

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CMI CORP.

Petitioner

v.

PATENT OF HIRAKATA YOSHIHARU and
SHUNPEI YAMAZAKI

Patent Owner

CASE IPR 2013-00066

PATENT 7,876,413

PATENT OWNER PRELIMINARY RESPONSE

UNDER 37 CFR § 42.107

Contents

I. The Petition May Not Be Considered Because it Fails to Identify all Real Parties-in-Interest..... 3

II. The Same Prior Art Cited in the Petition Was Already Considered by the Office 10

III. The Admitted Prior Art (“APA”)..... 13

IV. The Invention of the ‘413 Patent 13

A. “First Wiring” and “Second Wiring” 15

B. “First Region” and “Second Region” 16

V. Claims of the ‘413 Patent 18

VI. The Petition Fails to Establish a Reasonable Likelihood that at Least One Challenged Claim Is Unpatentable Over the APA In View Of Sukegawa.....20

A. APA and Sukegawa Fail to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring” 21

1. APA Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring” 21

 a. The relationship between the short ring and the external connection line of the APA does not correspond to the relationship recited in the claims of the “first wiring” and the “second wiring” 22

 b. APA lacks one of the elements that is essential to form the “first region” and the “second region” 25

2. Sukegawa Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring” 29

 a. The relationship between the lower layer metal wiring and the upper layer metal wiring of Sukegawa does not correspond to the relationship recited in the claims of the “first wiring” and the “second wiring” 30

b. Upper layer metal wiring in Sukegawa, which the Petition alleges corresponds to the claimed “second wiring,” lacks the claimed “second region”	33
B. Sukegawa Fails to Show the Claim Element of “Direct Contact Through an Opening in the Second Insulating Film”	37
C. A Person of Ordinary Skill in the Art Would Not Combine the APA with Sukegawa	40
D. Even Combined, the APA and Sukegawa Would Not Meet the ‘413 Patent Claim Elements.....	42
E. The APA and Sukegawa Have Already Been Considered by the Office	42
VII. The Petition Fails to Establish a Reasonable Likelihood that at Least One Challenged Claim Is Unpatentable Over Sukegawa In View of Nakamoto.....	43
A. Sukegawa and Nakamoto Fail to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”	44
1. Sukegawa Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”	44
2. Nakamoto Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”	45
a. The relationship between the GTM and the DTM of Nakamoto does not correspond to the relationship recited in the claims of the “first wiring” and the “second wiring”	46
b. Nakamoto does not disclose the “first region”	49
B. Sukegawa Fails to Show the Claim Element of Sealant in “Direct Contact With the Second Insulating Film”	51
C. Sukegawa Fails to Show the Claim Element of “Direct Contact Through an Opening in the Second Insulating Film”	52

D. A Person of Ordinary Skill in the Art Would Not Combine Sukegawa with Nakamoto..... 53

E. Even Combined, Sukegawa and Nakamoto Would Not Meet the ‘413 Patent Claim Elements..... 56

F. The Teachings in the Petition Have Already Been Considered by the Office..... 56

VIII. Conclusion 58

EXHIBIT LIST

Exhibit 2001 – Complaint, *Semiconductor Energy Laboratory Co., Ltd. v. Chimei Innolux Corp., et al.*, Case No. SACV 12-0021-JST (C.D. Cal).

Exhibit 2002 – Defendants’ Motion to Stay Litigation Pending Outcome of Inter Partes Review, *Semiconductor Energy Laboratory Co., Ltd. v. Chimei Innolux Corp., et al.*

Exhibit 2003 – Supplemental Declaration of Gregory S. Cordrey in Support of Defendants' Motion for Stay, *Semiconductor Energy Laboratory Co., Ltd. v. Chimei Innolux Corp., et al.*

Exhibit 2004 – Defendants’ Reply in Support of their Motion to Stay, *Semiconductor Energy Laboratory Co., Ltd. v. Chimei Innolux Corp., et al.*

Exhibit 2005 – Defendant Westinghouse Digital's Notice of Joinder, *Semiconductor Energy Laboratory Co., Ltd. v. Chimei Innolux Corp., et al.*

Exhibit 2006 – Prosecution File History of US application serial no. 12/252,793 (US Patent No. 7,876,413) Excerpt – Prior Art considered by the Office

Exhibit 2007 – Sasuga, US Patent No. 5,432,626

Introduction

Patent Owner Semiconductor Energy Laboratory Co., Ltd. (“SEL”) submits this Preliminary Response to the Petition seeking *inter partes* review (“IPR”) of its U.S. Patent No. 7,876,413 (“the ‘413 patent”) filed on November 30, 2012 .

The Board appears to have incorrectly identified inventors Yoshiharu Hirakata (identified in caption as “Hirakata Yoshiharu”) and Shunpei Yamazaki as the Patent Owner in the caption of the NOTICE OF INCOMPLETE PETITION mailed November 30, 2012. However, SEL is the Patent Owner and real party-in-interest, by virtue of an assignment recorded with the Patent and Trademark Office at reel 009581, frame 0943. *See*, MPEP § 306. Accordingly, the Patent Owner requests correction of the caption and that future mailings properly reflect SEL as the Patent Owner.

In the Petition, Petitioner Chimei Innolux Corp. (“CMI”) attempts to smear the Patent Owner at pp. 4 and 5 of the Petition, referring to a case from 13 years ago. This over a decade ago case on an unrelated matter has utterly no bearing on the merits of the Petition at bar. Petitioner raises another unrelated matter concerning how the Patent Owner allegedly derives its revenue. Petitioner’s assertion is neither accurate nor relevant to any issue in this proceeding.

Moreover, Petitioner suggests that the Board intercede in another pending patent application of the Patent Owner, where the Office has sent a Notice of

Allowance. In its Petition, Petitioner has not explained how the claims currently present in the Patent Owner's pending patent application are patentably indistinct from the challenged claims of the involved '413 patent. If Petitioner believes that it can demonstrate a reasonable likelihood that at least one of the application claims is unpatentable, then it can submit a proper petition with proper evidence and a proper showing, and the requisite fees, and ask the Board to consider instituting another *inter partes* review. But the rules simply do not permit Petitioner to interfere with a pending application that is not involved in the present request for IPR. Nor is it necessary for the Board to interject itself into a pending application with respect to this Petition.

Putting the above issues aside, the Patent Owner respectfully requests that the Board deny the Petition. As will be explained in more detail *infra*, the Petition should be denied for failing to identify all the real parties-in-interest pursuant to 35 U.S.C. § 312 (a)(2). Also, the art relied on in the Petition is the same or substantially the same art previously presented to the Office during prosecution of the '413 patent, and therefore, the Petition should be denied under 35 U.S.C. § 325(d). Furthermore, for the reasons discussed below, the Petition should be denied because it does not meet the elevated "reasonable likelihood" standard¹ that

¹ In enacting the "reasonable likelihood" standard in 35 U.S.C. § 314, Congress set forth a substantially higher standard than the "substantial new question" under previous law, in order to deliberately reduce the number of *inter partes* requests

at least one claim of the '413 patent is unpatentable.

I. The Petition May Not Be Considered Because it Fails to Identify all Real Parties-in-Interest.

Because the Petition fails to identify all the real parties-in-interest, the Office lacks statutory authority to consider it under 35 U.S.C. § 312 (a)(2), which states:

(a) REQUIREMENTS OF A PETITION.—A petition filed under section 311 *may be considered only if* __...

(2) the petition identifies all real parties in interest....

(Emphasis added). Further, the Office rules require that the petitioner provide certain mandatory notices, including of the real parties-in-interest. 37 C.F.R. § 42.8(b) (“Each of the following notices must be filed: (1) “Identify each real party-in-interest for the party.”). Here, the Petition fails to identify any of the real parties-in-interest other than Petitioner itself.

Under § 312(a)(2) and § 315(b), the term “real party-in-interest” generally means a party “that desires review of the patent.” *See* Office Patent Trial Practice Guide, 77 Federal Register 48759 (“Real Party-in-Interest or Privy,” stating that

that are ultimately granted. *See*, H.R. Rep. No. 112-98 (part 1), at 47 (2011) (“The threshold for initiating an inter partes review is elevated from ‘significant new question of patentability’— a standard that currently allows 95% of all requests to be granted—to a standard requiring petitioners to present information showing that their challenge has a reasonable likelihood of success.”). Thus, the new standard makes *inter partes* review unavailable but for exceptional cases where “serious doubts” about the patent’s validity are raised and a “prima facie case” has been established by the petitioner. *See*, 157 Cong. Rec. S1375 (Mar. 8, 2011) (statement of Sen. Jon Kyl (D-Ariz)).

“the spirit of that formulation as to IPR and PGR proceedings means that, at a general level, the ‘real party-in-interest’ is the party that desires review of the patent.”). One consideration in identifying a “real party-in-interest” is whether the non-party “has the actual measure of control or opportunity to control that might reasonably be expected between two formal coparties.” (Office Patent Trial Practice Guide, 77 Federal Register 48759, citing Charles Alan Wright, Arthur R. Miller & Edward H. Cooper, *Federal Practice & Procedure* §§ 4451).

This requirement of § 312(a)(2) is critically important “to assist members of the Board in identifying potential conflicts, and to assure proper application of the statutory estoppel provisions ... to protect patent owners from harassment via successive petitions by the same or related parties, to prevent parties from having a ‘second bite at the apple,’ and to protect the integrity of both the USPTO and Federal Courts by assuring that all issues are promptly raised and vetted.” *Id.* As such, the statutory requirement to identify “all” real parties-in-interest is not a mere formality.

The Petition fails to identify the following real parties-in-interest: Acer America Corporation (“Acer America”); Chi Mei Optoelectronics USA, Inc. (“CMO USA”); ViewSonic Corporation (“ViewSonic”); VIZIO, Inc. (“VIZIO”); and Westinghouse Digital, LLC (“Westinghouse”). Petitioner CMI and each of these additional real parties-in-interest are co-defendants in a currently pending

litigation for infringement of the '413 patent brought by the Patent Owner, *Semiconductor Energy Laboratory Co., Ltd. v. Chimei Innolux Corp., et al.*, Case No. SACV 12-0021-JST (C.D. Cal) (hereinafter the “*CMI* case”). *See*, Ex. 2001. All but Westinghouse are jointly represented in the *CMI* case by the same counsel, including Gregory Cordrey – named as Petitioner’s Backup Counsel in the Petition. (*See*, Ex. 2002 and Ex. 2003). *CMI* and all of the foregoing co-defendants joined with Petitioner in filing a motion to stay the *CMI* case.² *See* Defendants’ Notice of Motion and Motion to Stay Litigation Pending Outcome of Inter Partes Review; Memorandum of Points and Authorities in Support of Motion and Declaration of Gregory S. Cordrey in Support Thereof (the “Motion to Stay”) (Ex. 2002 and Ex. 2003).

All the defendants in the *CMI* case are real parties-in-interest because they all participated in filing the Petition. Thus, the co-defendants, in their joint Motion to Stay, collectively refer to an earlier Petition as “*their*” Petition that “*Defendants filed.*” (Ex. 2002, pp. 2, 5, and 6, emphasis added). Further, the defendants represented to the Court in the *CMI* case that the “Defendants *have moved*

² Although not included originally as one of the “Defendants” in the motion to stay, Westinghouse subsequently joined in the motion to stay, advising the Court that Westinghouse “hereby joins Defendants’ motion to stay” and “[a]dditionally, in the event that the Court grants the Motion and stays the litigation, Westinghouse agrees to be bound by the PTO’s determinations on the IPRs pursuant to the estoppel provisions of 35 U.S.C. § 315(e)(2).” (Ex. 2005, p. 2.)

expeditiously to prepare and file a comprehensive petition for an IPR of the Asserted Patents.” (Id. at 17) (emphasis added). As noted, one of the “Asserted Patents” in the *CMI* case is the ‘413 patent. See also Id. at 6 (“Defendants’ petitions for IPR...”); Id. at 8 (“Defendants have presented the PTO with prior art...” (emphasis added)).

Furthermore, in Defendants’ Reply in Support of Their Motion to Stay Litigation Pending Outcome of *Inter Partes* Review (“Defendants’ Reply”), they stated that “[t]o the extent there was any ambiguity on this issue, CMO USA, Acer, VIZIO, and ViewSonic hereby expressly confirm their agreement to be bound by the estoppel provisions of the IPRs proceedings.” Defendants’ Reply, at 2, n. 4.; id. at 14 (Ex. 2004, pp. 2 and 3; 14). Thus, removing any possible doubt about their status, the defendants themselves have all expressly committed to be real parties-in-interest in order to obtain a stay of the co-pending *CMI* case.

The existence of unidentified real parties-in-interest is further evidenced by a declaration submitted by Petitioner’s Backup Counsel, Gregory Cordrey, in support of Defendants’ Motion to Stay, which stated that “[o]n November 28, 2012, Defendants filed with the U.S. Patent and Trademark Office (“PTO”) its petition for IPR for U.S. Patent No. 7,876,413 (“‘413 Patent”).” (Ex. 2003, p. 3, emphasis added). The Declaration identifies the Petition at issue as the collective “Defendants’ petition for IPR.” (Id., emphasis added). Thus, the Petitioner’s

Backup Counsel stated in his foregoing Declaration, “under penalty of perjury under the laws of the United States of America” (Id., p. 3), that on November 28, 2012, the Petition at issue here was filed on behalf of *all* defendants. Thus, the Petition is not just CMI’s petition, but also the *inter partes* review petition of all five other co-defendants in the pending *CMI* case. Each of the other five co-defendants, according to their representations to the Court in the *CMI* case, participated in the preparation and filing of the Petition, while collectively seeking statutory rights (i.e., a stay of litigation) and acknowledging statutory estoppel based on their status as real parties-in-interest. At a minimum, these five co-defendants had the opportunity to control the content of the Petition.

Here, there is no concern that estoppel will apply against a party who was opposed to filing the Petition or had no control over the Petition. (*See, e.g., In re Arviv, et al.*, Reexamination Proceeding Control No. 95/001,526, pages 5 and 6 of Decision Dismissing §1.182 and §1.183 Petitions, mailed April 18, 2011 (The Office of Patent Legal Administration stated its concern that finding a co-defendant in a litigation to be *ipso facto* a real party in interest could result in estoppel against a party who was opposed to filing the request for reexamination or a party who had no control over the request for reexamination.)) As CMO USA, Acer America, VIZIO, ViewSonic, and Westinghouse advised the Court in the *CMI* case, the Petition is *theirs* and CMI’s. They all are real-parties-in-interest not

because they are co-defendants in a concurrent litigation, but because by virtue of it being *their* Petition, they each controlled or had the opportunity to control the content of the Petition, and they collectively caused the Petition to be filed.

Although CMO USA, Acer America, VIZIO, ViewSonic and Westinghouse informed the Court in the *CMI* case that they agree to be bound by the estoppel provisions of the IPR proceedings, such statement to the Court is not the equivalent of, and is a woefully inadequate substitute for, such parties being named in the Petition as real parties-in-interest. For example, under 35 U.S.C. § 315(e)(1) and (2), not only the petitioner, but also “the real party-in-interest or privy of the petitioner” is bound by the estoppel provisions. First, the co-defendants’ representation to the Court in the *CMI* case that they agree to be bound by the estoppel provisions of the IPR proceedings would not necessarily be known to the Office in future *inter partes* review proceedings involving the same patent. Therefore, the Office would have no practical way of enforcing the estoppel provisions of § 315(e)(1), which provides that no real party-in-interest may request or maintain a proceeding before the Office with respect to a claim in a patent that results in a final written decision under § 318(a) on any ground that the petitioner raised or reasonably could have raised during that *inter partes* review. Similarly, with respect to estoppel under § 315(e)(2) in future civil actions, the extent to

which unidentified real parties-in-interest will actually be bound by their statement to the Court in the *CMI* case is unclear.

Moreover, unless real parties-in-interest are identified in the petition, potential conflicts of interest involving members of the Patent Trial and Appeal Board cannot readily be identified. The requirement to identify all real parties in interest pursuant to §312(a)(2) serves the same purpose as a similar requirement to identify interested parties in litigation pursuant to Federal Rule of Civil Procedure 7.1. It is critically important that the judges of the Patent Trial and Appeal Board not have a conflict created by a financial interest in the outcome of the cases under their review. “[I]n the case of the Board, a conflict would typically arise when an official has an investment in a company with a direct interest in a Board proceeding. Such conflicts can only be avoided if the parties promptly provide information necessary to identify potential conflicts.” *See* Rules of Practice for Trials Before the Patent Trial and Appeal Board and Judicial Review of Patent Trial and Appeal Board Decisions, 77 FR 48612, 48617 (Aug. 14, 2012). Thus, a prompt identification of all real parties-in-interest is required to allow judges of the Patent Trial and Appeal Board to recuse themselves from a proceeding that creates a conflict of interest.

As such, all the defendants in the *CMI* case, Acer America, CMO USA, ViewSonic, VIZIO and Westinghouse are real parties-in-interest with respect to the

Petition. However, Section I(A) of the Petition merely states “Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that CMI is the real party-in-interest” without identifying any other real parties-in-interest. Thus, the certification made in Section I(A) of the Petition is incorrect. As each of these additional parties have jointly acknowledged their collective effort to seek review of the ‘413 patent by filing their Petition, and have represented to the Court in the *CMI* case that they moved expeditiously to prepare and file their Petition, they all are real parties-in-interest. Notwithstanding that each of the parties in the *CMI* case is a real party-in-interest with respect to the Petition, none of them except CMI was identified in the Petition. As such, the Petition does not satisfy the requirement of § 312(a)(2) to identify all real parties-in-interest. Therefore, *inter partes* review of the Petition cannot be instituted. Accordingly, the Patent Owner respectfully requests that the Petition be denied on this additional ground.

II. The Same Prior Art Cited in the Petition Was Already Considered by the Office

Under 35 U.S.C. § 325(d), the Board need not consider the Petition since all prior art references cited in the Petition already were presented to the Office during the prosecution of the ‘413 patent, with the exception of one secondary reference in which the cited teachings are cumulative to and substantially the same as a reference that was previously presented to and considered by the Office. As such, the Patent Owner requests that the Board deny the Petition under 35 U.S.C. §

325(d), which provides that “[i]n determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31 [i.e., *inter partes* review], the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.”

The Office has already considered the APA and U.S. Patent No. 5,636,329 (“Sukegawa”) during the prosecution of the ‘413 patent and found the claims patentable over that prior art. While the Office has not considered JP Patent Application Publication No. H08-160446 (“Nakamoto”) *per se*, the Office has already considered the teachings relied upon by Petitioner in another reference which is cumulative of these teachings.

More specifically, the APA was included in the specification of the application as filed and presumably considered by the Office during the prosecution of the ‘413 patent.

Sukegawa was submitted to the Office by the Patent Owner in an Information Disclosure Statement received by the Office on May 5, 2010 and was considered by the Office in at least the Final Office Action dated June 16, 2010 during the prosecution of the ‘413 patent. (Ex. 2006, p. 1).³

³ It is noted that the Patent Owner submitted references and the Office referred to such references during the prosecution of the ‘413 patent, but these documents are not included in Exhibit 1002 submitted by Petitioner. Exhibit 1002 is deficient.

Nakamoto itself was not cited during prosecution of the application that became the '413 patent. However, the teachings relied upon by Petitioner from Nakamoto are cumulative of U.S. Patent No. 5,432,626 ("Sasuga," Ex. 2007), which was submitted to the Office by the Patent Owner in an Information Disclosure Statement received by the Office on October 16, 2008 and considered by the Office in at least the Office Action dated February 1, 2010. (Ex. 2006, p. 3). Indeed, Figs. 5 and 9 of Nakamoto, which are the only figures from Nakamoto that Petitioner refers to in Section VI of its Petition, are the same as Figs. 18 and 22 of Sasuga.⁴ Hence, this disclosure in Nakamoto is cumulative to Sasuga, and the Office has therefore already considered that disclosure – whether in Sasuga or Nakamoto, during the prosecution of the '413 patent and allowed the claims over that disclosure.

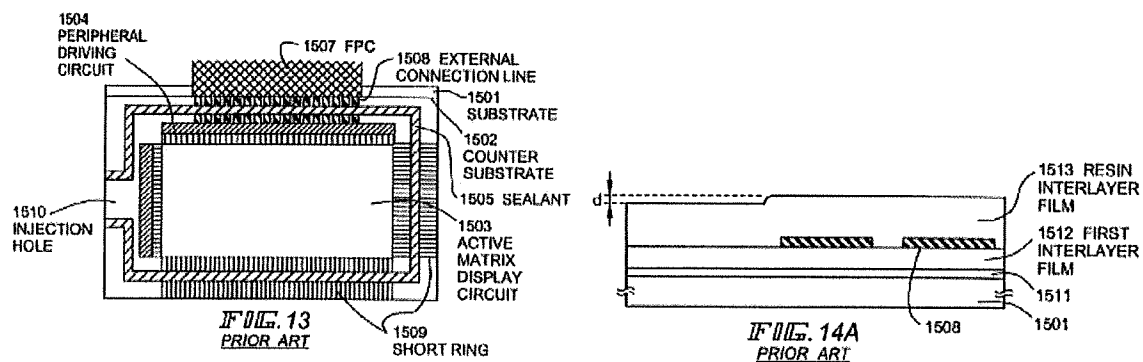
Thus, the Office has already considered the same prior art teachings asserted in the Petition. Since the same or substantially the same prior art teachings asserted in the Petition were already previously presented to and considered by the Office, the Petition for *inter partes* review should be denied pursuant to § 325(d).

Accordingly, the Patent Owner is submitting a copy of missing excerpts from the file history for the '413 patent in Exhibit 2006.

⁴ Further, Figs. 3, 4, 6-8, 10, and 11 of Nakamoto also are disclosed in Sasuga. (Ex. 2007, Figs. 1, 2, 11, 21, 23, 26 and 31).

III. The Admitted Prior Art (“APA”)

The ‘413 patent refers to prior art structures shown in Figs. 13 and 14A reproduced below. APA shows an example of a liquid crystal display device. Referring to Fig. 13 of the ‘413 patent, a substrate 1501 and a counter substrate 1502 are disposed in a face-to-face relationship with a sealant 1505 interposed between them to form a panel. On the substrate 1501, an active matrix display circuit 1503 is provided with external connection lines 1508 for electrically connecting an FPC (flexible printed circuit) 1507 outside the sealant 1505 to transmit signals between active matrix display circuit 1503 and the FPC 1507. Fig. 14A of the ‘413 patent, which is a cross sectional view of Fig. 13, shows that the FPC 1507 and the active matrix display circuit 1503 are connected through external connection lines 1508. In addition, the sealant 1505 overlaps the external connection lines 1508. (Ex. 1001, col. 1, l. 48 - col. 2, l. 30).



IV. The Invention of the ‘413 Patent

The ‘413 patent, entitled “Electronic Apparatus With A Flexible Printed Circuit And A Transparent Conductive Layer,” relates to a display device. The

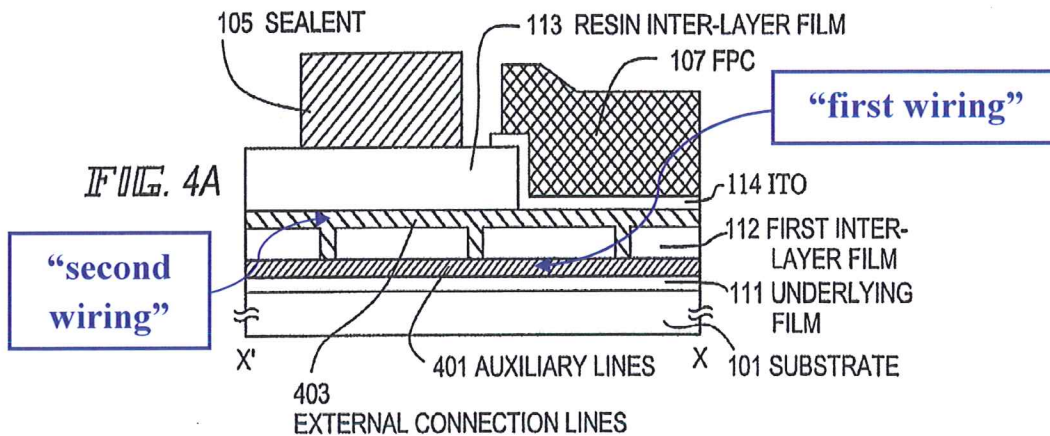
invention uses auxiliary lines such as 401, which correspond to a “first wiring” in the claims. (Ex. 1001, col. 8, ll. 42-50 and Fig. 4A). A first inter-layer film 112, which corresponds to a “first insulating film,” separates the auxiliary lines 401 from external connection lines such as 403, which correspond to a “second wiring” in the claims. (Id., col. 8, ll. 42-50 and Fig. 4A). All of the claims in the ‘413 patent require a contact hole (“an opening”) through the first insulating film to allow electrical contact between these two wirings. (Id., col. 8, ll. 46-50 and Fig. 4A). One reason for, and result of, electrically connecting the auxiliary lines 401 to the external connection lines 403 is to lower electrical resistance. As explained in the ‘413 patent specification, even when the second wiring is made from a metal, the wiring faces a problem of high line resistance, which can cause propagation delay and deterioration of high frequency signals normally used in such LCD circuits and communicated via the flexible printed circuit referenced in the claims, thereby inhibiting optimal performance. (Id., col. 8, l. 61 - col. 9, l. 11). The above configuration in the patent reduces this electrical resistance. (Id., col. 8, ll. 42-50 and Fig. 4A).

Furthermore, in order to improve the reliability of an electronic apparatus by providing for the sealant 105 to have favorable adhesion, this invention provides a structure wherein the sealant 105 and the indium tin oxide (“ITO”) film 114, which corresponds to a “transparent conductive layer,” do not overlap each other, and the

sealant 105 is in direct contact with the second insulating film such as the resin inter-layer film 113. (Id., Fig. 4A). Generally, a sealant has poor adhesion to a transparent conductive film made of ITO. As shown in Fig. 4A of the '413 patent, the transparent conductive layer is over a "first region" of the second wiring, and the sealant is over the first wiring and a "second region" of the second wiring. The above configuration in the patent provides favorable adhesion of the sealant.

A. "First Wiring" and "Second Wiring"

Fig. 4A of the '413 patent (reproduced below with annotations) is a cross sectional view of Fig. 1 of the '413 patent. As shown in annotated Fig. 4A, the display device includes a first wiring (*e.g.*, auxiliary lines 401) over a substrate 101, a first insulating film (*e.g.*, first inter-layer film 112) over the first wiring and a second wiring (*e.g.*, external connection lines 403) over the substrate 101 and the first insulating film. (Petitioner agrees that the auxiliary line 401 in the patent corresponds to the claimed "first wiring" and the external connection lines 403 correspond to the claimed "second wiring." *See* Pet., pp. 14 and 15.)



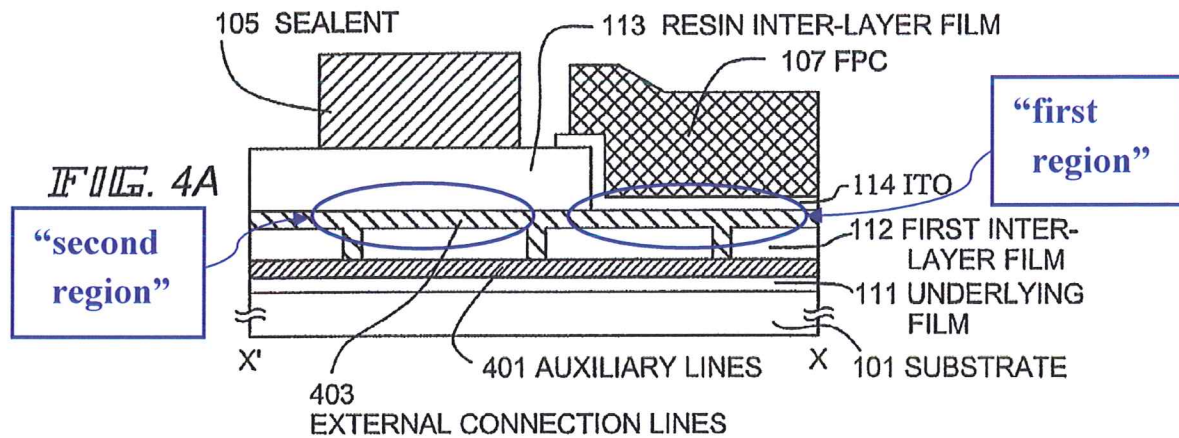
The specification of the '413 patent states, "auxiliary lines 401 that extend along external connection lines 403 are provided under the first inter-layer film 112 and the external connection lines 403 and auxiliary lines 401 are electrically connected in parallel by forming contact holes in the first inter-layer film 112 to reduce the electrical resistance as shown in FIG. 4A." (Ex. 1001, col. 8, ll. 45-50).

As made clear by the figures and the specification of the '413 patent, one aspect of the invention of the '413 patent is that the first wiring and the second wiring overlap and are in electrical contact through an opening of the first insulating film in such a way as to reduce electrical resistance.

B. "First Region" and "Second Region"

The '413 patent claims further require the second wiring to have both a "first region" and a "second region." As shown in Fig. 4A of the '413 patent (see below with annotations), the display device includes a transparent conductive layer (e.g., ITO film 114) over a first region of the second wiring (e.g., external connection

lines 403), a flexible printed circuit (*e.g.*, FPC 107) over the first region of the second wiring, and a sealant (*e.g.*, sealant 105) over a second region of the second wiring. Further, the sealant is in direct contact with a second insulating film (*e.g.*, resin inter-layer film 113).



Therefore, the claims, specification, and figures of the ‘413 patent define the first and second regions as separate and distinct locations or portions of the second wiring. Regarding the “first region,” the ‘413 patent claims specify that the transparent conductive layer is over the first region. The transparent conductive layer corresponds to the ITO film 114 in Fig. 4A. The ‘413 patent claims also specify that a flexible printed circuit is located over the first region. The flexible printed circuit is labeled as “107 FPC” in Fig. 4A. Regarding the “second region” of the second wiring, the ‘413 patent claims require that the sealant is located over the second region. The sealant is 105 in Fig. 4A. Therefore, as shown in the specification and figures, the ‘413 patent claims include a second wiring wherein

each of the transparent conductive layer and the sealant is located in a different region. In other words, the second wiring requires these separate and distinct locations, i.e., “first region” and “second region.”

As made clear by the figures and the specification of the ‘413 patent, this invention provides a structure wherein the sealant and the transparent conductive layer do not overlap each other (and the sealant is in direct contact with the insulating film). Generally, a sealant has poor adhesion to a transparent conductive film made of ITO. This structure can improve the adhesion of the sealant.

V. **Claims of the ‘413 Patent**

The ‘413 patent has six independent claims: claims 1, 7, 10, 17, 22, and 24, all of which the Petition contends are invalid. (Pet., pp. 16-54).⁵

Independent **claim 1** recites the following⁶ :

- 1.1 A ... display device comprising: (7.1, 10.1, 17.1, 22.1, 24.1)
- 1.2 a first wiring over ... substrate; (7.2, 10.2, 17.3, 22.3, 24.3)
- 1.3 a first insulating film over the first wiring: (7.3, 10.3, 17.4, 22.4, 24.4)
- 1.4 a second wiring over the substrate and the first insulating film;(7.4, 10.4,

⁵The Petition also contends that dependent claims 2, 4-6, 9, 11, 13-16, 18, 20, 21, 25, and 27-29 are invalid. (Pet., pp. 23-25, 27, 31, 35, 42-44, 46, 50, and 54).

⁶For convenience, the Patent Owner adopts the same element numbering system used in the Petition’s claim tables and will refer to various claim elements as “claim 1, row 10,” “claim 1, element 10,” or “1.10,” or the like. Each element number of claims 7, 10, 17, 22, and 24 is shown in the parentheses where it corresponds to the elements recited in claim 1.

- 17.5, 22.5, 24.5)
- 1.5 a second insulating film over the second wiring; (7.5, 10.5, 17.6, 22.6, 24.6)
 - 1.6 a transparent conductive layer over a first region of the second wiring; (7.6, 10.6, 17.7, 22.7, 24.7)
 - 1.7 a flexible printed circuit over the first wiring and the first region of the second wiring; (7.7, 10.7, 17.8, 22.8, 24.8)
 - 1.8 a sealant over the first wiring and a second region of the second wiring, (7.8, 10.8, 17.9, 22.9, 24.9)
 - 1.9 wherein the sealant is in direct contact with the second insulating film; (7.9, 10.9, 17.11, 22.11, 24.11)
 - 1.10 wherein the second wiring overlaps ... the first wiring; (7.10, 10.10, 17.12, 22.12, 24.12)
 - 1.11 wherein the first wiring and the second wiring are in electrical contact through an opening in the first insulating film; (7.11, 10.11, 17.13, 22.13, 24.13)
 - 1.12 wherein the second wiring and the flexible printed circuit are in electrical contact through the transparent conductive layer; (7.12, 10.12, 17.14, 22.15, 24.15)
 - 1.13 wherein the second wiring and the transparent conductive layer are in direct contact through an opening in the second insulating film. (7.13, 10.13, 17.16, 22.16, 24.16)⁷

Other than the above elements, independent **claims 17, 22, and 24**

⁷ Claim elements 10.13 and 24.16 specify that “wherein the second wiring and the transparent conductive layer are in direct contact.”

additionally recite:

“an active matrix display circuit over a substrate” (17.2, 22.2, 24.2);

“a counter substrate over the sealant” (17.10, 22.10, 24.10);

“wherein the transparent conductive layer is made from a same layer as pixel electrodes connected to thin film transistors forming the active matrix display circuit” (17.15, 22.14, 24.14);

“wherein the second wiring is made from a same layer as signal lines of the thin film transistors forming the active matrix display circuit” (17.17, 22.17, 24.17); and

“wherein the flexible printed circuit is electrically connected to the active matrix display circuit through the first wiring and the second wiring” (17.18, 22.18, 24.18).

VI. The Petition Fails to Establish a Reasonable Likelihood that at Least One Challenged Claim Is Unpatentable Over the APA In View Of Sukegawa

Initially, the Patent Owner notes that the Petition has not set forth its arguments as required by the rules. Petitioner’s arguments are improperly contained in the single spaced tables of the “Detailed Explanation,” at Petition p. 16 *et seq.* The Petition has two multi-page argumentative claim tables. The first table starts at page 16 of the Petition, where the right column contains the heading, “Admitted Prior Art in ‘413 Patent (“APA”) in view of Sukegawa et al. (USPN 5,636,329)” and continues to page 35. The Patent Owner addresses that combination in this section. The second single spaced table starts at page 35 of the Petition, where the right column contains the heading, “Sukegawa et al. (USPN

5,636,329) in view of Nakamoto (JP H08-160446)” and continues to page 54 and is treated below in Section VII.

Petitioner’s first argument is that claims 1, 2, 4-7, 9-11, 13-18, 20-22, 24, 25, and 27-29 would have been obvious over the APA in view of Sukegawa. (Pet., pp. 16-35, Hatalis Decl. at ¶¶ 31-88). However, because the combination of these references is improper and the Petition fails to show that some of the claim elements are disclosed in these references, Petitioner’s arguments do not raise a reasonable likelihood that Petitioner will prevail on any of the challenged claims. Independent claims 1, 7, 10, 17, 22, and 24 are discussed in depth below; dependent claims 2, 4-6, 9, 11, 13-16, 18, 20, 21, 25, and 27-29 are also patentably distinct over the APA in view of Sukegawa on at least the same grounds, as they depend from their respective independent claims.

A. APA and Sukegawa Fail to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”

1. APA Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”

All the challenged independent claims 1, 7, 10, 17, 22, and 24 recite the elements of “a first wiring over ... substrate” (claim elements 1.2, 7.2, 10.2, 17.3, 22.3, and 24.3) and “a second wiring ... over the substrate and the first insulating film” (claim elements 1.4, 7.4, 10.4, 17.5, 22.5, and 24.5).

Referring to the ‘413 patent (Ex. 1001, col. 1, ll. 61 and 62 and Fig. 13), the Petition alleges that the claim elements of “a first wiring over ... substrate,” in

claims 1, 7, 10, 17, 22, and 24 are disclosed in the APA by contending that **a short ring 1509** is a “first wiring” (Pet., pp. 17, 24-26, 28, 32, and 33, Hatalis Decl. at ¶¶ 34-36). Referring to the ‘413 patent (Ex. 1001, Fig. 14A), the Petition alleges that the claim elements of “a second wiring ... over the substrate and the first insulating film,” in claims 1, 7, 10, 17, 22, and 24 are disclosed in the APA by contending that **an external connection line 1508** is a “second wiring” (Pet., pp. 18, 24, 26, 28, 32, and 33, Hatalis Decl. at ¶¶ 34-36). The Patent Owner respectfully disagrees for at least the following two reasons, among others.

- a. The relationship between the short ring and the external connection line of the APA does not correspond to the relationship recited in the claims of the “first wiring” and the “second wiring”

In order for the short ring 1509 and the external connection line 1508 of the APA to correspond to the claimed “first wiring” and the claimed “second wiring,” respectively, as the Petition contends, these items would need to satisfy the claim requirements that “the second wiring overlaps ... the first wiring” (claim elements 1.10, 7.10, 10.10, 17.12, 22.12, and 24.12) and “the first wiring and the second wiring are in electrical contact ...” (claim elements 1.11, 7.11, 10.11, 17.13, 22.13, and 24.13). The ‘413 patent states that the effect of these claim elements is to reduce electrical resistance as described in Section IV.A above. However, the short ring 1509 and the external connection line 1508 do not meet these requirements.

The short ring 1509 (the alleged “first wiring”) is not configured to reduce the electrical resistance of the external connection line 1508 (the alleged “second wiring”). Reducing electrical resistance is one reason why the auxiliary lines 401 (the claimed “first wiring”) are included in the structure of the ‘413 patent. Independent claims 1, 7, 10, 17, 22, and 24 of the ‘413 patent recite a structure in which the “first wiring” is overlapped by and is in electrical contact with the “second wiring,” which has the effect of reducing electrical resistance (*e.g.*, claim elements 1.10 and 1.11). (*See esp.* Ex. 1001, col. 4, ll. 12-16 and col. 8, ll. 42-50 and Fig. 4A). On the other hand, and in contrast to the claim language, in the APA, it is clear that the short ring 1509 is not overlapped by, and is not in electrical contact with, the external connection line 1508. As such, the short ring 1509 cannot reduce the electrical resistance of the external connection line 1508. (Ex. 1001, Figs. 13, 14A, and 14B).

Furthermore, contrary to Petitioner’s contentions, the short ring 1509 is not an electrically conductive auxiliary line *in an operative LCD* since it is severed near the end of manufacturing. Once severed, it no longer functions. Instead, the short ring 1509 is wiring that is formed by extending signal lines and scanning lines in order to prevent electrostatic break-down of TFTs for an active matrix display circuit *during its manufacturing process*, and which serves no function after a substrate is separated into independent panels. (*See* Ex. 1001, col. 1, l. 61 -

col. 2, l. 6).

Therefore, because the short ring 1509 (the alleged “first wiring”) does not overlap, and is not in electrical contact with, the external connection line 1508 (the alleged “second wiring”), unlike auxiliary lines 401 and external connection lines 403, the short ring 1509 and the external connection line 1508 cannot correspond to the claimed “first wiring” and the claimed “second wiring,” respectively. Also, since the short ring 1509 does not overlap and is not in electrical contact with the external connection line 1508, and serves no function after a substrate is separated into independent panels (*See* Ex. 1001, col. 1, l. 61 - col. 2, l. 6), the short ring 1509 cannot reduce the electrical resistance of the external connection line 1508.

Further, by not mentioning the APA in the Petitioner’s claim chart for these elements, the Petition tacitly admits that there is no disclosure in the APA that the short ring 1509 is overlapped by and in electrical contact with the external connection line 1508, which is in contrast to claim elements 1.10 (i.e., the second wiring overlaps ... the first wiring) and 1.11 (i.e., the first wiring and the second wiring are in electrical contact; see *infra*). (*See* Pet., pp. 20 and 21).

Furthermore, since the short ring 1509 and the external connection line 1508 are formed away from each other, the short ring 1509 cannot overlap, or be in electrical contact with, the external connection line 1508 as required by the claim language. Therefore, the short ring 1509 does not reduce the electrical resistance

of the external connection line 1508. (Ex. 1001, Fig. 13).

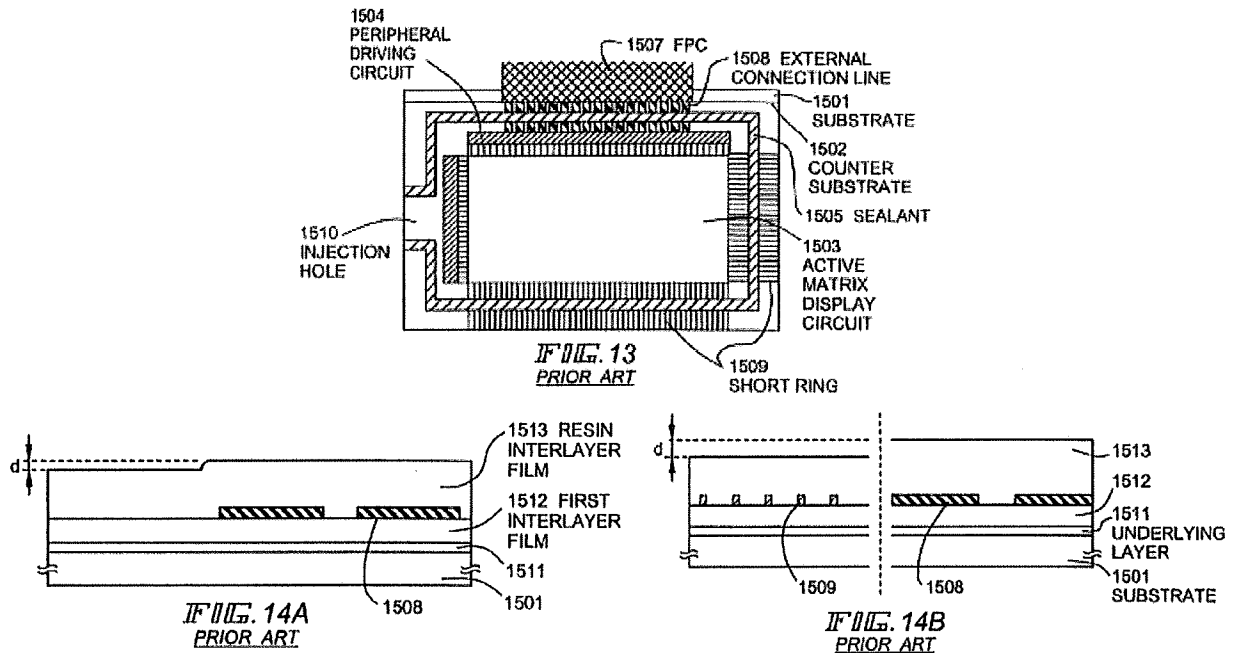
This underscores the reason why the short ring 1509 (the alleged “first wiring”) and the external connection line 1508 (the alleged “second wiring”) cannot be the claimed “first wiring” and the claimed “second wiring” in the ‘413 patent. Petitioner has failed in its Petition to show that the prior art disclosed all of the claim limitations of the “first wiring” and “second wiring.” Because the relationship between the short ring 1509 and the external connection line 1508 of the APA does not correspond to the relationship recited in the claims between the “first wiring” and the “second wiring”, the short ring 1509 and the external connection line 1508 cannot be the claimed “first wiring” and the claimed “second wiring,” respectively. Furthermore, the external connection line 1508 does not correspond to the claimed “second wiring” for the additional reasons explained below.

- b. APA lacks one of the elements that is essential to form the “first region” and the “second region”

The claims require the second wiring to meet the following limitations: “a transparent conductive layer ... over a first region of the second wiring” (claim elements 1.6, 7.6, 10.6, 17.7, 22.7, and 24.7), “a flexible printed circuit over the first wiring and the first region of the second wiring” (claim elements 1.7, 7.7, 10.7, 17.8, 22.8, and 24.8) and “a sealant over the first wiring and a second region of the second wiring” (claim elements 1.8, 7.8, 10.8, 17.9, 22.9, and 24.9).

That is, the claims require the “first region of the second wiring” to be the portion of the “second wiring” that is located below the transparent conductive layer (*see, e.g.*, claim element 1.6) and below the flexible printed circuit (*see, e.g.*, claim element 1.7). Accordingly, the “first region” is a region where the transparent conductive layer and the FPC are located over the second wiring. In other words, the “first region” is an essential feature of the claimed “second wiring.”

However, the APA does not disclose the first region of the second wiring of claim element 1.6. While the figures and specification of the APA disclose FPC 1507, sealant 1505 and external connection line 1508 (*see* Ex. 1001, col. 1, l. 48 - col. 2, l. 39, and Figs. 13, 14A, and 14B), the APA does not refer to the existence of a transparent conductive layer. Also, the description of the APA in the specification is silent about whether a transparent conductive layer is formed between the external connection line 1508 and FPC 1507. Even assuming, *arguendo*, that a transparent conductive layer is provided in the structure of the APA, the position of the transparent conductive layer relative to the second wiring and to the sealant is unclear. Therefore, the APA does not disclose a transparent conductive layer formed over a first region of the second wiring, as recited in claim element 1.6. *See* Figs. 13, 14A, and 14B of the ‘413 patent reproduced below.

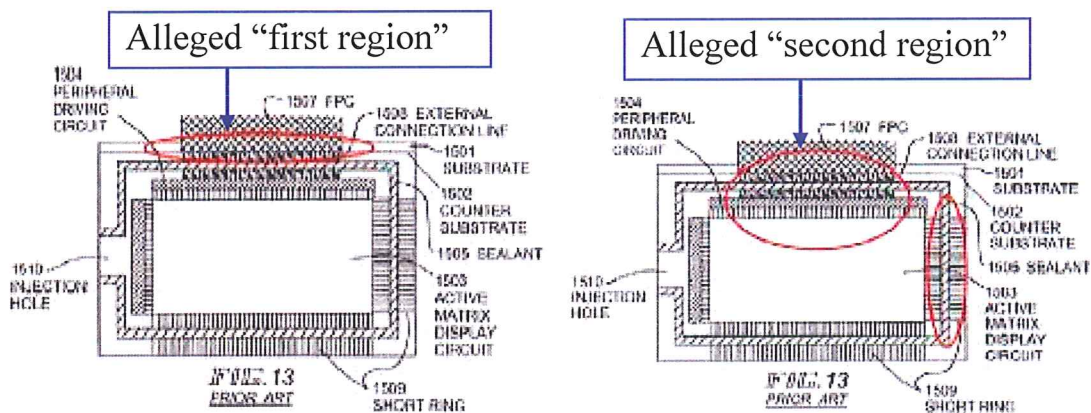


As explained above, the “first region” is a region of the second wiring where both of the transparent conductive layer and the FPC are located over the second wiring. If both the transparent conductive layer and FPC are not present over a region of the second wiring, then such a structure does not have the “first region” of the second wiring. The APA does not disclose the transparent conductive layer that is recited in claim element 1.6. Because the APA lacks one of the elements that is essential to form the “first region,” the APA does not disclose the claimed “first region of the second wiring,” as required by each of claim elements 1.6 and 1.7. For that reason, the APA does not disclose the claimed “second wiring.”

Additionally, the APA does not disclose the claimed “second region” of the second wiring as required by claim element 1.8, which is a region over which there is sealant. Notwithstanding that the APA does not disclose that the external

connection lines have a first region for the reasons discussed above, on pages 19 and 20 of the Petition, the Petition alleges that both a “first region” and a “second region” are disclosed in the APA. However, as shown below with annotations, such alleged “first region” and “second region” overlap each other, which is inconsistent with the claim limitations for the first region and second region. Therefore, the APA does not disclose and the Petition cannot separately show the claimed “first region” and the claimed “second region” in the APA. Whereas the claims require the FPC to be over the first region, according to Petitioner’s allegations, the flexible printed circuit is over both the alleged first region and the alleged second region. The alleged first region and alleged second region in the APA, therefore, are not consistent with the claims.

Further, claim element 1.9 recites that “the sealant is in direct contact with the second insulating film.” Therefore, the claim language requires that the sealant directly contacts the second insulating film over the second region of the second wiring. The claim language also requires that the transparent conductive layer must be over the first region of the second wiring. The alleged first region and second region in the APA do not achieve an object of the invention claimed in the ‘413 patent that the adhesion of the sealant be improved by the sealant being over a second region where an insulating film is present and not over a first region where the transparent conductive film is present.



For the aforementioned reasons in subsections (a) and (b), the APA does not disclose, teach, or suggest the claimed “first wiring”⁸ and the claimed “second wiring.”⁹

2. Sukegawa Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”

All the challenged independent claims 1, 7, 10, 17, 22, and 24 recite the claim elements of “a first insulating film ... over the first wiring” (claim elements 1.3, 7.3, 10.3, 17.4, 22.4, and 24.4) and “a transparent conductive layer ... over a first region of the second wiring” (claim elements 1.6, 7.6, 10.6, 17.7, 22.7, and 24.7).

⁸ Specifically, claim elements 1.2, 1.3, 1.7, 1.8, 1.10, 1.11, 7.2, 7.3, 7.7, 7.8, 7.10, 7.11, 10.2, 10.3, 10.7, 10.8, 10.10, 10.11, 17.3, 17.4, 17.8, 17.9, 17.12, 17.13, 17.18, 22.3, 22.4, 22.8, 22.9, 22.12, 22.13, 22.18, 24.3, 24.4, 24.8, 24.9, 24.12, 24.13, and 24.18.

⁹ Specifically, claim elements 1.4-1.8, 1.10-1.13, 7.4-7.8, 7.10-7.13, 10.4-10.8, 10.10-10.13, 17.5-17.9, 17.12-17.14, 17.16-17.18, 22.5-22.9, 22.12, 22.13, 22.15-22.18, 24.5-24.9, 24.12, 24.13, and 24.15-24.18.

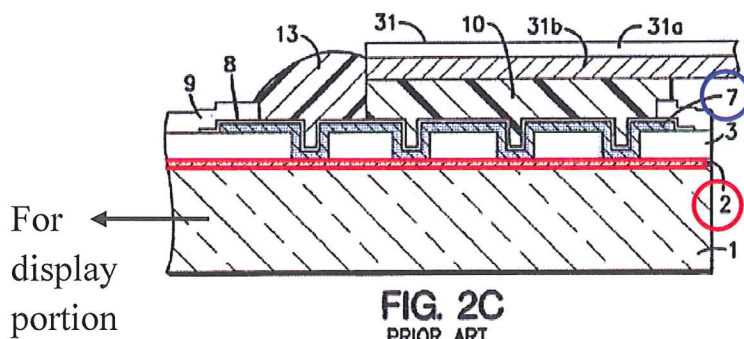
Referring to Sukegawa (Ex. 1003), the Petition alleges that the claim element “a first insulating film ... over the first wiring” in claims 1, 7, 10, 17, 22, and 24 is disclosed in Fig. 2C of Sukegawa by contending that **a lower layer metal wiring 2** is a “first wiring” (Pet., pp. 17, 18, 24, 26, 28, 32, and 33, and Hatalis Decl. at ¶¶ 34-36). The Petition also alleges that the claim element “a transparent conductive layer ... over a first region of the second wiring” in claims 1, 7, 10, 17, 22, and 24 is disclosed in Fig. 2C of Sukegawa (Ex. 1003) by contending that **an upper layer metal wiring 7** is a “second wiring” (Pet., pp. 18, 19, 24, 26, 28, 32, and 34, and Hatalis Decl. at ¶¶ 37-39). The Patent Owner respectfully disagrees for at least the following two reasons, among others.

- a. The relationship between the lower layer metal wiring and the upper layer metal wiring of Sukegawa does not correspond to the relationship recited in the claims of the “first wiring” and the “second wiring”

In order for the lower layer metal wiring 2 and the upper layer metal wiring 7 of Sukegawa to correspond to the claimed “first wiring” and the claimed “second wiring,” respectively, as the Petition contends, these items would need to satisfy the claim requirements that “the second wiring overlaps ... the first wiring” (claim elements 1.10, 7.10, 10.10, 17.12, 22.12, and 24.12) and “the first wiring and the second wiring are in electrical contact ...” (claim elements 1.11, 7.11, 10.11, 17.13, 22.13, and 24.13). The ‘413 patent states that the effect of these claim elements is to reduce electrical resistance as described in Section IV.A above. However, the

lower layer metal wiring 2 and the upper layer metal wiring 7 do not meet these requirements.

As shown in Fig. 2C and Fig. 1A, which is a planar view of Fig. 2C (reproduced below with annotations) of Sukegawa, it is apparent that the upper layer metal wiring 7 (the alleged “second wiring”) (blue region) is formed only at the terminal portion in an island-shape as opposed to the lower layer metal wiring 2 (the alleged “first wiring”) (red region) which extends to the display portion. This structure shows that the upper layer metal wiring 7 is formed to transmit signals from the FPC (flexible wiring substrate 31) to the lower layer metal wiring 2 via transparent conductive film 8, anisotropic conductive film 10, and the upper layer metal wiring 7. On the other hand, the lower layer metal wiring 2 extends away from the terminal portion to the display portion, so that the lower layer metal wiring 2 is formed to transmit signals from the FPC via anisotropic conductive film 10, transparent conductive film 8 and upper layer metal wiring 7 to the display portion.



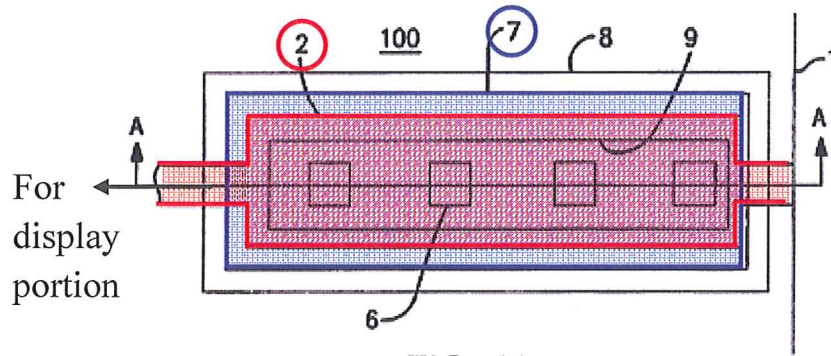


FIG. 1A
PRIOR ART

In the '413 patent, the auxiliary lines 401 (first wiring) and external connection lines 403 (second wiring) are electrically connected in parallel to reduce the electrical resistance. (Ex. 1001, col. 8, ll. 45-50). In other words, the reduction in electrical resistance can be obtained when the first and second wirings are in such a position that signals are transmitted in a parallel direction. Contrary to the foregoing wiring relationship in the '413 patent, as shown in Fig. 2C of Sukegawa, the upper layer metal wiring 7 electrically conducts the signals transmitted from the FPC to the lower layer metal wiring 2, which is located below the upper layer metal wiring 7, that is, the signals are transmitted in a *vertical* direction when the signals pass through the upper layer metal wiring 7 to the lower layer metal wiring 2. The upper layer metal wiring 7 functions merely as part of the electrical connection between the FPC and the lower layer metal wiring 2.

Therefore, since the lower layer metal wiring 2 (the alleged “first wiring”) is not a wiring that reduces electrical resistance of the upper layer metal wiring 7 (the

alleged “second wiring”) as auxiliary lines 401 (the “first wiring”) do in the ‘413 patent, the relationship between the lower layer metal wiring 2 and the upper layer metal wiring 7 of Sukegawa does not correspond to the relationship of the claimed “first wiring” and the claimed “second wiring” and does not serve the same purpose. Moreover, the upper layer metal wiring 7 does not correspond to the claimed “second wiring” for the additional reasons explained below.

- b. Upper layer metal wiring in Sukegawa, which the Petition alleges corresponds to the claimed “second wiring,” lacks the claimed “second region”

As described above in Section VI.A.1.b, the claims require the second wiring to include claim elements 1.6, 7.6, 10.6, 17.7, 22.7, and 24.7 (“a transparent conductive layer over a first region of the second wiring”), claim elements 1.7, 7.7, 10.7, 17.8, 22.8, and 24.8 (an FPC “over...the first region of the second wiring”) and claim elements 1.8, 7.8, 10.8, 17.9, 22.9, and 24.9 (“a sealant over...a second region of the second wiring”). In other words, the “second region” is an essential feature of the claimed “second wiring.”

However, the Petition cites Fig. 2C of Sukegawa, which discloses at most only a first region of upper layer metal wiring 7 (the alleged “second wiring”) because there is no sealant over any region of upper layer metal wiring 7. (Pet., pp. 18-20). Fig. 2C of Sukegawa shows that upper layer metal wiring 7 is covered entirely with the transparent conductive film 8. (See also Ex. 1003, col. 3, ll. 21-

23). As such, the Petition relies on Sukegawa to show the claimed “first region,” but not to show the claimed “second region.” The claims require (*see, e.g.*, element 1.8) a sealant to be over the second region. Therefore, Sukegawa’s upper layer metal wiring 7 (which Petitioner asserts in its Petition is the “second wiring” (*see* rows 1.6 and 1.7 at Pet., pp. 18 and 19)) does not have the claimed “second region.” Accordingly, the Petition attempts to show both the first region and the second region of a “second wiring” by cobbling references together through an improper use of hindsight.

The Petition does not contend that Sukegawa discloses sealant over any portion of upper layer metal wiring 7. Instead, the Petition cites to the APA’s disclosure of sealant 1505. (*See, e.g.*, Pet., pp. 19 and 20, rows 1.8 and 1.9). Thus, the Petition acknowledges that Sukegawa does not disclose a second region of the upper layer metal wiring 7 (which the Petition alleges is a “second wiring”).

Indeed, that Sukegawa does not disclose sealant over upper layer metal wiring 7 is evident from Figs. 2C and 3D, which are reproduced below.

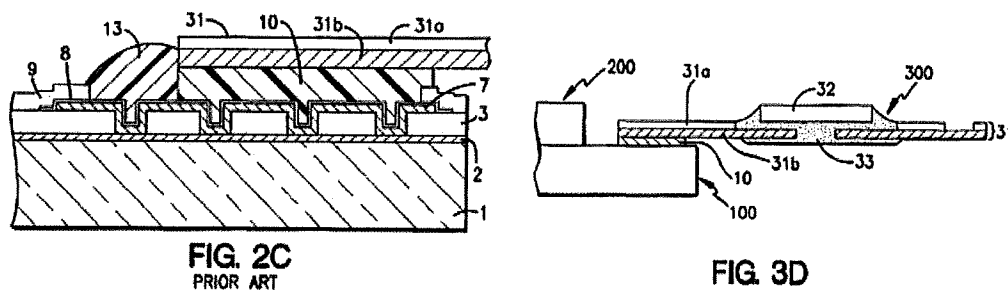


Fig. 3D shows the attachment to active matrix substrate 100 of tape-carrier

package 300 (i.e. the FPC) via flexible wiring substrate 31 via anisotropic conductive film 10. (Ex. 1003, col. 5, ll. 28-44). The sealant is used to seal the liquid crystal material in the gap between the color filter substrate 200 and the active matrix substrate 100. Thus, the sealant is located between the color filter substrate 200 and the active matrix substrate 100, which Fig. 3D shows is located a distance away from the terminal portion where the FPC is attached and electrically connected to the active matrix substrate 100. (See Ex. 1003, col. 5, ll. 30-34 and Figs. 2C and 3D).

Additionally, Sukegawa indicates that the liquid crystal material is sealed in the gap between the active matrix substrate 100 and the color filter substrate 200. (See Ex. 1003, col. 5, ll. 30-34 and Fig. 3D). The sealant is necessarily positioned between the active matrix substrate 100 and the color filter substrate 200 in order to seal in the liquid crystal material. Since the upper layer metal wiring 7 shown in Fig. 2C of Sukegawa does not extend to the region where the active matrix substrate 100 and the color filter substrate 200 are attached to each other (*see*, also Fig.1A of Sukegawa, which is a planar view of Fig. 2C showing that the upper layer metal wiring 7 is an island-shaped pattern provided only in the terminal portion), it is apparent that the upper layer metal wiring 7 does not exist under the sealant.

Therefore, Sukegawa does not disclose “a sealant over ... a second region of

the second wiring,” which is required by, for example, claim element 1.8. Because Sukegawa does not disclose the “second region,” Sukegawa does not disclose the claimed “second wiring.” Because no wiring in Sukegawa meets the limitation of claim element 1.8 (and in claim elements 7.8, 10.8, 17.9, 22.9, and 24.9, which are similar to claim element 1.8, relating to the “second region”), Sukegawa does not disclose the claimed “second wiring.”

Furthermore, as noted above, by not mentioning Sukegawa in the Petition’s claim chart for claim elements 1.8, 7.8, 10.8, 17.9, 22.9, and 24.9 (a sealant over ... a second region of the second wiring), the Petition tacitly admits that Sukegawa does not disclose a second region of the second wiring. (Pet., pp. 19, 20, 25, 26, 28, 32, and 34).

For the foregoing reasons in subsections (a) and (b), Sukegawa does not disclose, teach, or suggest either the claimed “first wiring”¹⁰ or the claimed “second wiring.”¹¹

¹⁰ Specifically, claim elements 1.2, 1.3, 1.7, 1.8, 1.10, 1.11, 7.2, 7.3, 7.7, 7.8, 7.10, 7.11, 10.2, 10.3, 10.7, 10.8, 10.10, 10.11, 17.3, 17.4, 17.8, 17.9, 17.12, 17.13, 17.18, 22.3, 22.4, 22.8, 22.9, 22.12, 22.13, 22.18, 24.3, 24.4, 24.8, 24.9, 24.12, 24.13, and 24.18.

¹¹ Specifically, claim elements 1.4-1.8, 1.10-1.13, 7.4-7.8, 7.10-7.13, 10.4-10.8, 10.10-10.13, 17.5-17.9, 17.12-17.14, 17.16-17.18, 22.5-22.9, 22.12, 22.13, 22.15-22.18, 24.5-24.9, 24.12, 24.13, and 24.15-24.18.

B. Sukegawa Fails to Show the Claim Element of “Direct Contact Through an Opening in the Second Insulating Film”

Challenged independent claims 1, 7, 17, and 22 and dependent claims 15 and 29 recite “wherein the second wiring and the transparent conductive layer are in direct contact *through* an opening in the second insulating film” (claim elements 1.13, 7.13, 17.16, and 22.16; emphasis added.) As described in the ‘413 patent, “...external connection lines 403 are electrically connected to an FPC (flexible printed circuit) 107 through contact holes provided in the resin inter-layer film 113 through an ITO (indium tin oxide) film 114.” (Ex. 1001, col. 8, ll. 52-55). The ITO film 114 is the transparent conductive layer. The external connection lines 403 correspond to the claimed “second wiring.”

The Petition asserts that an area below a horizontal red arrow and between

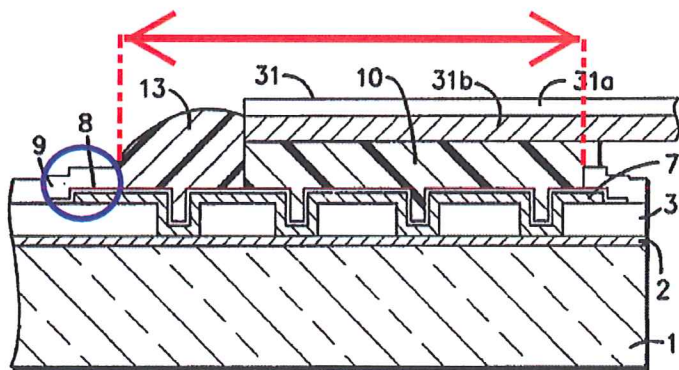


FIG. 2C
PRIOR ART

dashed vertical red lines in an annotated Fig. 2C of Sukegawa, (see left) corresponds to the “opening” recited in the claims. (See Pet., pp. 22 and 23, row 1.13, etc.). Petitioner’s red markings appear to designate a

region where the protective insulating film 9 is absent.

However, claim element 1.13 requires the second wiring to be in direct contact with the transparent conductive layer *through* an opening in the second

insulating film. This claim element is not disclosed in Sukegawa. Instead, Sukegawa discloses that the entire upper layer metal wiring 7 is covered with the transparent conductive film 8. (*See* Ex. 1003, col. 3, ll. 21-23). Thus, the upper layer metal wiring 7 is not connected to the transparent conductive film 8 *through* an opening in the protective insulating film 9.

Also, Fig. 2C of Sukegawa shows that this “through” limitation of the claims is not met. While Sukegawa’s supposed “second wiring” (upper layer metal wiring 7) and the transparent conductive layer (transparent conductive film 8) appear to be next to each other, transparent conductive film 8 is shown extending *under* the second insulating film (protective insulating film 9) in Fig. 2C. *See* the blue circle added to Fig. 2C above. In that circle, it is plainly seen that transparent conductive film 8 is beneath the protective insulating film 9. Thus, any contact between upper layer metal wiring 7 and transparent conductive film 8 is not “through” an opening in protective insulating film 9. Also, there is contact between upper layer metal wiring 7 and transparent conductive film 8 outside the alleged opening (red lines). As such, the “opening” represented by Petitioner’s red lines has nothing to do with providing the direct contact between the “second wiring” and the “transparent conductive layer.” Sukegawa’s transparent conductive film 8 is in direct contact with the upper layer metal wiring 7 *regardless* of the red arrow “opening.” Therefore, Sukegawa’s transparent conductive film 8 is not in direct contact

“*through* an opening in the second insulating film,” and this limitation of claim elements 1.13, 7.13, 17.16, and 22.16, and dependent claims 15 and 29 is not disclosed in Sukegawa.

Indeed, at row 1.11 (Pet., p. 21), when the Petition applied claim language calling for “... contact through an opening...,” the marked contact (denoted by Petitioner’s red arrow on page 21) went *through* interlayer insulation film 3 (identified in the Petition as “the first insulating film” at row 1.3, pp. 17 and 18). In that figure on p. 21 of the Petition, the contact occurred “*through*” and because of the opening in the interlayer insulation film 3. In applying “through” in row 1.13 on pp. 22 and 23 of the Petition (regarding the second insulating film), however, the Petition uses the word “through” differently -- and in a manner inconsistent with the claims of the ‘413 patent – to mean merely contact “at least partly below” an opening. The so-called “opening” in the protective insulating film 9 does not enable contact to be made between upper layer metal wiring 7 and transparent conductive film 8 in Fig. 2C of Sukegawa.

Fig. 2C of Sukegawa is distinctly different from Fig. 4A of the ‘413 patent, where the opening in resin inter-layer film 113 (second insulating film) allows the ITO film 114 (transparent conductive layer) to contact the external connection lines 403 (second wiring). The connection is made *possible by* (or by virtue of) the opening. Thus, unlike Sukegawa, the ‘413 patent discloses that the second wiring

is in direct contact with the transparent conductive layer *through* the opening in the second insulating film.

For these reasons, Sukegawa's structure does not satisfy the claim limitation "*through* an opening in the second insulating film," as required by the claim elements 1.13, 7.13, 17.16, and 22.16, and dependent claims 15 and 29.

C. A Person of Ordinary Skill in the Art Would Not Combine the APA with Sukegawa

The claim chart in the Petition (APA in view of Sukegawa), combines APA Figs. 13, 14A, and 14B with Fig. 2C of Sukegawa.¹² (Pet., pp. 17-35). For example, as suits its needs in the Petition, the Petition contends at various points that the "first wiring" corresponds to the short ring 1509 in the APA and at other points that the "first wiring" corresponds to lower layer metal wiring 2 in Sukegawa. That the Petition relies inconsistently on one or the other of the short ring 1509 in the APA and lower layer metal wiring 2 in Sukegawa for the "first wiring" demonstrates that neither meets all of the claim limitations relating to the "first wiring". Furthermore, these two references cannot properly be combined because they *teach away* from one another. The respective functions of the short ring 1509 in the APA and the lower layer metal wiring 2 in Sukegawa differ

¹² See claim chart in Section VI, "Admitted Prior Art in '413 Patent ("APA") in view of Sukegawa et al. (USPN 5,636,329)" at 1.3, 1.6, 1.7, 1.10-1.13, 4, 6, 7.3, 7.6, 7.7, 7.10-7.13, 9, 10.3, 10.6, 10.7, 10.10-10.13, 13, 15, 16, 17.4, 17.7, 17.8, 17.12-17.16, 17.18, 20, 22.4, 22.7, 22.8, 22.12-22.16, 22.18, 24.4, 24.7, 24.8, 24.12-24.16, 24.18, 27, and 29 and Hatalis Decl. at ¶¶ 34-43, 53-68, 71-74, 79-85, and 88.

significantly.

More specifically, the short ring 1509 is wiring comprised of extensions of signal lines and scanning lines for the purpose of preventing the electrostatic break-down of TFTs in the active matrix display circuits during the manufacturing process. The short ring 1509 serves no function after a substrate is separated into independent panels. (*See* Ex. 1001, col. 1, l. 61 - col. 2, l. 6). The short ring 1509 serves no function during the operation of the display.

In contrast, as explained above in Section VI.A.2.a, the lower layer metal wiring 2 of Sukegawa functions during the operation of the display; it carries signals from an FPC to the active matrix display circuit. (Ex. 1003, Fig. 2C). Its technical use is totally different from that of the short ring 1509 in the APA. The lower layer metal wiring 2 is critical to the operation of the display.

As the respective functions of the two wirings are dramatically different, a person of ordinary skill in the art would not be taught, motivated, or led to combine the APA's short ring 1509 with Sukegawa's lower layer metal wiring 2 or to substitute one for the other. Nor does the art suggest such a combination.

Further, Sukegawa teaches away from using the prior art structure shown in Fig. 2C, because Sukegawa itself indicates that there are problems with this structure of an increase in cost and the impossibility of checking connections at the terminal portion. (Ex. 1003, col. 3, ll. 54-67). Therefore, because of the foregoing

problems with the structure in Fig. 2C of Sukegawa, for this additional reason, there is no motivation for a person of ordinary skill in the art to combine the structure of Fig. 2C of Sukegawa with the APA.

D. Even Combined, the APA and Sukegawa Would Not Meet the ‘413 Patent Claim Elements

Even if the two references were combined, as explained above in Sections VI.A and VI.B, since neither the APA nor Sukegawa discloses the claimed “first wiring,” the claimed “second wiring” and the claimed “direct contact through an opening in the second insulating film,” neither the APA nor Sukegawa discloses claim elements 1.2-1.8, 1.10-1.13, 7.2-7.8, 7.10-7.13, 10.2-10.8, 10.10-10.13, 17.3-17.9, 17.12-17.14, 17.16-17.18, 22.3-22.9, 22.12, 22.13, 22.15-22.18, 24.3-24.9, 24.12, 24.13, and 24.15-24.18 and dependent claims 15 and 29.

Therefore, for this further reason, even if the APA were combined with Sukegawa, claims 1, 7, 10, 15, 17, 22, 24, and 29 would not have been obvious.

E. The APA and Sukegawa Have Already Been Considered by the Office

As explained above in Section II, the APA was considered by the Office since it was described in the application that became the ‘413 patent. Further, Sukegawa was submitted to the Office by the Patent Owner in an Information Disclosure Statement during the prosecution of the ‘413 patent application, and the Office considered this reference. (*See* Ex. 2006, p. 1). Therefore, the combination of the APA of the ‘413 patent and Sukegawa has already been considered by the

Office, and the claims of the '413 patent were allowed and patented over these references. The Petition is simply bringing up the same art that was previously considered by the Office, and the Office is not required to reconsider this argument yet again in *inter partes* review.

VII. The Petition Fails to Establish a Reasonable Likelihood that at Least One Challenged Claim Is Unpatentable Over Sukegawa In View of Nakamoto

A second combination of references advanced by the Petition is Sukegawa in view of Nakamoto. The Petition asserts that claims 1, 2, 4-7, 9-11, 13-18, 20-22, 24, 25, and 27-29 would have been obvious over Sukegawa in view of Nakamoto. (*See* Pet., pp. 35-54 and Hatalis Decl. at ¶¶ 89-144). The secondary reference, Nakamoto, is cited in the Petition only with regard to the claim elements relating to a sealant.¹³ However, for the reasons discussed below, because the combination of these references is improper and because the Petition fails to identify some of the claim elements in these references, Petitioner's arguments do not raise a reasonable likelihood that any of the challenged claims is invalid. Independent claims 1, 7, 10, 17, 22 and 24 are discussed in depth below; dependent claims 2, 4-6, 9, 11, 13-16,

¹³ The Petition asserts that Sukegawa also teaches a sealant, which is recited in element 1.8. (Pet., pp. 37-39). While the Petition cites Sukegawa, no reference numeral is identified as the sealant. *See* the Petition pp. 37-39. Dr. Hatalis also does not identify the sealant in Sukegawa. *See* Ex. 1005, ¶¶ 98 and 99. The Petition cites Sukegawa for claim element 1.9 (Pet., pp. 39 and 40) concerning the "sealant ... in direct contact with the second insulating film," but also without pointing out any sealant in any drawing. Dr. Hatalis also does not identify the sealant in Sukegawa. *See* Ex. 1005, ¶¶ 105 and 106.

18, 20, 21, 25, and 27-29 are also patentably distinct over Sukegawa in view of Nakamoto for at least the same grounds, as they depend from their respective independent claims.

As explained above in Section VI.A.2, Sukegawa fails to show the claimed “first wiring” and the claimed “second wiring.” These claim elements are present in all the challenged independent claims, including claim elements 1.2-1.8, 1.10-1.13, 7.2-7.8, 7.10-7.13, 10.2-10.8, 10.10-10.13, 17.3-17.9, 17.12-17.14, 17.16-17.18, 22.3-22.9, 22.12, 22.13, 22.15-22.18, 24.3-24.9, 24.12, 24.13, and 24.15-24.18.

Further, as explained above in Section VI.B, Sukegawa fails to show claim elements of 1.13, 7.13, 17.16 and 22.16, and dependent claims 15 and 29, which require the second wiring and the transparent conductive layer to be in “direct contact *through* an opening in the second insulating film.” As discussed above, the foregoing “through” limitation is also not disclosed in Sukegawa. Further deficiencies of Sukegawa are discussed below.

A. Sukegawa and Nakamoto Fail to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”

1. Sukegawa Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”

All the challenged independent claims 1, 7, 10, 17, 22, and 24 recite the elements of “a first wiring over ... substrate,” (claim elements 1.2, 7.2, 10.2, 17.3, 22.3, and 24.3) and “a second wiring ... over the substrate and the first insulating

film.” (claim elements 1.4, 7.4, 10.4, 17.5, 22.5, and 24.5).

Referring to Sukegawa, the Petition alleges that the claim element “a first wiring over ... substrate” in claims 1, 7, 10, 17, 22, and 24 is disclosed in Fig. 2C of Sukegawa (Ex. 1003) by contending that **a lower layer metal wiring 2** is a “first wiring” (Pet., pp. 36, 43, 44, 47, 50 and 52, and Hatalis Decl. at ¶¶ 92-94). The Petition also alleges that the claim element “a second wiring ... over the substrate and the first insulating film” in claims 1, 7, 10, 17, 22 and 24 is disclosed in Fig. 2C of Sukegawa (Ex. 1003) by contending that **an upper layer metal wiring 7** is a “second wiring” (Pet., pp. 36, 43, 45, 47 and 50-52, and Hatalis Decl. at ¶¶ 92-94). The Patent Owner respectfully disagrees. For at least the same reasons discussed in Section VI.A.2, Sukegawa does not disclose the claimed “first wiring”¹⁴ or the claimed “second wiring.”¹⁵

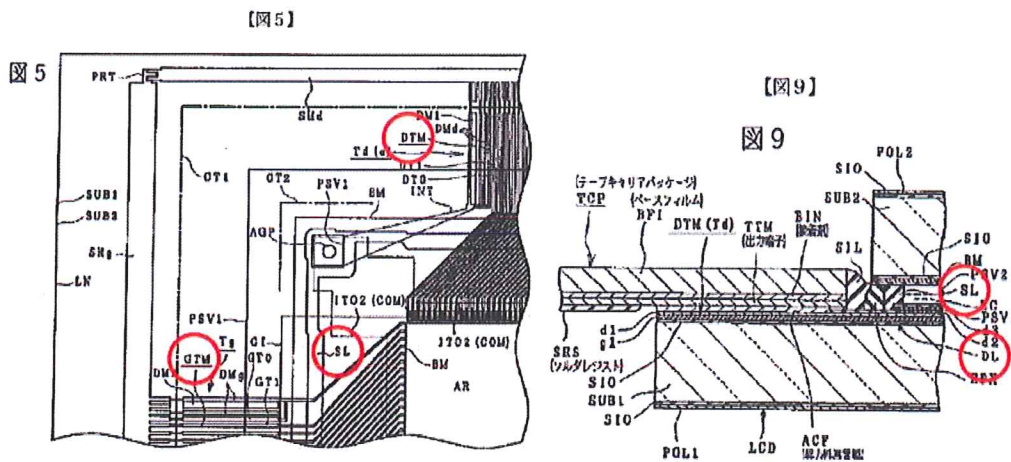
2. Nakamoto Fails to Disclose the Claimed “First Wiring” and the Claimed “Second Wiring”

All the challenged independent claims 1, 7, 10, 17, 22, and 24 recite “a sealant over the first wiring and a second region of the second wiring” (claim

¹⁴ Specifically, claim elements 1.2, 1.3, 1.7, 1.8, 1.10, 1.11, 7.2, 7.3, 7.7, 7.8, 7.10, 7.11, 10.2, 10.3, 10.7, 10.8, 10.10, 10.11, 17.3, 17.4, 17.8, 17.9, 17.12, 17.13, 17.18, 22.3, 22.4, 22.8, 22.9, 22.12, 22.13, 22.18, 24.3, 24.4, 24.8, 24.9, 24.12, 24.13, and 24.18.

¹⁵ Specifically, claim elements 1.4-1.8, 1.10-1.13, 7.4-7.8, 7.10-7.13, 10.4-10.8, 10.10-10.13, 17.5-17.9, 17.12-17.14, 17.16-17.18, 22.5-22.9, 22.12, 22.13, 22.15-22.18, 24.5-24.9, 24.12, 24.13 and 24.15-24.18.

elements 1.8, 7.8, 10.8, 17.9, 22.9 and 24.9). The Petition argues that this limitation is disclosed in Figs. 5 and 9 of Nakamoto, which are reproduced below with annotations. Specifically, referring to Fig. 9 of Nakamoto, the Petition argues that the DL connected to the tape carrier package TCP extends underneath the sealant. Further, referring to Fig. 5, the Petition argues that the sealant is formed over each of GTM and DTM. (See Pet., pp. 37-39 and Hatalis Decl. at ¶¶ 98-101). The Petition asserts that GTM corresponds to the claimed “first wiring” and that DTM corresponds to the claimed “second wiring.” The Patent Owner respectfully disagrees for the following two reasons, among others.



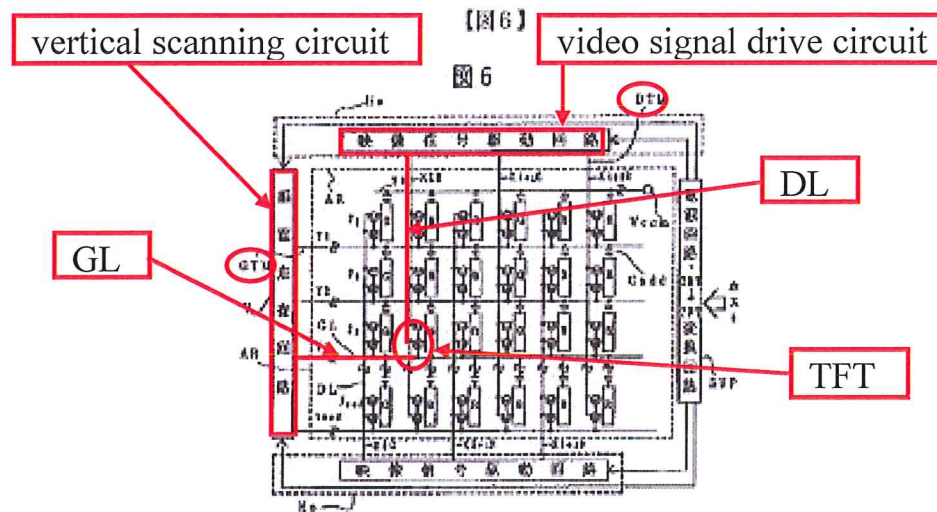
(Figs. 5 and 9 of Nakamoto)

- a. The relationship between the GTM and the DTM of Nakamoto does not correspond to the relationship recited in the claims of the “first wiring” and the “second wiring”

In order for the GTM and the DTM of Nakamoto to correspond to the claimed “first wiring” and the claimed “second wiring,” respectively, as the

Petition contends, these items would need to satisfy the claim requirements that “the second wiring overlaps ... the first wiring” (claim elements 1.10, 7.10, 10.10, 17.12, 22.12, and 24.12) and “the first wiring and the second wiring are in electrical contact...” (claim elements 1.11, 7.11, 10.11, 17.13, 22.13, and 24.13). The ‘413 patent states that the effect of these claim elements is to reduce electrical resistance as described in Section IV.A above. However, the GTM and the DTM do not meet at least one of foregoing requirements.

The GTM (the alleged “first wiring”) disclosed in Fig. 5 of Nakamoto cannot correspond to the claimed “first wiring” of claims 1, 7, 10, 17, 22, and 24 of the ‘413 patent. As described in paragraph [0058] of Nakamoto, GTM and DTM indicate gate terminals and drain terminals, respectively. Moreover, as shown in Fig. 6 (reproduced below with annotations) and described in paragraphs [0107] to [0110] of Nakamoto, the gate terminals GTM supply signals from the vertical scanning circuit to gate electrodes of the TFTs through scanning signal lines GL, and the drain terminals DTM supply signals from the video signal drive circuit to source/drain electrodes of the TFTs through video signal lines DL. Further, the GTM (GL) is formed in the same continuous layer with the gate electrodes of the TFTs, and the DTM (DL) is formed in the same continuous layer with the source/drain electrodes of the TFTs. (Ex. 1004, paragraphs [0068], [0069] and [0088]).



(Fig. 6 of Nakamoto)

Therefore, if GTM (GL) (the alleged “first wiring”) was electrically connected to DTM (DL) (the alleged “second wiring”), the gate electrode would be connected to the source/drain electrodes, and the TFT *would not operate*. Accordingly, Nakamoto takes care to not electrically connect GL with DL. (See Ex. 1004, paragraphs [0075] and [0077]). Therefore, in contrast to the claimed invention, Nakamoto **teaches away** from having a structure in which GTM and DTM are electrically connected to each other, as recited in the claim elements 1.11, 7.11, 10.11, 17.13, 22.13 and 24.13. Accordingly, unlike the claimed “first wiring” and the claimed “second wiring” of the ‘413 patent, since the GTM and DTM cannot be electrically connected to each other, the GTM (the alleged “first wiring”) will not reduce the electrical resistance of the DTM (the alleged “second wiring”). As such, the relationship between the GTM and the DTM of Nakamoto

does not correspond to the relationship of the claimed “first wiring” and the claimed “second wiring”.

Further, since the Petition does not assert that Nakamoto discloses all the claim limitations relating to the “first wiring” and the “second wiring,” but only claim element 1.8 (“a sealant over...a second region”), the Petition tacitly admits that the “first wiring” and “second wiring” are not disclosed in Nakamoto. Furthermore, the DTM does not correspond to the claimed “second wiring” for the additional reasons explained below.

b. Nakamoto does not disclose the “first region”

As described above in Section VI.A.1.b, the claims require the second wiring to include claim elements 1.6, 7.6, 10.6, 17.7, 22.7, and 24.7 (“a transparent conductive layer ... over a first region of the second wiring”), claim elements 1.7, 7.7, 10.7, 17.8, 22.8, and 24.8 (an FPC “over...the first region of the second wiring”) and claim elements 1.8, 7.8, 10.8, 17.9, 22.9, and 24.9 (“a sealant over...a second region of the second wiring”). In other words, the “first region” is an essential feature of the claimed “second wiring.” Specifically, the claims require the “first region of the second wiring” to be the portion of the “second wiring” that is located below the transparent conductive layer (*see, e.g.*, claim element 1.6) and below the flexible printed circuit (*see, e.g.*, claim element 1.7). In other words, the “first region” is a region where the transparent conductive layer and the FPC are

both located over the second wiring.

However, the Petition tacitly admits that Nakamoto does not disclose a first region of the second wiring, and therefore does not disclose claim elements 1.6, 7.6, 10.6, 17.7, 22.7, and 24.7 (a transparent conductive layer ... over a first region of the second wiring) and claim elements 1.7, 7.7, 10.7, 17.8, 22.8, and 24.8 (a flexible printed circuit over the first wiring and the first region of the second wiring), because Nakamoto is not mentioned in the Petition's claim chart for these elements. (*See* Pet., pp. 37, 43, 45, 47, 51, 52, and 53). Thus, Nakamoto does not disclose the "first region" of the second wiring.

Therefore, there is no disclosure in Nakamoto of the "first region" over which are positioned the transparent conductive layer and the FPC as recited in, for example, claim elements 1.6 and 1.7. Because Nakamoto does not disclose the "first region," Nakamoto does not disclose the claimed "second wiring." Because no wiring in Nakamoto meets all the limitations of claim elements 1.6 and 1.7 (and in claim elements 7.6, 7.7, 10.6, 10.7, 17.7, 17.8, 22.7, 22.8, 24.7, and 24.8, which are similar to claim elements 1.6 and 1.7, relating to the "first region"), Nakamoto does not disclose the claimed "second wiring."

For the aforementioned reasons in subsections (a) and (b), Nakamoto does

not disclose, teach, or suggest the claimed “first wiring”¹⁶ and the claimed “second wiring.”¹⁷

B. Sukegawa Fails to Show the Claim Element of Sealant in “Direct Contact With the Second Insulating Film”

All the challenged independent claims 1, 7, 10, 17, 22, and 24 recite that “the sealant is in *direct contact* with the second insulating film” (emphasis added) (claim elements 1.9, 7.9, 10.9, 17.11, 22.11, and 24.11). In Fig. 4A of the ‘413 patent, the sealant 105 lies on top of the resin inter-layer film 113 (which is the second insulating film).

The Petition argues that this element is disclosed in Fig. 2C of Sukegawa.¹⁸ Petitioner, however, has not shown this element. Instead, its argument is based on mere speculation. Specifically, Petitioner argues that Fig. 2C shows that “the second insulating film (protective insulating film 9) *may be* a top layer” (Pet., p. 39; emphasis added). Petitioner cites no support from the description in Sukegawa

¹⁶ Specifically, claim elements 1.2, 1.3, 1.7, 1.8, 1.10, 1.11, 7.2, 7.3, 7.7, 7.8, 7.10, 7.11, 10.2, 10.3, 10.7, 10.8, 10.10, 10.11, 17.3, 17.4, 17.8, 17.9, 17.12, 17.13, 17.18, 22.3, 22.4, 22.8, 22.9, 22.12, 22.13, 22.18, 24.3, 24.4, 24.8, 24.9, 24.12, 24.13, and 24.18.

¹⁷ Specifically, claim elements 1.4-1.8, 1.10-1.13, 7.4-7.8, 7.10-7.13, 10.4-10.8, 10.10-10.13, 17.5-17.9, 17.12-17.14, 17.16-17.18, 22.5-22.9, 22.12, 22.13, 22.15-22.18, 24.5-24.9, 24.12, 24.13, and 24.15-24.18.

¹⁸ See the claim chart in Petition Section VI, “Sukegawa et al. (USPN5,636,329) in view of Nakamoto (JP H08-160446)” at 1.9, 7.9, 10.9, 17.11, 22.11, and 24.11 and Hatalis Decl. at ¶¶ 105-108.

for this contention. It is noted that Petitioner uses the expression “may be” for this argument, thereby acknowledging that Sukegawa does not disclose whether or not the protective insulating film 9 is a top layer.

In addition, as mentioned in Section VI.A.2.b *supra*, Sukegawa does not specify the position of the sealant, and thus, there is no disclosure of the protective insulating film 9 directly contacting the sealant. Therefore, Sukegawa also does not disclose the claim element of “wherein the sealant is in direct contact with the second insulating film” (claim elements 1.9, 7.9, 10.9, 17.11, 22.11, and 24.11).

C. Sukegawa Fails to Show the Claim Element of “Direct Contact Through an Opening in the Second Insulating Film”

Challenged independent claims 1, 7, 17, and 22 and dependent claims 15 and 29 recite “wherein the second wiring and the transparent conductive layer are in direct contact *through* an opening in the second insulating film” (emphasis added).

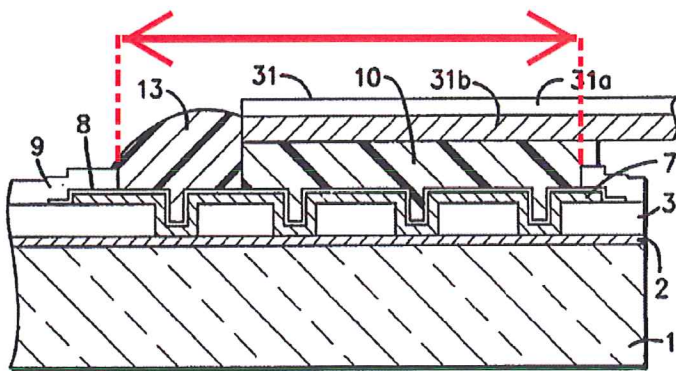


FIG. 2C
PRIOR ART

The Petition asserts that an area below a horizontal red arrow and between dashed vertical red lines in an annotated Fig. 2C of Sukegawa, (*see left*) corresponds to the “opening” recited in the claims.

(*See Pet.*, pp. 41 and 42, row 1.13, etc.). Petitioner’s red markings appear to designate a region where the protective insulating film 9 is absent.

However, as described above in Section VI.B, Sukegawa's structure does not satisfy the elements of "*through* an opening in the second insulating film" as recited in claim elements 1.13, 7.13, 17.16, and 22.16, and dependent claims 15 and 29.

D. A Person of Ordinary Skill in the Art Would Not Combine Sukegawa with Nakamoto

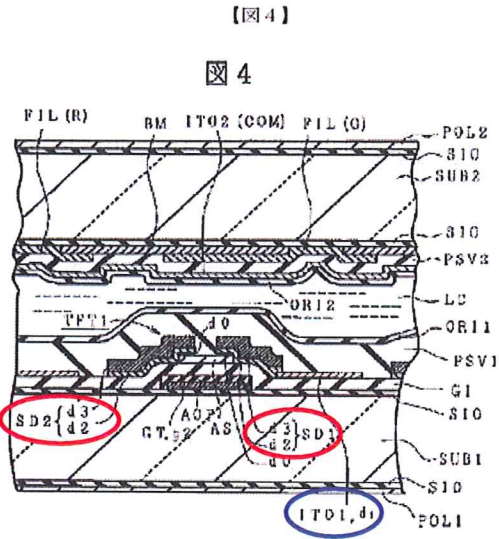
In attempting to read the patented claims on the prior art, Petitioner proposes that the ordinarily skilled artisan would have combined Figs. 2C and 3D and col. 5, ll. 30-34 of Sukegawa with Figs. 5 and 9 of Nakamoto.¹⁹ However, these figures and specification in Sukegawa teach away from combining these references. First, in the discussion of this combination, Petitioner exchanges the lower layer metal wiring 2 of Sukegawa with the GTM of Nakamoto as the claimed "first wiring." Petitioner also exchanges the upper layer metal wiring 7 of Sukegawa with the DTM of Nakamoto as the claimed "second wiring." As discussed above in Section VII.A.2.a, the GTM *cannot* be electrically connected to the DTM; therefore, Nakamoto teaches away from electrically connecting the GTM to the DTM. (Ex. 1004, paragraphs [0075] to [0077]). Therefore, the lower layer metal wiring 2 and the upper layer metal wiring 7 of Sukegawa, which are electrically connected to each other, cannot be replaced by the GTM and the DTM of Nakamoto, which

¹⁹ See the claim chart in Section VI., "Sukegawa et al. (USPN 5,636,329) in view of Nakamoto (JP H08-160446)" at 1.8, 1.9, 7.8, 7.9, 10.8, 10.9, 17.9, 17.11, 22.9, 22.11, 24.9, and 24.11 and Hatalis Decl. at ¶¶ 98-101, 105-108, and 144.

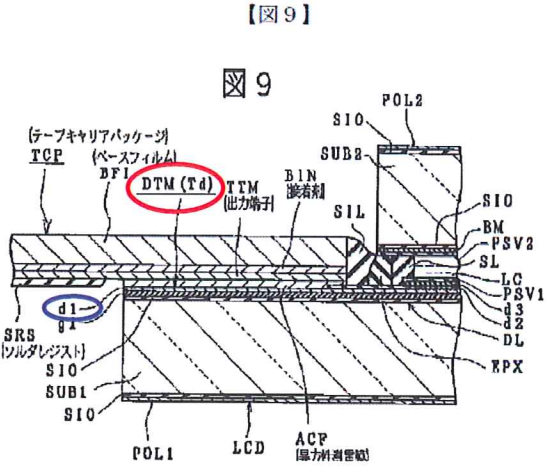
cannot be electrically connected to each other. For at least this reason, Petitioner's proposed combination of the references fails.

Furthermore, the stacked structure of wirings shown in Fig. 2C (reproduced below with annotations) of Sukegawa consists of, in ascending order: lower layer metal wiring 2 formed from the same layer as the gate electrode 2a; upper layer metal wiring 7 formed from the same layer as the data signal wiring 7a, drain electrode 7b and source electrode 7c; and transparent conductive film 8 formed from the same layer as the pixel electrode 8a. (Ex. 1003, Figs. 2C and 3C, col. 4, ll. 11-21, col. 4, l. 56 - col. 5, l. 13). In addition, the specification of Sukegawa, at col. 2, ll. 22-30 and col. 6, ll. 9-20, describes the importance of preventing corrosion in the metal wiring without additional steps by having a structure in which the upper layer metal wiring 7 is covered with the transparent conductive film 8 that is covered with the protective insulation film 9 in the terminal portion. In contrast, according to Figs. 4 and 9 (reproduced below with annotations) and the descriptions in paragraphs [0072]-[0086] of Nakamoto, the first conductive electric film d1 forming the transparent pixel electrodes ITO1 is formed over the second conductive electric film g2 forming the scanning signal lines GL and the gate electrodes GT. (Ex. 1004, paragraphs [0072] and [0080]). Further, over this structure, the second conductive film d2 and the third conductive film d3 forming source electrodes SD1, drain electrodes SD2 and video signal lines DL are formed.

(Id., paragraphs [0081]). Therefore, the structure of Nakamoto in which the transparent conductive film d1/ITO1 is formed *before* the formation of (and therefore *under*) source electrodes SD1, drain electrodes SD2 and video signal lines DL (the alleged “second wiring”) *cannot be combined* with the structure of Sukegawa in which the transparent conductive film 8 must be formed *over* the upper layer metal wiring 7 (the alleged “second wiring”).



(Fig.4 of Nakamoto)



(Fig. 9 of Nakamoto)

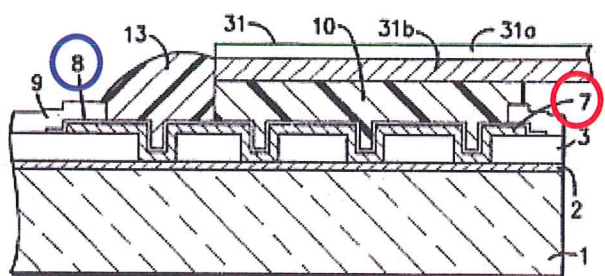


FIG. 2C
PRIOR ART

(Fig. 2C of Sukegawa)

E. Even Combined, Sukegawa and Nakamoto Would Not Meet the '413 Patent Claim Elements

Even if Sukegawa and Nakamoto were combined, as explained above in Sections VII. A and C, since neither Sukegawa nor Nakamoto discloses the claimed “first wiring,” the claimed “second wiring,” and the claimed “direct contact through an opening in the second insulating film,” neither Sukegawa nor the Nakamoto discloses claim elements 1.2-1.8, 1.10-1.13, 7.2-7.8, 7.10-7.13, 10.2-10.8, 10.10-10.13, 17.3-17.9, 17.12-17.14, 17.16-17.18, 22.3-22.9, 22.12, 22.13, 22.15-22.18, 24.3-24.9, 24.12, 24.13, and 24.15-24.18 and dependent claims 15 and 29.

Therefore, for this further reason, even if Sukegawa were combined with Nakamoto, claims 1, 7, 10, 15, 17, 22, 24, and 29 would not have been obvious.

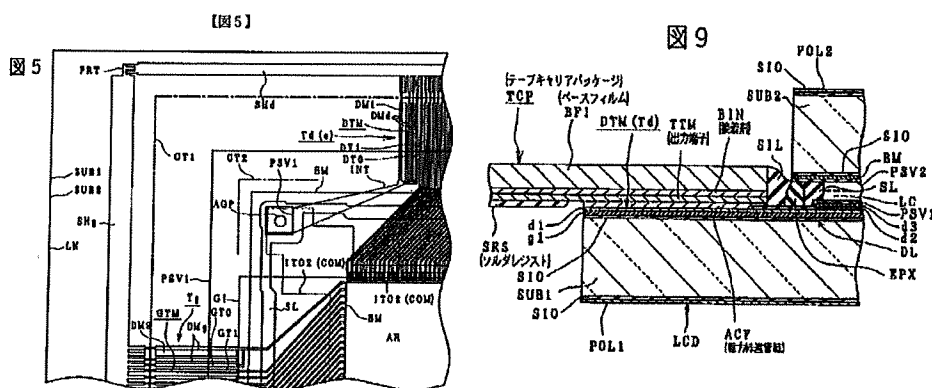
F. The Teachings in the Petition Have Already Been Considered by the Office

As explained above in Section II, Sukegawa was of record and considered by the Office, and the claims of the '413 patent were allowed and patented over this reference.

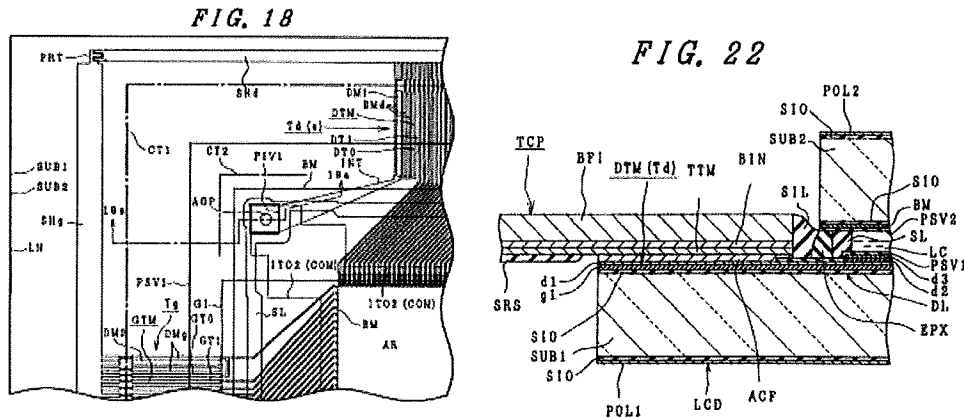
In addition, a reference cumulative to the teachings relied upon by Petitioner from Nakamoto is already of record in the prosecution of the '413 patent. Specifically, Sasuga (Ex. 2007) was submitted to the Office by the Patent Owner in an Information Disclosure Statement received by the Office on October 16, 2008 and at least considered by the Office in providing the Office Action on February 1,

2010. (Ex. 2006, p. 3). Since Sasuga is published and issued as a patent on July 11, 1995, it is a prior art reference under 35 U.S.C §102(a) and §102(b) as is Nakamoto. In addition, as Sasuga is a U.S. patent, it is also a prior art reference under 35 U.S.C §102(e).

In its arguments regarding Nakamoto, the Petition cites only Figs. 5 and 9 of Nakamoto. Thus, Figs. 5 and 9 are referenced in the arguments on Petition pp. 37-40 in the claim chart in Section VI of “Sukegawa et al. (USPN 5,636,329) in view of Nakamoto (JP H08-160446)” for row 1.8 and 1.9 and paragraphs 100 and 107 of Hatalis Decl. By referring to Figs. 18 and 22 of Sasuga, which are reproduced below, one can easily see that the structure of those figures is the same structure shown in Figs. 5 and 9 of Nakamoto, which are reproduced below. The only difference is that Fig. 18 of Sasuga has a dotted line indicating the position of the cross section of 19a. As such, this disclosure in Nakamoto is cumulative to Sasuga.



(Figs. 5 and 9 of Nakamoto)



(Figs. 18 and 22 of Sasuga)

Further, at least Figs. 3, 4, 6-8, 10, and 11 of Nakamoto also are disclosed in Sasuga. (Ex. 2007, Figs. 1, 2, 11, 21, 23, 26, and 31).

Moreover, Hitachi Ltd. is the applicant for both Nakamoto and Sasuga. Also, Hiroshi Nakamoto, a representative inventor of Nakamoto, is one of the inventors of Sasuga.

Therefore, since Petitioner's argument concerning the combination of Sukegawa with Nakamoto should be the same as the argument concerning the combination of Sukegawa with Sasuga, which has been already considered by the Office, the Petition is simply bringing up the same subject matter that was before the Office, and thus, there is no need to reconsider this argument again in an *inter partes* review procedure.

VIII. CONCLUSION

The Petition is woefully deficient. First, the Board should deny the Petition because it fails to identify all the real parties-in-interest as required under 35

U.S.C. § 312 (a)(2). Second, both combinations of prior art references on which the Petition relies on are the same or substantially the same as art previously presented to the Office, and therefore, the Petition should be denied under 35 U.S.C. § 325(d). And third, the Petition fails to raise a reasonable likelihood that the Petition will succeed in showing that any challenged claim is unpatentable for the following reasons: i) the art simply is not combinable as the Petition proposes; ii) even if the references were combined, several claim elements of each of the challenged claims of the '413 patent are not present in the cited art; and iii) the cited art simply does not teach, suggest, or motivate one to combine the art to arrive at the combinations specified in the claims of the '413 patent.

For all of these reasons, this Board should deny the Petition and not institute *inter partes* review of the '413 patent.

Respectfully submitted,



Mark J. Murphy, Reg. 34,225
Edward D. Manzo, Reg. 28,139
HUSCH BLACKWELL LLP
120 So. Riverside Plaza, #2200
Chicago, IL 60606
312-655-1500

Mark.murphy@huschblacksell.com
Edward.manzo@huschblackwell.com

CERTIFICATE OF SERVICE

I certify that the foregoing PRELIMINARY PATENT OWNER RESPONSE UNDER 37 C.F.R. §42.107 was served on the Petitioner by Federal Express Standard Overnight at the following addresses on March 4, 2013.

Scott A. McKeown
Oblon, Spivak, McClelland, Maier & Neustadt, L.L.P.
1940 Duke Street
Alexandria, VA 22314

Gregory S. Cordrey
Jeffer Mangels Butler & Mitchell LLP
3 Park Plaza, Suite 1100
Irvine, CA 92614-2592

