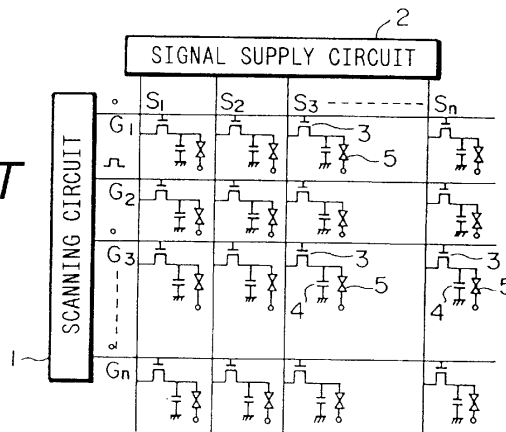
The specification of the '958 patent contains 17 embodiments, each identified by a letter (A through H, J, and L through S). Each embodiment describes a manufacturing process that reduces the number of photolithographic steps in creating an LCD panel compared to prior art processes, lowering the production cost and improving yield and production efficiency. '958 patent, 1:19–3:37 (describing the prior art as containing seven photolithographic steps), 4:39–14:18 (describing the invention as containing four or five photolithographic steps), 14:31–37 (comparing the invention to the prior art). Each embodiment is broken down into a series of “forming” steps that deposit material, such as metal, insulator, or passivation material, on the substrate or previous layers, as well as a series of “photolithographic” steps that etch or remove portions of previously-formed material. For example, the seventh embodiment, identified by the letter “G,” contains five forming steps—G1, G3, G5, G7, and G9—sequentially interspersed with five photolithographic steps—G2, G4, G6, G8, and G10. *Id.* at 8:33–67. The specification describes the manufacturing process for each disclosed embodiment with reference to the figures. For example, figures 54 through 63 depict the process steps of the G embodiment. *Id.* at 18:9–44, 35:31–36:65.

The circuitry in the LCD devices formed by the patented manufacturing processes is the same as circuitry formed by a prior art manufacturing process. *Id.* at 1:16–18. An example of such a prior art circuit is found in figure 169, reproduced below. *Id.*¹ Figure 169 shows a matrix with source wiring (S1, S2, S3, . . . Sn) forming the vertical lines and gate wiring (G1, G2, G3, . . . Gn) form-

¹ Line 16 of column 1 erroneously refers to “FIG. 169” as “FIG. 165.”

ing the horizontal lines. *Id.* at 1:19–23. The source wiring is connected to a signal supply circuit to provide image data, and the gate wiring is connected to a scanning circuit to provide control signals. *Id.*; Appellants' Br. at 6–7.

FIG. 169
PRIOR ART



Important to this appeal, the electrical connection between a source wire and the signal supply circuit is called a *source wiring connection terminal*. The electrical connection between a gate wire and the scanning circuit is called a *gate wiring connection terminal*. In an LCD panel, there are many individual source and gate wires, each with a connection terminal located at the end of the wire. Appellants' Br. at 7 (citing *Eidos Display, LLC v. AU Optronics Corp.*, No. 6:11-cv-201 LED-JDL, 2013 WL 1559729, at *5 (E.D. Tex. Apr. 12, 2013)). During the relevant LCD manufacturing process, a non-conductive passivation film is formed on top of the wiring and connection terminals. See '958 patent, 58:34–36 (Step G7). The passivation film is then etched away to allow the scanning and signal supply circuits to connect to the terminals. See *id.* at 58:37–41 (Step G8). Experts for

both parties agree that, at the time of the '958 patent, the only industry practice for this manufacturing process was to create individual holes, referred to as "contact holes," through the passivation film to each connection terminal. While a single contact hole shared by all the connection terminals may have been technically possible, no expert was aware of any example or teaching where such a contact hole was ever created, and neither party put any such teaching into the record, if such a teaching exists.

The asserted claim 1 is the only issued claim in the '958 patent and recites:

1. A method for producing an electro-optical device in which an electro-optical material is put between a pair of substrates opposed to each other, at least a portion of opposing surfaces of the substrates is insulative, a plurality of source wirings and a plurality of gate wirings are formed crossing each other on the surface of one of said pair of substrates and a transparent pixel electrode and a thin film transistor are formed at each of the crossing points between the source wirings and the gate wirings, wherein the method comprises:

a step G1 of forming a first metal film on the surface of said one substrate,

a first photolithographic step G2 of patterning the first metal film to form a gate electrode and a gate wiring,

a step G3 of forming a first insulator film, a semiconductor film and an ohmic contact film on the surface of said one substrate after the first photolithographic step,

a second photolithographic step G4 of patterning the semiconductor active film and the ohmic contact film to form a semiconductor portion above

the gate electrode in a state isolated from other portions,

a step G5 of forming a second metal film on the surface of said one substrate after the second photolithographic step,

a third photolithographic step G6 of patterning the second metal film and the ohmic contact film to form a source electrode, a drain electrode and a channel portion,

a step G7 of forming a passivation film on the surface of said one substrate after the third photolithographic step, and

a fourth photolithographic step G8 of patterning the passivation film to form a contact hole reaching the gate wiring, a contact hole reaching the drain electrode and *a contact hole for source wiring and gate wiring connection terminals*,

a step G9 of forming a transparent conductive film on the surface of said one substrate after the fourth photolithographic step, and

a fifth photolithographic step G10 of patterning the transparent conductive film to form a transparent pixel electrode.

Id. at 58:5–47 (emphasis added to highlight the limitation at issue on appeal).

During *Markman* proceedings in front of the magistrate judge, the primary claim construction dispute focused on the last portion of step G8, “a contact hole for source wiring and gate wiring connection terminals.” *Eidos Display*, 2013 WL 1559729, at *4. Eidos argued that the disputed limitation requires separate and distinct contact holes for the source wiring connection terminals and gate wiring connection terminals, consistent with the standard industry practice and the specification,

whereas Display Manufacturers argued that the plain language of the disputed limitation requires a shared contact hole for all connection terminals. *Id.* The magistrate judge reviewed the claim language, specification, and the record in the then-ongoing *ex parte* reexamination, and determined that the dispute “[wa]s not ripe for claim construction, as the dispute [as] presented center[ed] around theories of invalidity pursuant to 35 U.S.C. § 112.” *Id.* at *6.

Defendants Chi Mei Innolux Corporation and Chi Mei Optoelectronics USA Inc. (collectively, “Innolux”) then filed a motion for summary judgment alleging noninfringement, in which they argued for a third construction of the disputed limitation, that two different structures be formed: 1) a contact hole for source wiring and 2) the gate wiring connection terminals, with no corresponding contact hole or holes. The district court declined to adopt Innolux’s proposed construction, and instead ordered briefing as to whether the disputed limitation was definite. Display Manufacturers subsequently filed a motion for summary judgment asserting indefiniteness. Eidos, in its response to Display Manufacturers’ motion, proposed a fourth construction of the disputed limitation: that the structure for the limitation could be formed as either a single contact hole as Display Manufactures proposed, or as separate contact holes as Eidos originally proposed. Joint Appendix (J.A.) 33.

The magistrate judge rejected all four proposed constructions of the disputed limitation. Regarding the first, second, and fourth proposed constructions, the magistrate judge determined that the specification failed to support that “a contact hole for source wiring and gate wiring connection terminals” could be formed as either separate contact holes or a shared contact hole. The magistrate judge dismissed Innolux’s proposed construction because it required connection terminals to be formed from an insulating material, whereas the specification requires

the terminals to be made of a conductive material. The magistrate judge recommended that the district court grant the motion for summary judgment on indefiniteness because “the Court is unable to arrive at a construction that would allow a person of ordinary skill in the art to determine what is claimed when the claim is read in light of the specification.” J.A. 34 (citation omitted). The district court issued an order adopting the magistrate judge’s recommendation and granting the motion for summary judgment of indefiniteness. J.A. 22.

Eidos appealed and we have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

A patent must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.” 35 U.S.C. § 112, ¶ 2 (2006).² Keeping in mind that “patents are not addressed to lawyers, or even to the public generally, but rather to those skilled in the relevant art,” the patent claims “must be precise enough to afford clear notice of what is claimed, thereby appris[ing] the public of what is still open to them.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014) (internal quotation marks omitted). A claim fails to satisfy this statutory requirement and is thus invalid for indefiniteness if its language, when read in light of the specification and prosecution history, “fail[s] to inform, with reasonable

² Paragraph 2 of 35 U.S.C. § 112 was replaced with newly designated § 112(b) when § 4(c) of the America Invents Act (AIA), Pub. L. No. 112-29, took effect on September 16, 2012. Because the applications resulting in the patents at issue in this case were filed before that date, we will refer to the pre-AIA version of § 112.

certainty, those skilled in the art [at the time the patent was filed] about the scope of the invention.” *Id.* at 2124.³

We review the grant of summary judgment of indefiniteness *de novo*, applying the same standard used by the district court. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1315 (Fed. Cir. 1998). We review the district court’s ultimate indefiniteness determination *de novo*. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014). The indefiniteness inquiry here is intertwined with claim construction, *see Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1379 (Fed. Cir. 1999), which, because the meaning of the claim at issue is clear in view of the intrinsic record and undisputed facts, we also review *de novo*, *see Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 840–42 (2015). To the extent the district court considered extrinsic evidence in its claim construction order or summary judgment order, that evidence is ultimately immaterial to the outcome because the intrinsic record is clear. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005) (en banc) (“[A] court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.” (internal quotation marks omitted)). We reverse the district court’s finding of indefiniteness because Eidos’ proposed construction for the

³ The district court granted summary judgment on January 22, 2014, without the benefit of the Supreme Court’s guidance in *Nautilus*. The magistrate judge recommended that summary judgment of indefiniteness be granted because he determined, under the pre-*Nautilus* standard, that the asserted claim was “insolubly ambiguous.” J.A. 34 (citing *Honeywell Int’l v. Int’l Trade Comm’n*, 341 F.3d 1332, 1338–39 (Fed. Cir. 2003)).

disputed limitation reflects how a person of ordinary skill in the art at the time of the invention would have understood the limitation after reading the intrinsic record. *See id.* at 1312–18.

The limitation-at-issue, “a contact hole for source wiring and gate wiring connection terminals,” by itself, might suggest to someone unknowledgeable in the field of LCD manufacturing that one contact hole is formed for all the source wiring connection terminals and gate wiring connection terminals, as the Display Manufacturers argue. But the limitation, by itself, might also indicate that many contact holes are formed for the connection terminals. To analogize, a person familiar with cars, when reading the sentence “I am going to create an electric car for the United States and United Kingdom,” would likely expect different electric cars to be created, one set with the steering wheel located on the left for driving in the United States, and another set with the steering wheel on the right for driving in the United Kingdom. The intrinsic record here makes sufficiently clear that a person of ordinary skill in the art—someone with knowledge of LCD manufacturing—after considering the limitation “in the context of the particular claim in which the disputed term appears, [and] in the context of the entire patent, including the specification,” *Phillips*, 415 F.3d at 1313, would understand the limitation-at-issue to call for separate, different contact holes for the source wiring connection terminals and gate wiring connection terminals, rather than one shared contact hole.⁴

⁴ During reexamination of the ’958 patent, the examiner concluded that the limitation-at-issue “implicitly requires separate contact holes for the source wiring and gate wiring connection terminals.” J.A. 6079–80.

As an initial matter, no party disputes that the state of the art for manufacturing LCD panels always had been to form contact holes for source wiring connection terminals that are separate from contact holes for gate wiring connection terminals. Consistent with that well-established practice, the specification teaches that each connection terminal for the electro-optical device would receive its own contact hole, for two reasons.

First, nothing in the 172 figures or 58 columns of the '958 patent describes how a person of ordinary skill in the art would deviate from the known industry practice to create a novel shared contact hole for all the connection terminals. If the patentee wanted to deviate from the standard practice and claim a novel shared contact hole, some teaching of how to depart from the common practice would not only be expected, but is required. *See* 35 U.S.C. § 112 (“The specification shall contain a written description of the invention, and 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 make and use the same . . .”).

Second, the only description corresponding to “a contact hole for source wiring and gate wiring connection terminals” in the specification teaches that separate contact holes are formed for the different connection terminals. This teaching is evident when considering the history of the '958 patent, in particular the patent application to which the '958 patent claims priority, application number 08/459,925. *See Masco Corp. v. United States*, 303 F.3d 1316, 1324 (Fed. Cir. 2002) (“The prosecution history of a parent application may be considered in construing claim terms.” (citing *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 980 (Fed. Cir. 1999) (“When multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim

limitation.”))). The ’925 application originally contained seventeen independent claims, J.A. 9419–49, which were subject to a seventeen-species restriction, J.A. 9516. The specification in the ’925 application, which is substantially the same as the specification in the ’958 patent, contains seventeen embodiments that match with and describe the seventeen original independent claims. The limitation-at-issue, “a contact hole for source wiring and gate wiring connection terminals,” appeared in five of the original claims; claim 3 (embodiment B), claim 4 (embodiment C), claim 5 (embodiment D), claim 7 (embodiment F), and claim 8 (embodiment G). Original claim 8 ultimately became claim 1 of the patent before us—the ’958 patent. Although the portion of the specification describing embodiment G does not explain in detail this particular photolithographic step, the portion describing embodiment D, which claims this step using identical claim language, explicitly describes this photolithographic step as forming “a contact hole [] for a source wiring connection terminal and a contact hole for a gate wiring connection terminal.” ’958 patent, 31:42–53. Both parties agree that, as recited in original claim 5 (which corresponds to embodiment D), “a contact hole for source wiring and gate wiring connection terminals” requires *separate* contact holes for each connection terminal, consistent with Eidos’ proposed construction. *Id.* at 31:50–53. After reviewing the specification as well as the claims originally filed with the Patent Office, we see no reason to ascribe a different meaning to the same limitation in original claim 8, *i.e.*, claim 1 of the ’958 patent. *See Phillips*, 415 F.3d at 1314 (“Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.”).

Even without considering the priority application, the specification makes clear that the limitation-at-issue requires formation of separate contact holes. Again, with

respect to embodiment D, the specification, at one point, describes “a fourth photolithographic step D8 of patterning the passivation film to remove a portion of the passivation film, . . . forming *a contact hole for source wiring and gate wiring connection terminals.*” ’958 patent, 7:11–22 (emphasis added). And, as already stated, the specification later clarifies that “photolithographic step D8” entails forming “a contact hole [] for a source wiring connection terminal and a contact hole for a gate wiring connection terminal.” *Id.* at 31:42–53. The specification thus *equates* the limitation-at-issue with forming separate contact holes for the source wiring connection terminal and the gate wiring connection terminal. Nothing in the specification suggests why the identical phrase recited in the claimed “fourth photolithographic step G8” should be read differently from the described “fourth photolithographic step D8.” Instead, a person of ordinary skill in the art would understand that the phrase, “a contact hole for source wiring and gate wiring connection terminals,” when used repeatedly throughout the patent, would be given a consistent meaning. *See Energy Transp. Grp., Inc. v. William Demant Holding A/S*, 697 F.3d 1342, 1349–50 (Fed. Cir. 2012) (using the description of a word in the specification for a different structure to inform the meaning of the same word in the claim because “claim terms are normally used consistently throughout the patent” (quoting *Phillips*, 415 F.3d at 1314)).

The limitation-at-issue also appears in original claims 3, 4, and 7 of the ’925 application, J.A. 9421–25, 9429–30, and in the corresponding embodiments B, C, and F of the specification, ’958 patent, 5:38–6:8, 6:9–49, 7:64–8:32. Display Manufacturers argue that the lack of description for the limitation-at-issue in embodiments B, C, F, and G, as described in the specification, is evidence that the structure in those embodiments is different than in embodiment D. We disagree. As set forth above, the relationship between the specification description for

embodiment D and original claim 5 establishes the proper understanding for the same claim limitation recited in the other original claims of the '925 application, *i.e.*, claim 3 (embodiment B), claim 4 (embodiment C), claim 7 (embodiment F), and claim 8 (embodiment G).

The district court dismissed the teachings of the D embodiment because structures formed in Step D8, as recited in original claim 5 of the '925 application and in the specification, do not precisely mirror the structures formed in the claimed Step G8. J.A. 29. The magistrate judge noted that, in addition to the “contact hole for source wiring and gate wiring connection terminals,” Step G8 forms a contact hole reaching the gate wiring and a contact hole reaching the drain electrode, whereas, in the D embodiment, the contact hole reaching the gate wiring is formed during Step D4, and a contact hole reaching the drain electrode is not mentioned. J.A. 29–30. Relatedly, Display Manufacturers argue that the different embodiments have a different number of steps and have a different sequence in which the patterns are etched, which they argue results in “a fundamentally different approach to manufacturing a [device].” Appellees’ Br. at 8–9. Different embodiments, however, are expected to have differences, and neither the magistrate judge nor Display Manufacturers explain how the noted differences in the structures of the embodiments impact the structure of the limitation-at-issue or impact how a person of ordinary skill in the art would have understood the limitation. Instead, the embodiments all similarly describe manufacturing processes for an electro-optical device using a reduced number of photolithographic steps over the prior art, and the structure for the limitation-at-issue is formed in the same context in each embodiment—in a “photolithographic step [] of patterning the passivation film.” '958 patent, 6:4–5, 6:43–44, 7:11–12, 8:23–24, 8:57–58. This similar context of the limitation-at-issue, in similar embodiments, supports the conclusion that a person of

ordinary skill in the art would adopt the same understanding for the same limitation recited in claim 1 of the '958 patent.

Finally, Display Manufacturers argue that permitting separate contact holes to be covered by the limitation “a contact hole for source wiring and gate wiring connection terminals” would require rewriting the limitation, which is impermissible except in certain situations. Appellees’ Br. at 29 (citing *Source Vagabond Sys., Ltd. v. Hydrapak, Inc.*, 753 F.3d 1291, 1301 (Fed. Cir. 2014)). Determining how a person of ordinary skill in the art would understand the limitation, however, is different from rewriting the limitation. Here, because a person of ordinary skill in the art would understand that the limitation “a contact hole for source wiring and gate wiring connection terminals” means separate contact holes for source wiring connection terminals and gate wiring connection terminals, adopting such a construction is not rewriting the claim limitation.

* * *

The '958 patent teaches a person of ordinary skill in the art that “a contact hole for source wiring and gate wiring connection terminals” is formed by etching separate contact holes for the source wiring connection terminals and for the gate wiring connection terminals, as described in the specification and prosecution history. Therefore, the limitation “a contact hole for source wiring and gate wiring connection terminals” in claim 1 of the '958 patent is not indefinite under 35 U.S.C. § 112, ¶ 2. We reverse the judgment of indefiniteness and remand to the district court for further proceedings consistent with this opinion.

REVERSED AND REMANDED

COSTS

Each party shall bear its own costs.