

Petition for *Inter Partes* Review
U.S. Patent No. 7,690,812

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Hisense USA Corporation
Petitioner

v.

Brightplus Ventures LLC
Patent Owner

Patent No. 7,690,812
Filing Date: March 16, 2007
Issue Date: April 6, 2010
Title: APPARATUS AND METHODS FOR CONFORMABLE DIFFUSE
REFLECTORS FOR SOLID STATE LIGHTING DEVICES

Inter Partes Review No. IPR2023-01385

PETITION FOR *INTER PARTES* REVIEW

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LIST OF EXHIBITS

EXHIBIT	DESCRIPTION
1001	U.S. Patent No. 7,690,812 (“the ’812 Patent”)
1002	Prosecution History of U.S. Patent No. 7,690,812
1003	Declaration of P. Morgan Pattison, Ph.D.
1004	Curriculum Vitae of P. Morgan Pattison, Ph.D.
1005	US 7,497,592 to Chou (“Chou”)
1006	US 2006/0262310A1 to Starry (“Starry”)
1007	US 2007/0103908 to Tabito <i>et al.</i> (“Tabito”)
1008	Counterclaim filed by Patent Owner in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774, Dkt. 9 (N.D. Ga. Sep. 16, 2022)
1009	Scheduling Order in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774, Dkt. 35 (N.D. Ga.)
1010	Judicial Caseload Profile for the Northern District of Georgia
1011	Cover Pleading to Patent Owner’s Infringement Contentions in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774 (N.D. Ga.)
1012	Cover Pleading to Patent Owner’s Supplemental Infringement Contentions in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774 (N.D. Ga.) served June 21, 2023

I. Mandatory Notices (37 C.F.R. § 42.8(b))

A. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))

The real party-in-interest, Hisense USA Corporation, is a Georgia corporation with a principal place of business at 7310 McGinnis Ferry Road, Suwanee, GA, 30024. Other privies or real parties in interest include companies within the Hisense Group, including Hisense International (Hong Kong) America Investment Co., Ltd.; Hisense Group Holdings Co., Ltd.; Hisense Visual Technology Co., Ltd.; Hisense International (Hong Kong) America Investment Co., Ltd.; Hisense International (HK) Co., Ltd.; Hisense International Co., Ltd.; TVS REGZA Corporation.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

The '812 Patent is asserted against Petitioner in a Counterclaim in *Hisense USA Corp. v. Brightplus Ventures LLC*, No. 1:22-cv-02774 (N.D. Ga.) (the "Underlying Litigation"). The Underlying Litigation was initially filed by Petitioner on July 14, 2022, and the '812 Patent was first asserted in a Counterclaim filed in the Underlying Litigation on September 16, 2022. *See* Ex. 1008. The current schedule in the Underlying Litigation is attached as Exhibit 1009. In addition to Petitioner, the following entities are Counterclaim defendants in the Underlying Litigation: Hisense Co., Ltd. Hisense International (HK) Co. Ltd., Hisense Visual Technology Co. Ltd., and TVS Regza Corp.

On July 14, 2023, Petitioner filed a petition for IPR challenging certain claims of U.S. 9,605,835, which is also asserted in the Underlying Litigation. That petition has been assigned proceeding no. IPR2023-01168. On August 11, 2023 Petitioner filed a petition for IPR challenging certain claims of U.S. 8,177,382, which is also asserted in the Underlying Litigation. That petition has been assigned proceeding no. IPR2023-01311.

**C. Designation of Lead and Backup Counsel (37 C.F.R. § 42.8(b)(3))
and Service Information (37 C.F.R. § 42.8(b)(4)).**

<u>Lead Counsel</u>	<u>Backup Counsel</u>
Matias Ferrario Reg. No. 51,082 1001 W. 4 th Street Winston-Salem, NC 27101 Office: 336.607.7475 Fax: 336.734.2651 MFerrario@kilpatricktownsend.com	Michael T. Morlock Reg. No. 62,245 1100 Peachtree St. NE, Suite 2800 Atlanta, GA 30309-4528 Office: 404.815.6003 Fax: 336.734.2756 MMorlock@kilpatricktownsend.com

Petitioner may be served via email to its lead and backup counsel at the email addresses above.

II. Introduction

The '812 patent is invalid. The independent claims recite little more than a substrate with a solid state lighting element (e.g., a Light Emitting Diode (“LED”)), and a reflector sheet mounted to the surface of the substrate. LEDs and reflector sheets were well-known in the art long before the '812 Patent's earliest claimed priority date in March 2007. Further, the only purported point of

novelty—that the reflector sheet is “configured to conform to a shape of a protruding feature on the tile,” i.e., that the reflector sheet conforms to a protrusion such as a wire, screw, circuit component, or any other feature common on a circuit board, was well known in the art and is insufficient to confer patentability. The challenged claims should be cancelled as obvious.

III. IPR Requirements

A. Standing (37 C.F.R. § 42.104(a))

Petitioner certifies that the '812 Patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR. The '812 Patent issued on April 6, 2010, and this Petition is filed within one year of service of the Complaint against Petitioner alleging infringement of the '812 Patent (*see* Ex. 1008) and is not barred under 35 U.S.C. §315(b).

B. Fees (37 C.F.R. § 42.103)

This Petition requests review of nineteen (19) claims of the '812 Patent and is accompanied by a payment of \$41,500, which includes the \$19,000 IPR request fee, and the \$22,500 post-institution fee. *See* 37 C.F.R. § 42.15(a). Thus, this Petition meets the fee requirements under 35 U.S.C. § 312(a)(1). The Board is hereby authorized to charge any additional fees required by this action to Deposit Account No. 20-1430.

C. Challenge Under 37 C.F.R. § 42.104(b)

This petition requests cancellation of claims 1-7, 10-12, 14-21, and 23 as rendered obvious under 35 U.S.C. § 103 based on the following prior art references:

- US 7,497,592 to Chou (“Chou”) (Ex. 1005);
- US 2006/0262310 to Starry (“Starry”) (Ex. 1006); and
- US 2007/0103908 to Tabito *et al.* (“Tabito”) (Ex. 1007).

The statutory grounds for the challenge to each claim are set forth below:

Ground	35 U.S.C.	Claims	References
1	103	1, 12, 15, and 18	Chou in view of the Knowledge of a POSITA
2	103	2-6 and 21	Combination of Chou and Starry in view of the Knowledge of a POSITA
3	103	7, 10-11, 14, 16-17, 19-20, and 23	Combination of Chou and Tabito in view of the Knowledge of a POSITA

The record establishes a reasonable likelihood of prevailing as to each ground of invalidity with respect to the Challenged Claims.

IV. Background

A. The '812 Patent

The '812 Patent was filed on March 16, 2007, and issued as a patent on April 6, 2010. The '812 Patent does not claim priority to any earlier filed applications.

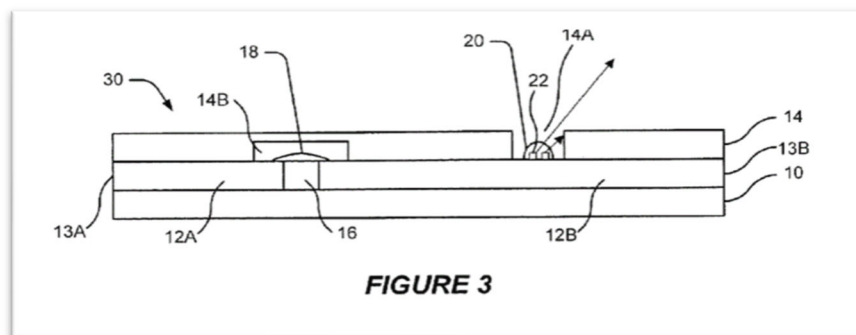
The '812 Patent describes a solid state lighting device including multiple solid state lighting elements, e.g., LEDs, mounted to lighting tiles. *See* '812 Patent, col. 4:46-51. The tile may “include a solid state emitter 20, mounted on a surface of the substrate 13B.” *Id.*, col. 4:52-58. “The tile 12B also includes a reflector sheet 14, configured to reflect and diffuse light transmitted from the emitter 20. The reflector sheet 14 can be configured to cover multiple tiles 12A, 12B of the solid state lighting panel 40.” *Id.*, col. 4:59-64. The '812 patent further describes that “the reflector sheet may be configured to conform to protrusions on the surface of the tile substrate. In this manner, recesses may not have to be created or formed in the reflector sheet during manufacturing.” *Id.*, col. 8:21-24.

B. Prosecution of the '812 Patent.

During prosecution of the Application that led to the '812 Patent, the Examiner rejected as-filed claim 1 and other claims under three separate grounds of anticipation in view of U.S. 5,226,723 to Chen (“Chen”), U.S. 2006/0131602 to Ouderkirk (“Ouderkirk”), and U.S. 2006/0187660 to Liu (“Liu”). Ex. 1002 at 106-

107. The Examiner rejected several additional claims as obvious in view of the combination of Chen, Ouderkirk, and Liu. *Id.* at 107-109. The Examiner further indicated that claims 14, 21, and 25 were allowable if rewritten in independent form to include the elements of their base claims. *Id.* at 109.

In response, the Applicant amended independent claims 1 and 16 to recite “a reflector sheet on the surface of the substrate, the reflector sheet configured to conform to a shape of a protruding feature on the tile[.]” *Id.* at 122 and 124. The Applicant argued that “the apertures cited in the Office Action are not synonymous with a reflector sheet conforming to a shape of a protruding feature.” *Id.* at 127. The Applicant went on to refer to Figure 4 of the application and a statement in the specification that “the reflector sheet 24 includes a deformation characteristic that can provide conformance to surface protrusions such as an LWI 18.” *Id.* (quoting, ’812 Patent, col. 6:34-36). The Applicant further noted that Figure 3 “illustrates an aperture 14A, which is distinct from conformance to surface protrusions.” *Id.*



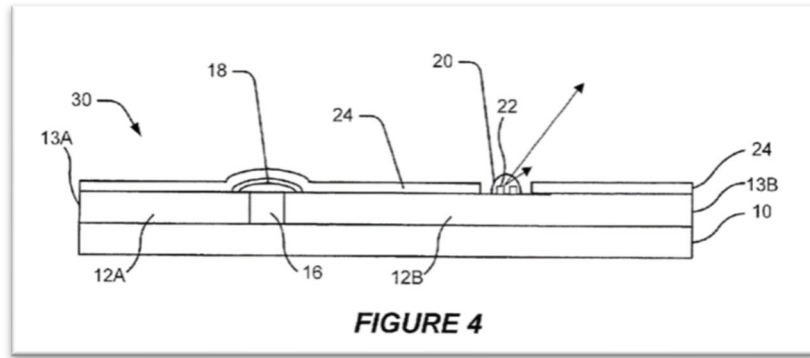
’812 Patent, Fig. 3.

In the following Office Action, Examiner maintained the three anticipation rejections in view of Chen, Ouderkirk, and Liu. Ex. 1002 at 138-139. The Examiner further maintained the obviousness rejections in view of the combination of Chen, Ouderkirk, and Liu. *Id.* at 140-141. The Examiner further indicated that claims 14, 21, and 25 were allowable and that claims 9 and 23 were objected to for depending from a rejected base claim, but were otherwise allowable.

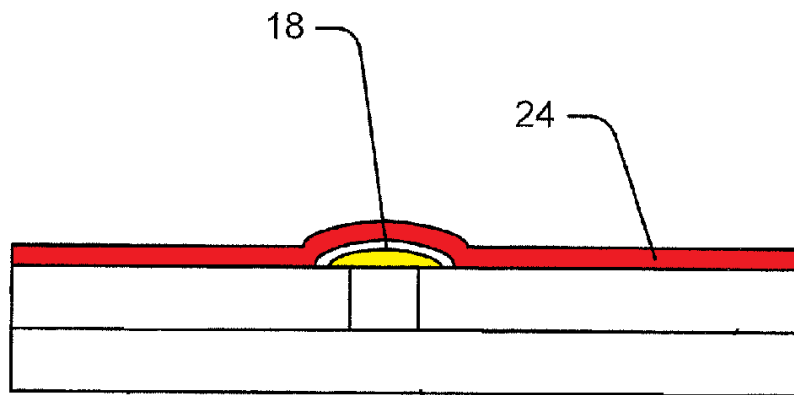
In response to the amendment, the Examiner addressed the Applicant's arguments and defined "Conform" to mean "to give the same shape, outline or contour to." *Id.* at 142 (citing Webster's Ninth New Collegiate Dictionary, 1983). The Examiner further stated that "the aperture of the prior art has the contour as the protruding feature." *Id.*

The Applicant responded to the Office Action, stating the Examiner's definition of "contour" "is not inconsistent with Applicants' previously submitted arguments." *Id.* at 153. The Applicant further argued that "'a same shape, outline or contour' of a protruding feature would not be an aperture. For example, an aperture might be provided to conform to a hole, which is substantially the opposite of a protruding feature. In this regard, 'a same shape, outline or contour' of a protruding feature would include a similarly protruding portion." *Id.* at 154.

The Applicant went on to refer the Examiner to Figure 4 of the application.



'812 Patent, Fig. 4. The applicant argued that as shown in Figure 4, "the reflector sheet 24 is configured to conform to a shape of a protruding feature (large wire interconnect (LWI) 18). Thus, in accordance with the definition of conform provided in the Office Action, an aperture over the LWI 18 would not have the same shape, outline or contour as the LVI 18." Ex. 1002 at 154. Thus, the Applicant explained that according to the specification, the reflector sheet 24 conforms with the Large Wire Interconnect 18, as shown below.



'812 Patent, Fig. 4 (annotated)

In response, the Examiner issued a notice of allowance and stated in the Reasons for Allowance that "Prior art fails to show or suggest the claimed solid

state lighting tile for the reasons discussed in the ‘Remarks’ section of the correspondence.” Ex. 1002 at 163.

V. Expert Testimony, Level of Skill in the Art, and Claim Construction

A. Declaration Evidence

This petition is supported by the declaration of P. Morgan Pattison, Ph.D., an expert with extensive experience in the relevant industry. Ex. 1003. Dr. Pattison has over (25) years of experience in the areas of light emitting diodes (LEDs), organic light emitting diodes (OLEDs), lighting, solid state lighting (SSL), displays, lasers, and optoelectronic materials and devices. Ex. 1003, ¶7.

B. Person of Ordinary Skill in the Art

A person of ordinary skill in the art of the ’812 Patent would have had at least a graduate degree in mechanical engineering, physics, materials science, electrical engineering, or a related discipline, coupled with at least four years’ experience in designing backlighting systems for displays; the level of ordinary skill in the art is approximate and additional education could make up for a lack of experience or vice-versa. Dr. Pattison further examines these claims under this level and the Patent Owner’s level of skill in the art and comes to the same conclusion. Ex. 1003, ¶28.

C. Claim Construction

Nothing in the specification or prosecution history of the '812 Patent expressly defines any term appearing in any claim of the '812 Patent. Further, the Board does not need to construe any claim term for purposes of evaluating the prior art in this Petition, and thus for purposes of this proceeding only, Petitioner believes that no claim term requires construction.

VI. Prior Art

A. Chou

Chou claims priority to a Taiwanese Application filed on December 29, 2005. The U.S. Application that led to Chou was filed on February 28, 2006, and Chou issued on March 3, 2009. Chou is thus prior art to the '812 Patent under at least 35 U.S.C. § 102(a).

Chou describes a lighting assembly comprising “a circuit board, a plurality of spot light sources disposed on the circuit board, and a reflector sheet disposed on the circuit board having a plurality of first holes” corresponding to one of the plurality of spot light sources. Chou, Abstract. Chou expressly discloses that Light Emitting Diodes (LEDs) could be used as the spot light sources. *Id.*, 1:6-8 (“The invention relates to a light source assembly, and in particular relates to a light source assembly using light emitting diodes (LEDs) as the light source.”).

Chou further describes an embodiment where “the reflector sheet 1700 adjacent to the hole 1750 is deformed to form an angle θ between about 0 degree and about 90 degree with the circuit board 1500.” *Id.*, 4:26-28. Chou makes clear that in this “embodiment, the reflector sheet 1700 can be a deformable material, such as a resin film having reflecting function, and the slits can be omitted.” *Id.*, 4:29-31. This embodiment is shown in Figures 3A and 8 and shows the use of a deformable reflector sheet 700 in comparison to LED 600, lead 650, and solder 800.

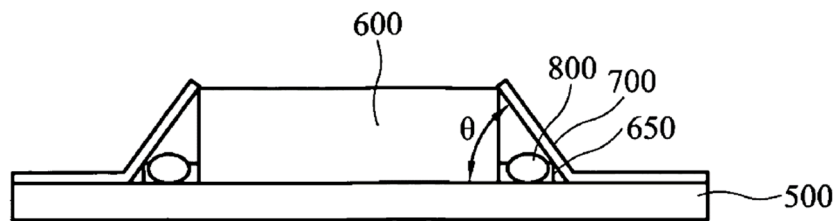


FIG. 3A

Chou, Fig. 3A.

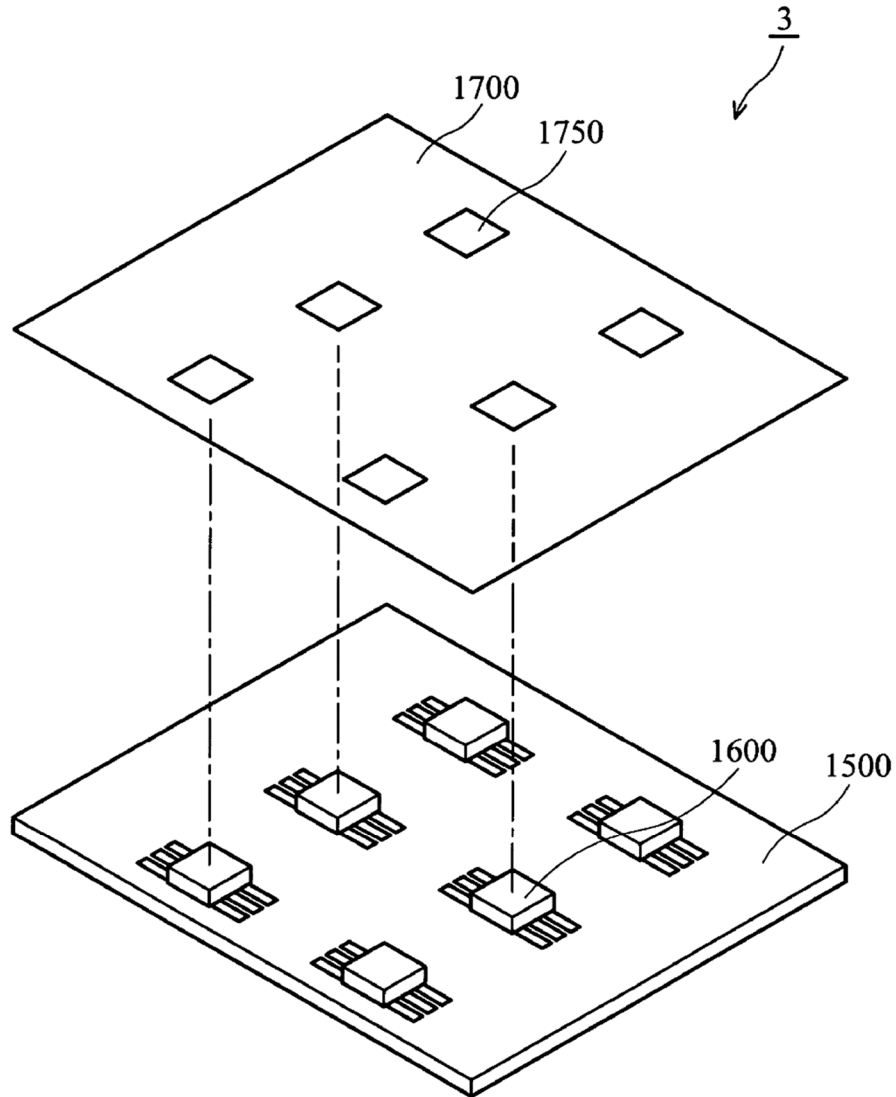


FIG. 8

Chou, Fig. 8.

As seen in these figures and their accompanying description, Chou discloses a deformable reflector sheet that conforms to the underlying protruding feature.

B. Starry

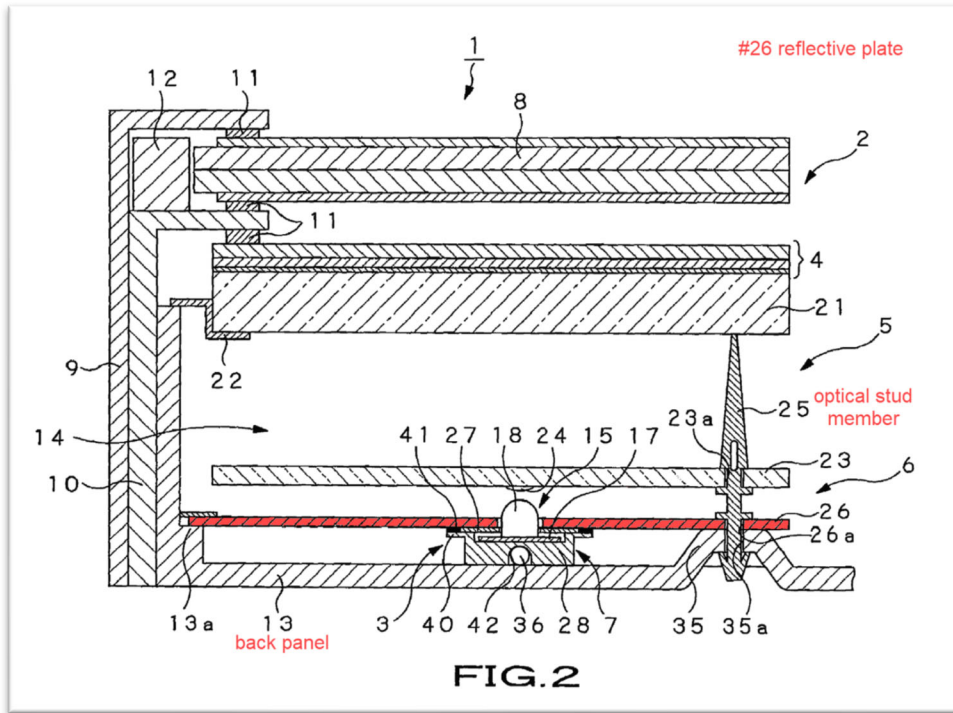
Starry is a publication of a U.S. Application filed on February 7, 2006. Starry published on November 23, 2006. Starry is thus prior art to the '812 Patent under at least 35 U.S.C. § 102(a).

Starry discloses an optical display that includes a light source, a display panel, and a diffuse reflector positioned within an optical cavity to reflect light toward an object. *See* Starry, Abstract (“A diffuse reflective article is provided including a diffuse reflector of light positioned within a structure defining an optical cavity.”). Further Starry discloses a backlight reflector that “is relatively thin, i.e., less than 250 μm and often less than 150 μm , to minimize the thickness of the completed display.” *Id.*, [0006].

C. Tabito

Tabito claims priority to a Japanese Application filed on August 4, 2004, and a PCT Application filed July 27, 2005. The U.S. Application was filed on April 3, 2006, and the application published on May 10, 2007. Thus, Tabito is prior art to the '812 Patent under at least 35 U.S.C. § 102(a).

Tabito discloses a light transmitting LCD with a reflecting plate 26, diffusing plate 23, light diffusing conducting plate 21, and back panel 13 supported by optical stud members 25, through the underlying back panel 13 at mounting member 35. *See* Tabito, [0081]-[0083]; Fig. 2.



Tabito, Fig. 2 (annotated).

VII. Full Statement of the Reasons for the Relief Requested

A. Ground 1 – Claims 1, 12, 15, and 18 are Obvious Under 35 U.S.C. § 103 Over Chou in view of the Knowledge of a POSITA

Chou in view of the knowledge of a POSITA discloses each element of claims 1, 12, 15, and 18 as explained below.

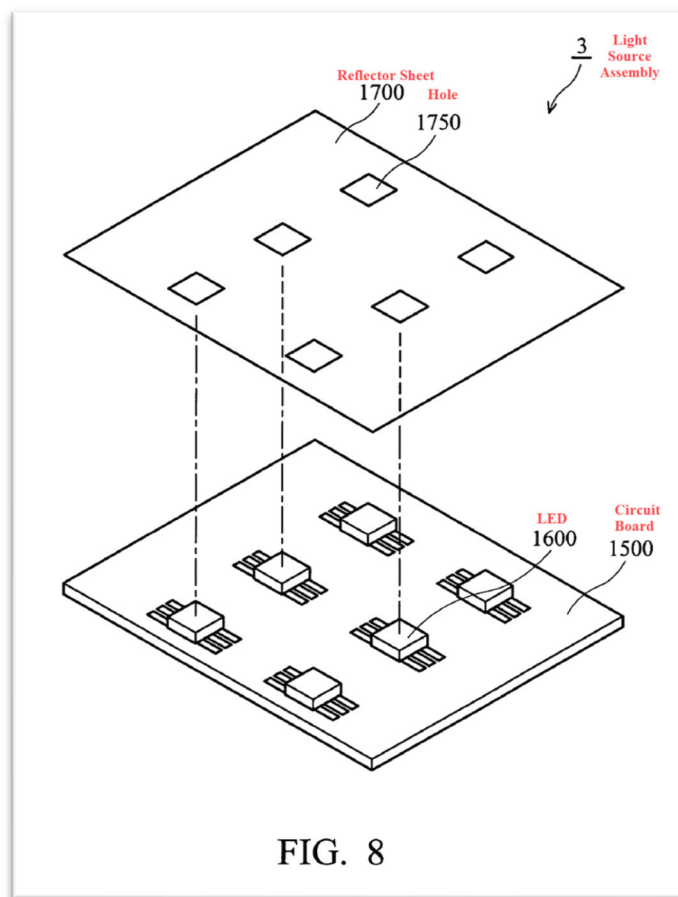
1. Independent Claim 1.

['812 Claim 1 Preamble] A solid state lighting tile, comprising:

Chou describes “a light source assembly using light emitting diodes (LEDs) as the light Source.” Chou, 1:6-8. LEDs are solid state light sources. Ex. 1003, ¶39.

[’812 Claim 1A] a substrate;

With respect to Figure 8, Chou describes “light source assembly having a plurality of spot light sources, the light source assembly 3 compris[ing] a circuit board 1500, [and] a plurality of spot light sources 1600 disposed on the circuit board 1500....” Chou, 4:19-22. The circuit board 1500 underlying spot light sources 1600 is a substrate for a lighting tile. *See also* Fig. 8.



Chou, Fig. 8 (annotated); Ex. 1003, ¶¶39-40; ¶¶63 claim 1A.

[’812 Claim 1B] a solid state lighting element mounted on a surface of the substrate; and

Chou discloses lead 650 from the LED 600 is mounted to the circuit board 500, via solder 800. Chou, 3:42-51.

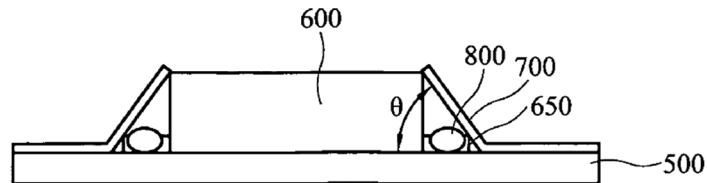


FIG. 3A

Chou, Fig. 3A; Ex. 1003, ¶40; ¶63 claim 1B.

[’812 Claim 1C] a reflector sheet on the surface of the substrate, the reflector sheet configured to conform to a shape of a protruding feature on the tile.

In the Underlying Litigation the parties have argued that “configured to conform to a shape of a protruding feature” means: (1) “the reflector sheet overlays (e.g., by deformation), and has the same shape, outline, or contour of a protruding feature” or (2) “reflector sheet that provides cover and relief for a shape of a protruding feature on the [solid state lighting] tile.”¹ Under any reasonable construction, including either of these constructions, Chou renders this claim element obvious.

¹ *Hisense USA Corporation v. Brightplus Ventures LLC*, No. 1:22-cv-02774, Dkt. 49 at 4 (N.D. Ga.).

Figure 3A of Chou discloses a reflector sheet 700 positioned to conform to the protruding features the LED 600, including the lead 650 and solder 800. Chou, 3:42-51 (“The reflector sheet 700 is disposed on the circuit board 500 and the reflector sheet 700 adjacent to the hole 750 forms an angle θ between about 0 degree to about 90 degree with the circuit board 500. The angle θ will change with the height of the spotlight source (LED 600), the length of lead 650 of the spot light source (LED 600), and the amount of the solder 800.”); Ex. 1003, ¶41.

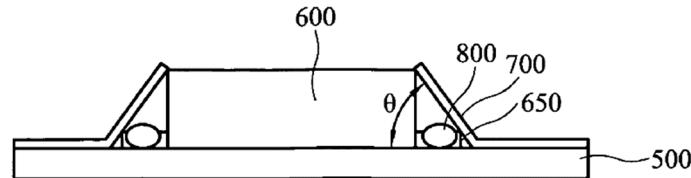


FIG. 3A

Chou, Fig. 3A. Chou further discloses that the reflector sheet conforms to the protruding features. Ex. 1003, ¶42. In particular, Chou describes that the angle of the reflector sheet “will change with the height of the spotlight source (LED 600), the length of lead 650 of the spot light source (LED 600), and the amount of the solder 800.” Chou, col. 3:45-47. Accordingly, the reflector sheet 700 provides cover and relief for a shape of protruding feature, such as the LED 600, lead 650, and solder 800, on the tile.

Chou further discloses that “the reflector sheet 1700 can be *a deformable material*, such as a resin film having reflecting function.” Chou, col. 4:30-32 (emphasis added); Ex. 1003, ¶42. A POSITA would recognize that such a “deformable material” used as the reflector sheet 700 would conform to the shape of the protruding features, e.g., the LED 600, lead 650, and solder 800. Ex. 1003, ¶43. Thus, a POSITA would recognize that the reflector sheet 700 overlays (e.g., by deformation), and has the same shape, outline, or contour of the LED 600, lead 650, and solder 800. *Id.*

This is particularly evident as another embodiment in Chou teaches the use of slits to create relief areas for the reflector sheet relative to a protruding feature. *See* Chou, 3:7-8 (“The hole 750 has at least one slit 760 extended from the periphery of the hole 750.”); Ex. 1003, ¶43. As an alternative to using slits, Chou teaches the use of a deformable material such that the reflector sheet can have the same shape, outline, or contour of the underlying protruding feature. *See* Chou, 4:29-32 (“In this embodiment, the reflector sheet 1700 can be a *deformable material*. Such as a resin film having reflecting function, and *the slits can be omitted.*” (emphasis added)); Ex. 1003, ¶43.

For example, as shown in Figure 3A above, the reflector sheet 700 conforms to at least the shape of the lead 650 and solder 800 by providing cover and relief. Further, as explained by Chou, the angle θ between the reflector sheet 600 and the

circuit board 500 can vary “between about 0 degree and about 90 degree.” Chou, col. 3:42-44; Ex. 1003, ¶44. Further, this “angle θ will change with the height of the spotlight source (LED 600), the length of lead 650 of the spot light source (LED 600), and the amount of the solder 800.” Chou, col. 3:45-48.

A POSITA would recognize that this variance in the angle θ indicates that the reflector sheet is conforming to the protrusions that the reflector sheet overlays, e.g., the LED 600, “the length of the lead 650,” and “the amount of solder 800.” *Id.*; Ex. 1003, ¶45; ¶63, Claim 1C. Alternatively, when a slit is not used and a deformable material is used, the reflector sheet will have the same shape, outline, or contour as the protruding feature.

2. Dependent Claim 12.

[’812 Claim 12] The tile of claim 1, wherein the reflector sheet comprises an aperture configured to be positioned proximate to the solid state lighting element, wherein the reflector sheet does not contact the solid state lighting element.

As discussed with regard to Claim 1, Chou discloses a reflector sheet wherein the holes/apertures are positioned over the LED. This is shown, e.g., in Chou Figure 3A.

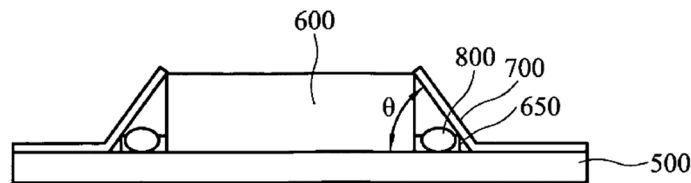


FIG. 3A

Chou, Fig. 3A; Ex. 1003, ¶46.

A POSITA would have been motivated to modify the reflector sheet shown in Figure 3A to slightly increase the angle θ such that the reflector sheet does not contact the solid state lighting element 600. Ex. 1003, ¶47. A POSITA would have been motivated to make this modification to avoid mechanical friction between the reflector 700 and the solid state lighting element 600, which could lead to damage to either the reflector 700 or the solid state lighting element 600. Ex. 1003, ¶47. A POSITA would recognize that such mechanical friction is a particular concern in an application in which the backlight is used for a portable display, e.g., in a tablet or laptop computer, or in a display that is mounted in a moving object, e.g., a display in vehicle such as a boat, airplane, train, or car. *Id.*

A POSITA would also recognize that the LED component itself is commonly packaged in a clear protective casing or lens. Ex. 1003, ¶48-49. Thus, any contact with the reflector sheet is with the protective casing or lens rather than the LED chip itself. Further, to the extent there is no such lens or casing on the LED, this would further motivate a POSITA to increase the angle θ such that the reflector sheet does not contact the solid state lighting element 600. Ex. 1003, ¶50. A POSITA would recognize that such a modification would reduce the risk of a short circuit based on contact between a reflector sheet made of a conductive

material (e.g., aluminum or another conductive metal) and the lead 650 or solder 800. Ex. 1003, ¶49-50.

Finally, an embodiment in which the reflector does not contact the lighting element is expressly disclosed in Chou as “prior art.” Ex. 1003, ¶50. In particular, with respect to Figure 1A, Chou describes a lighting system using a plurality of LEDs 200, a reflector sheet 300, which does not contact the solid state lighting elements, i.e., the LEDs 200, as shown below.

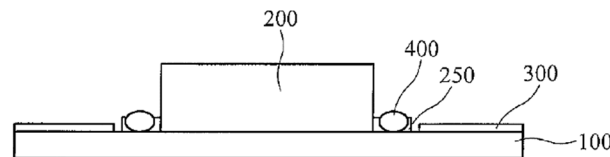


FIG. 1A (PRIOR ART)

Chou, Fig. 1A. Ex. 1003, ¶50. With respect to this embodiment Chou further describes that “[t]he hole 350 of the reflector sheet 300 must be enlarged to avoid the welding position and this also will result in reducing the covering area of the reflector sheet 300.” Chou, 1:54-57. As shown in Figure 1B below, the hole 350 in reflector sheet 300 ensures that the reflector sheet 300 does not contact the solid state lighting element 250. Ex. 1003, ¶50.

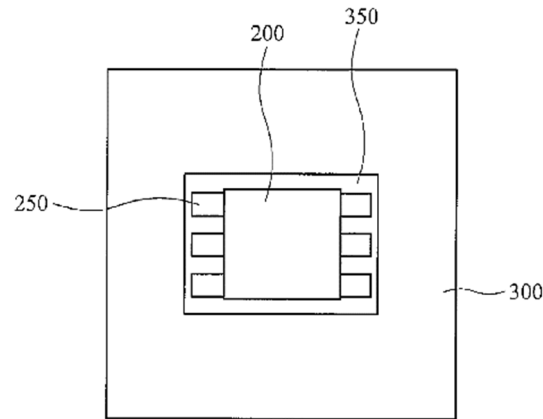


FIG. 1B (PRIOR ART)

Chou, Fig. 1B. Chou's description of such a design as "prior art" as of the date Chou was filed, which is prior art to the '812 Patent, further confirms that such a design would have been known to a POSITA. Ex. 1003, ¶50. That this would have been known to a POSITA is also demonstrated by Tabito, [0074], which describes placing an insulator between an aluminum reflecting plate and terminals of the LED. See Tabito, [0074] ("[I]n the reflecting section 6, *electrical insulation is maintained between* the portion of the aluminum substrate of the reflecting plate 26 by the reflective sheet piece 27 and the terminal 18 c of the LED unit 18."); Ex. 1003, ¶51. This modification would have been an obvious variation of Chou. Ex. 1003, ¶69, Claim 12.

3. Independent Claim 15.

[’812 Claim 15 Preamble] A method of forming a solid state lighting device comprising:

See supra Claim 1[Preamble]. The product disclosed in Chou renders obvious a method for forming that product. The Federal Circuit has “clearly stated that “[i]n determining validity of a product-by-process claim, the focus is on the product and not the process of making it.” *Purdue Pharma L.P. v. Epic Pharma, LLC*, 811 F.3d 1345, 1354 (Fed. Cir. 2016 (quoting *Greenliant Sys., Inc. v. Xicor LLC*, 692 F.3d 1261, 1268 (Fed. Cir. 2012))).

[’812 Claim 15A] providing a substrate of a solid state lighting tile;

See supra Claim 1[A] and 1[Preamble].

[’812 Claim 15B] mounting a solid state lighting element on a surface of the substrate; and

See supra Claim 1[B].

[’812 Claim 15C] positioning a reflector sheet on the surface of the substrate, the reflector sheet configured to conform to a shape of a protruding feature on the solid state lighting tile.

See supra Claim 1[C].

5. Dependent Claim 18.

[’812 Claim 18] The method of claim 15, wherein the reflector sheet comprises an aperture configured to be positioned over the solid state lighting element, wherein the reflector sheet does not contact the solid state lighting element.

See supra Claim 12.

B. Ground 2 – Claims 2-6 and 21 are Obvious Under 35 U.S.C. § 103 Over the Combination of Chou and Starry in view of the Knowledge of a POSITA.

As discussed above, Chou describes a backlighting system comprising an array of LED tiles mounted on a substrate and including a reflector sheet. Chou does not expressly disclose a diffuse reflector sheet or provide the specific thickness of the reflector sheet. Starry discloses a diffuse reflector and specific thicknesses for the reflector.

1. Motivation to Combine Chou, and Starry.

A combination of familiar elements according to known methods which yields no more than predictable results is likely obvious to one of skill in the art. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). One rationale to support a conclusion of obviousness is the use of a known technique to improve similar devices (methods, or products) in the same way. *See id.* at 417-18; *see also* MPEP 2143(C). To establish that a modification is the use of a known technique to improve similar devices and methods in the same way, it is necessary to establish (1) that the prior art contained a “base” device/method upon which the claimed invention can be seen as an “improvement,” (2) a finding that the prior art contained a “comparable” device/method that is not the same as the base device/method and that has been improved in the same way as the claimed invention, and (3) that the skilled artisan could have applied the known

“improvement” technique in the same way to the base device/method with predictable results. *See* MPEP 2143(C); *KSR*, 550 U.S. at 415-421.

A POSITA would have been motivated to combine Chou and Starry. Ex. 1003, ¶65. Both disclose optical elements for backlit LCD assemblies. Chou discloses a reflector sheet but Chou does not specifically disclose that the reflector sheet is a diffuse reflector. In a similar field, Starry discloses “a diffuse reflective article having a nonwoven sheet diffuse reflector containing pores of high light scattering efficiency and having a high photopic reflectance of visible light.” Starry, [0002]; Ex. 1003, ¶65.

A POSITA would have been motivated to apply Starry’s diffuse reflector to Chou’s system. Ex. 1003, ¶66. Starry provides an express motivation to combine, explaining “[d]iffuse reflectivity of visible light is critical in many applications. Direct view displays used in electronic equipment (e.g., instrument panels, portable computer screens, liquid crystal displays (LCDs)), whether relying on supplemental lights (e.g., backlight) or ambient light, require diffuse reflectant back surfaces to maximize image quality and intensity.” Starry, [0005]; Ex. 1003, ¶66. An LCD display, which is an example given by Starry, is exactly the type of display device described in Chou. *See* Chou, 1:19-22 (“The performance of an LCD is affected by all of the internal devices of which it is composed and the backlight module is primarily responsible for screen brightness, uniformity,

contrast, and viewing angle.”). Thus, Starry provides an explicit motivation to combine its refractive diffuser with the backlight described by Chou in order to “maximize image quality and intensity.” Starry, [0005]; Ex. 1003, ¶66.

Further, a POSITA would recognize that Chou focuses on improving performance. *See e.g.* Chou, col. 1:19-22 (“The performance of an LCD is affected by all of the internal devices of which it is composed and the backlight module is primarily responsible for screen brightness, uniformity, contrast, and viewing angle.”); *Id.*, col. 1:58-60. (“Hence, a method of improving the covering area of the reflector sheet 300 so as to improve the lighting efficiency of the backlight module is desirable.”); Ex. 1003, ¶67. A POSITA would have been motivated to add Starry’s diffuse reflector to the Chou system in order to “maximize image quality and intensity” of these backlights. Chou, [0005]; Ex. 1003, ¶67.

Further, while Chou describes a reflector sheet, it does not describe the specific thickness of that reflector sheet. Starry expressly discloses the claimed thicknesses, explaining that “[f]or certain markets it is critical that the backlight reflector is relatively thin, i.e., less than 250 μm and often less than 150 μm , to minimize the thickness of the completed display.” Starry, [0006]; Ex. 1003, ¶68. A POSITA would have been motivated to use the “relatively thin” reflector sheet disclosed by Starry to “minimize the thickness of the completed display.” Starry, [0006]. As Starry explains, this minimal thickness is critical in “[p]ortable

computer LCDs,” which “require[e] high levels of diffuse reflection of visible light from very thin materials.” *Id.*; Ex. 1003, ¶68. A POSITA would have been motivated to use Starry’s thinner materials to minimize the thickness of the backlight assembly and thereby minimize the thickness of the overall LCD display. Additionally, thin reflector sheets are more deformable and thus using Starry’s thin reflector sheet aligns with the Chou’s teachings of the benefits of using deformable reflector sheets over protruding features. Ex. 1003, ¶69-70.

2. Dependent Claim 2.

[’812 Claim 2] The tile of claim 1, wherein the reflector sheet comprises a diffuse reflector.

As described above, Chou describes a reflector with holes for solid state lighting elements. *See supra*, Claim 1[c]. Chou does not explicitly disclose that its reflector sheet is a diffuse reflector. In a similar field, Starry discloses an improvement in light reflectivity with a diffuse reflector. *See* Starry Abstract (“A diffuse reflective article is provided including a diffuse reflector of light positioned within a structure defining an optical cavity.”); Ex. 1003, ¶53. As discussed above, Starry describes a similar backlighting system as Chou, and a POSITA would have been motivated to apply Starry’s diffuse reflector to the backlighting system of Chou as such diffuse reflectors were known to improve the quality of light in backlighting systems. Ex. 1003, ¶53; ¶71 Claim 2.

3. Dependent Claim 3.

[’812 Claim 3] The tile of claim 1, wherein the reflector sheet comprises a polymer-based porous material.

As described above, Chou describes a reflector with holes for solid state lighting elements. *See supra*, Claim 1[c]. In a similar field, Starry discloses a reflector sheet comprises a polymer-based porous material. *See* Starry, [0055] (“A preferred embodiment of nonwoven sheet diffuse reflector comprises a consolidated sheet of flash-spun plexifilamentary film-fibrils, wherein the fibrils comprise *polymer containing pores*. The polymer preferably comprises polyolefin, especially polyethylene.”); Ex. 1003, ¶53; ¶71 Claim 3.

4. Independent Claim 4.

[’812 Claim 4] The tile of claim 1, wherein the reflector sheet comprises a thickness of less than approximately 1.0 millimeter.

As discussed above, Chou describes a reflector sheet but does not expressly describe the thickness of that deflector sheet. In a similar field, Starry discloses a reflector sheet of a preferable thickness between 0.25 and 0.15 mm. Starry, [0006] (“For certain markets it is critical that the backlight reflector is relatively thin, i.e., less than 250 μm and often less than 150 μm , to minimize the thickness of the completed display.”); Ex. 1003, ¶55; ¶71 Claim 4.

5. Dependent Claim 5.

[’812 Claim 5] The tile of claim 1, wherein the reflector sheet has a thickness of less than approximately 0.50 millimeters.

See analysis of claim 4.

6. Dependent Claim 6.

[’812 Claim 6] The tile of claim 1, wherein the reflector sheet has a thickness of less than approximately 0.25 millimeters.

See analysis of claim 4.

7. Dependent Claim 21.

[’812 Claim 21] The method of claim 15, wherein the reflector sheet comprises a diffuse reflector.

See analysis of claim 2.

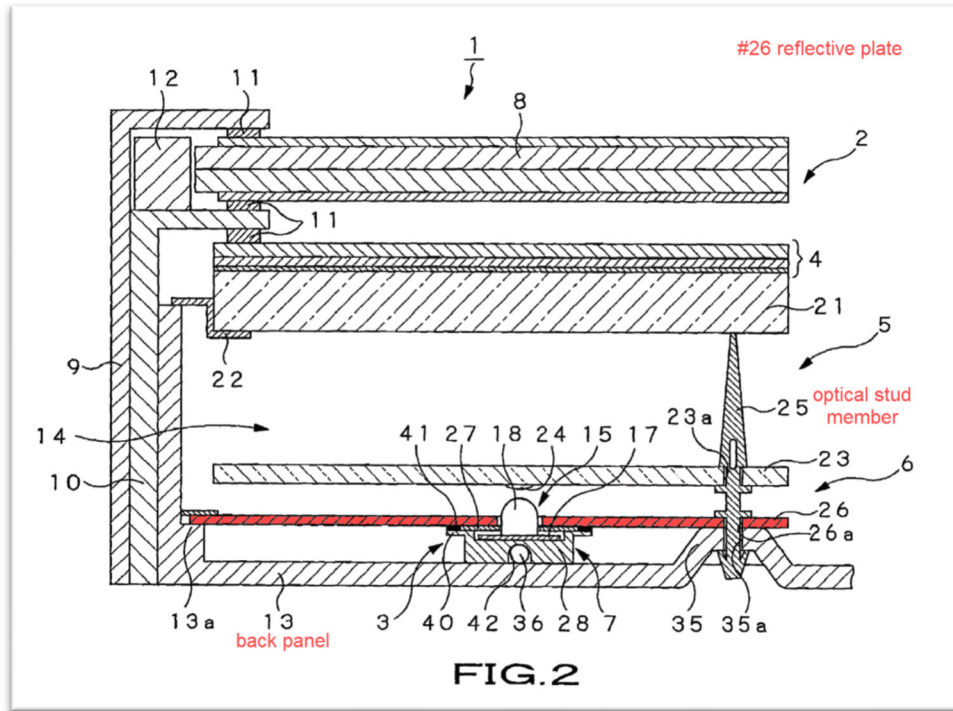
C. Ground 3 – Claims 7, 10-11, 14, 16-17, 19-20, and 23 are Obvious Under 35 U.S.C. § 103 Over the Combination of Chou and Tabito in view of the Knowledge of a POSITA.

As discussed above, Chou describes a backlighting system comprising an array of LED tiles mounted on a substrate and including a reflector sheet. Chou does not expressly disclose a mechanical fastening device configured to attach the reflector sheet to the surface of the substrate. In a similar field, Tabito describes a mechanical fastener to hold a reflective plate in place.

1. Motivation to Combine Chou and Tabito

A POSITA would have been motivated to combine Chou and Tabito. Chou describes LED backlight assemblies as a light source for an LCD display. Chou,

1:6-8; Ex. 1003, ¶72. Chou describes a reflective sheet but does not expressly describe the mounting mechanism for that reflective sheet. Tabito describes “a liquid crystal display apparatus, having a light transmitting liquid crystal display (LCD) device, and ... a backlight device used for this liquid crystal display apparatus.” Tabito, [0001]; Ex. 1003, ¶73. Tabito similarly describes a “reflecting plate 26 ... formed by a plate 29 of, for example, aluminum, and a layer of expandable PET 30, containing phosphorescent agents.” Tabito, [0068]; Ex. 1003, ¶73. Tabito describes that its “reflecting plate 26 [is] provided with a large number of fitting holes ... 26a ... for combination with the optical stud members 25.” Tabito, [0082]. As described, “each optical stud member 25 is pushed into the mounting through-hole 35 a formed in the mounting member 35 through the fitting hole 26 a of the reflecting plate 26.” *Id.*, [0088]. “The result is that the reflecting plate 26 is retained as it is positioned with respect to the back panel 13 for highly accurately positioning and retaining each reflective sheet piece 27.” *Id.*, [0089]. Thus, as described by Tabito, the reflecting plate 26 is held in place by the optical stud member. Ex. 1003, ¶74.



Tabito, Fig. 2 (annotated).

Tabito's method of supporting reflective plates would also be suitable for use in supporting Chou's reflective sheet. Ex. 1003, ¶75. A POSITA would have been motivated to apply Tabito's supports and mounting methods to Chou to provide mounting and support for the backlighting elements described in Chou to provide a more rigid structure and reduce the risk that Chou's reflective sheet separates from the circuit board comprising the LEDs. Ex. 1003, ¶75. Moreover, Chou's disclosure is focused on the lighting assembly, whereas Tabito's disclosure is focused on the both the lighting assembly and upper layers of a lighting system. Ex. 1003, ¶75. Thus, it would have been obvious to use Tabito's teaching on how to best support upper layers of the lighting system with Chou's teachings regarding

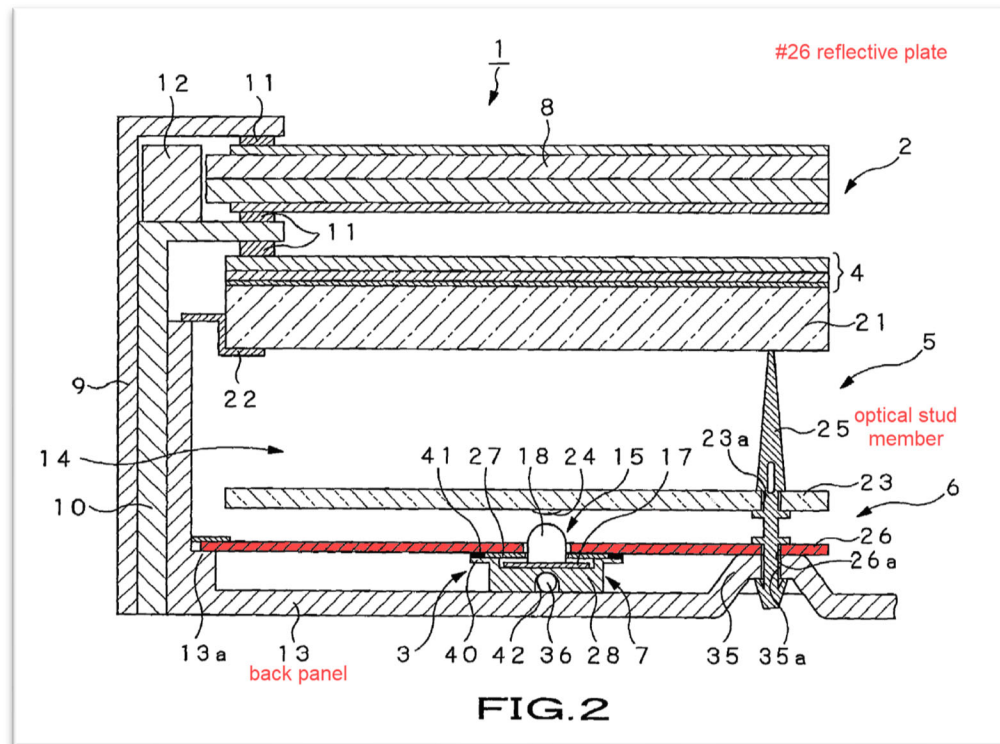
optimal light source assembly. Ex. 1003, ¶75. This improvement would increase the durability of the mount for the reflecting plate, and thereby would increase device longevity and durability. *Id.*

Chou and Tabito are in the same field of backlight assembly units for display devices. Thus, a POSITA would recognize that this combination is nothing more than the use of a known solution described by Tabito in a similar system described by Chou. This combination would be within the skillset of a POSITA. Ex. 1003, ¶76.

2. Dependent Claim 7.

[’812 Claim 7] The tile of claim 1, further comprising a mechanical fastening device configured to attach the reflector sheet to the surface of the substrate.

As discussed above, Chou describes a lighting panel comprising a plurality of LEDs mounted to substrate and a reflective sheet. In a similar field, Tabito discloses a light transmitting LCD with a reflecting plate 26 and diffusing plate 23, being mechanically attached to substrate back panel 13. *See* Tabito, [0081]-[0083]; Fig. 2; Ex. 1003, ¶59.



Tabito, Fig. 2 (annotated). Tabito also discloses a reflector mechanically fastened to the surface of the substrate. *See, e.g.*, Tabito, [0088] (“The reflecting plate 26 is assembled on the mounting member 35 of the back panel 13 ... the fitting part 25 b of each optical stud member 25 is pushed into the mounting through-hole 35 a formed in the mounting member 35 through the fitting hole 26 a of the reflecting plate 26.”); Ex. 1003, ¶60. As described, “each optical stud member 25 is pushed into the mounting through-hole 35 a formed in the mounting member 35 through the fitting hole 26 a of the reflecting plate 26.” Tabito, [0088]. “The result is that the reflecting plate 26 is retained as it is positioned with respect to the back panel 13 for highly accurately positioning and retaining each reflective sheet piece 27.” *Id.*, [0089]; Ex. 1003, ¶60; ¶77, Claim 7.

3. Dependent Claim 10.

[’812 Claim 10] The tile of claim 1, further comprising a chemical bonding component configured to attach the reflector sheet to the surface of the substrate.

Tabito expressly disclose that its reflective plat may be bonded to the reflecting plate supports by either “double-sided adhesive tapes 41, 41” or “an adhesive coated on the reflecting plate supports 40, 40.” Tabito, [0110] (“In the above embodiment, the reflecting plate 26 is bonded in position by double-sided adhesive tapes 41, 41 bonded in turn to the reflecting plate supports 40, 40 of each heat dissipating plates 28. Alternatively, the reflective plate may be secured in position by an adhesive coated on the reflecting plate supports 40, 40.”); Ex. 1003, ¶61. The ’812 Patent makes clear that a chemical bonding component includes “glue and/or a pressure sensitive adhesive compound.” *See* ’812 Patent, col. 1:54-56 (“The chemical bonding component can include glue and/or a pressure sensitive adhesive compound.”); Ex. 1003, ¶61; ¶77, Claim 10.

4. Dependent Claim 11.

[’812 Claim 11] The tile of claim 10, wherein the chemical bonding component comprises glue and/or a pressure sensitive adhesive compound.

See analysis of Claim 10 above. A POSITA would recognize that glue includes adhesives of the type described by Tabito. Ex. 1003, ¶61; Tabito, [0110].

4. Dependent Claim 14.

[’812 Claim 14] A solid state light bar comprising a plurality of tiles according to claim 1, wherein a single reflector sheet is configured to cover the plurality of tiles of the solid state light bar.

This element is obvious in view of the combination of Chou and Tabito. Ex. 1003, ¶56. Chou Figure 9 shows three circuit boards 1500’ and multiple spot light sources (e.g., LEDs) 1600’ back-welded between two of the circuit boards 1500’. Each of the LEDs is covered by a single reflector sheet 1700’, which includes holes 1750’ for each of the spot light sources 1600’.

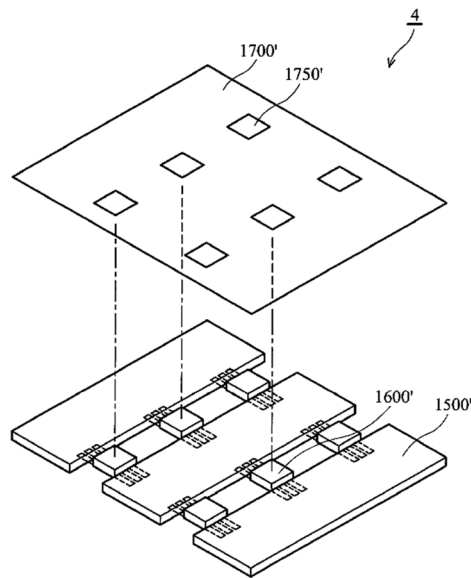


FIG. 9

Chou, Fig. 9; *see also* col. 4:39-45 (“the light source assembly 4 comprises at least two circuit boards 1500', a plurality of spot light sources 1600' back welded between the at least two circuit boards 1500', and a reflector sheet 1700' disposed

on the at least two circuit boards 1500' having a plurality of holes 1750'. Each hole 1750' corresponds to one spotlight source 1600'."); Ex. 1003, ¶56.

Tabito further discloses a reflective sheet piece 27 that includes “guide through-holes 34 in register with the 25 LED units 18 provided on a single straight line on each light emitting unit 15. These guide through-holes 34 are formed side-by-side along the length-wise direction on the same co-axial line in the reflective sheet piece 27 and are each a circular opening the inner diameter of which is substantially equal to that of the light emitting part 18 a of the LED unit 18.” Tabito, [0071]. From this disclosure, a POSITA would recognize that Tabito’s reflective sheet piece covers multiple LEDs and their corresponding tile(s). Ex. 1003, ¶56.

Thus, a POSITA would recognize that the plurality of circuit boards 1500' and spot light sources 1600' described in Chou could form a plurality of solid state lighting tiles covered by a single reflector sheet 1700'. Ex. 1003, ¶57. Further, as with the reflector sheet discussed above with regard to claim 1, Chou describes that “[t]he reflector sheet. 1700' adjacent to each hole 1750 forms an angle θ between about 0 degree to about 90 degree with the circuit board 1500'.” Chou, col. 4:45-47; Ex. 1003, ¶56; ¶77, Claim 14.

5. Dependent Claim 16.

[’812 Claim 16] The method of claim 15, wherein positioning the reflector sheet comprises chemically bonding the reflector sheet to the surface of the substrate.

See analysis of Claim 10 above.

1. Dependent Claim 17.

[’812 Claim 17] The method of claim 15, wherein positioning the reflector sheet comprises mechanically attaching the reflector sheet to the surface of the substrate.

See analysis of Claim 7 above.

6. Dependent Claim 19.

[’812 Claim 19] The method of claim 15, wherein the reflector sheet is thermoformable and configured to conform to a shape of a protruding feature on the surface of the substrate.

As discussed above with regard to Claim 1[C] Chou describes that its reflector sheet can be a deformable material configured to conform to a shape of a protruding feature on the surface of the substrate. Tabito expressly discloses that its reflector may be a thermoformable material, e.g., PET. *See* Tabito, [0068] (“the reflecting plate 26 ... may be formed by expandable PET containing e.g. a phosphorescent material. Ex. 1003, ¶45. The expandable PET is lightweight, exhibits high reflectance on the order of 95%, and presents a color tint different from metal luster color such that grazing on the reflecting surface is not outstanding. For this reason, the expandable PET is used in conventional liquid

crystal devices as well.”). A POSITA would recognize that PET is a thermoformable material. Ex. 1003, ¶45; ¶77, Claim 19.

7. Independent Claim 20.

[’812 Claim 20 preamble] A method of forming a solid state lighting device comprising:

See analysis of Claim 15[Preamble] above.

[’812 Claim 20A] providing a substrate of a solid state lighting tile;

See analysis of Claim 15[A] above.

[’812 Claim 20B] mounting a solid state lighting element on a surface of the substrate;

See analysis of Claim 15[B] above.

[’812 Claim 20C] positioning a reflector sheet on the surface of the substrate;

See analysis of Claim 15[C] above.

[’812 Claim 20D] forming a plurality of mounting posts in the substrate; and

See analysis of Claim 7 above. Tabito describes an “optical stud member 25,” that is “mounted to the back panel 13.” Tabito, [0081], [0088]. The optical stud member is a mounting post mounted to the substrate. As discussed above, a POSITA would be motivated to use Tabito’s mounting system, including its optical stud members, in the system described by Chou. Ex. 1003, ¶60, 75; ¶77, Claim 20D.

[’812 Claim 20E] forming a plurality of alignment holes in the reflector sheet, wherein at least a portion of the alignment holes are configured to receive at least a portion of the mounting posts when the reflector sheet is attached to the surface of the substrate.

Tabito describes that its “reflecting plate 26 [is] provided with a large number of fitting holes ... 26a ... for combination with the optical stud members 25.” Tabito, [0082]; *see also id.*, Fig. 2; Ex. 1003, ¶60; ¶77, Claim 20E.

6. Dependent Claim 23.

[’812 Claim 23A] The method of claim 16, further comprising: providing a plurality of solid state lighting tiles;

See analysis of Claim 14 above.

[’812 Claim 23B] mounting a plurality of solid state lighting elements on the plurality of solid state lighting tiles; and

See analysis of Claim 14 above. As shown in Figure 9 of Chou, multiple spot light sources (e.g., LEDs) 1600’ are back-welded between two of the circuit boards 1500’.

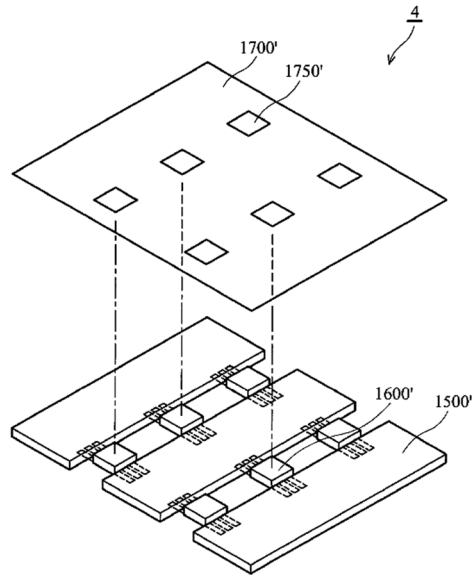


FIG. 9

Chou, Fig. 9. Tabito further discloses a reflective sheet piece 27 that includes “guide through-holes 34 in register with the 25 LED units 18 provided on a single straight line on each light emitting unit 15. These guide through-holes 34 are formed side-by-side along the length-wise direction on the same co-axial line in the reflective sheet piece 27 and are each a circular opening the inner diameter of which is substantially equal to that of the light emitting part 18 a of the LED unit 18.” Tabito, [0071]. From this disclosure, a POSITA would recognize that Tabito’s reflective sheet piece covers multiple LEDs and their corresponding tile(s). Ex. 1003, ¶56, ¶77, Claim 23B.

[’812 Claim 23C] attaching the reflector sheet to the plurality of solid state lighting tiles.

See analysis of Claim 14 above. As shown in Figure 9 of Chou, multiple spot light sources (e.g., LEDs) 1600’ are back-welded between two of the circuit

boards 1500’ and covered by a single reflector sheet 1700’. *See also* Tabito, [0071]; Ex. 1003, ¶77, Claim 23C.

VIII. Any Secondary Considerations Cannot Overcome the Clear Evidence of Obviousness.

The Board—at the institution phase—has repeatedly held that evidence of secondary considerations presented by the Patent Owner should be addressed in a trial where the parties may develop, and the Board may consider, a full record. *See, e.g., Tristar Products, Inc. v. Choon’s Design, LLC*, IPR2015-01883, Paper No. 6 at 26 (PTAB Mar. 9, 2016). That is the appropriate course here, especially given that “the inventions represent[] no more than ‘the predictable use of prior art elements according to their established functions,’” and, thus any “secondary considerations are inadequate to establish nonobviousness as a matter of law.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (quoting *KSR*, 550 U.S. at 417).

IX. Discretionary Denial is Inappropriate.

The Underlying Litigation does not warrant discretionary denial under 35 U.S.C. § 314(a). The *Fintiv* framework favors institution of this proceeding. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020). As explained below, each of the *Fintiv* factors weighs against discretionary denial or is, at worst, neutral. The Board should institute IPR.

Factor 1 - Whether the Court Granted a Stay or Evidence Exists that One May be Granted if a Proceeding is. This factor favors institution or is, at worst, neutral. As discussed below, there has been little investment by the parties. The early stage of the litigation and potential simplification (resulting from the Board invalidating all asserted claims of the '812 Patent) weighs against the exercise of discretion.

Factor 2 - Proximity of the Court's Trial Date to the Board's Projected Statutory Deadline for a Final Written Decision. This factor weighs against discretionary denial. This case is at its early stages, the counterclaim asserting the '812 Patent was filed in September 2022. *See* Ex. 1008 Further, Patent Owner only identified asserted claims and served infringement contentions on January 30, 2023, and the schedule in the Underlying Litigation does not yet include a trial date. *See* Ex. 1009. Further, the current case schedule does not include a date for the close of fact discovery, the beginning of expert discovery, or dispositive motions. Put simply, much more of the Underlying Litigation lies ahead than behind.

Further, according to the latest court management statistics, the average time from complaint to trial in the Northern District of Georgia—where the Underlying Litigation is Pending—is approximately 36 months. *See* Ex. 1010. Thus, conservatively, a jury trial would not occur in the underlying litigation until late

2025. Thus, a Final Written Decision is likely to be issued well before the date of any scheduled trial.

Factor 3 - Investment in the Parallel Proceeding by the Court and the Parties. This factor weighs against discretionary denial. The parties have made only minimal investment in this litigation to date. Plaintiff's infringement contentions identifying the asserted claims were served on January 30, 2023. *See* Ex. 1011. These contentions first identified the asserted claims, and Patent Owner supplemented these contentions on June 21, 2023. Ex. 1012. This fact weighs against the exercise of discretion, as the Board explained in *Fintiv*, where "the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*." *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 1 (PTAB Mar. 20, 2020) (precedential). Further, no substantive orders have been entered. Under these facts discretionary denial is improper. *See, e.g., Nokia of America Corp and Ericsson Inc. v. IPCOM, GMBH & Co. KG*, IPR2021-00533, Paper 10 at (PTAB Aug. 12, 2021).

Factor 4 - Overlap Between Issues Raised in the Petition and in the Parallel Proceeding. Petitioner challenges here several claims of the '812 Patent that are not currently asserted in the Underlying Litigation. Exs. 1011-1012. Thus, at a minimum there is no overlap with respect to many of the challenged claims.

Factor 5 - Whether the Petitioner and the Defendant in the Parallel Proceeding are the Same Party. This factor is neutral. The parties are the same, but this is common in nearly every Petition filed where there is a co-pending litigation.

Factor 6 - Other Circumstances that Impact the Board's Exercise of Discretion, Including the Merits. As discussed in detail above, every element of the claims of the '812 patent is either expressly shown in the prior art or is obvious in view of well-known art. The strong merits of the grounds presented in this Petition further support institution. *Fintiv*, Paper 11 at 14-15.

X. Denial Under Section 325(d) is Inappropriate.

This Petition does not present “the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. §325(d). None of the prior art references used herein were cited in a substantive rejection during prosecution of U.S. Application No. 11/687,160, which issued as the '812 patent.

XI. Conclusion

In view of the foregoing, there is a reasonable likelihood that Petitioner will prevail with respect to claims 1-7, 10-12, 14-21, and 23 of the '812 Patent. Petitioner requests that the Board institute IPR.

Respectfully submitted,

Petition for *Inter Partes* Review
U.S. Patent No. 7,690,812

By: /s/ Matias Ferrario
Matias Ferrario
Registration No. 51,082

CERTIFICATE OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24(d) that the foregoing **Petition for Inter Partes Review** excluding any table of contents, mandatory notices, certificates of service or word count, or appendix of exhibits or claim listing, contains 7,875 words according to the word-processing program used to prepare this paper (Microsoft Word). Petitioner certifies that this **Petition for Inter Partes Review** does not exceed the applicable type-volume limit of 37 C.F.R. § 42.24(a).

Dated: September 6, 2023

By: /s/ Matias Ferrario
Matias Ferrario
Registration No. 51,082

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this
Petition for *Inter Partes* Review has been served by Priority Mail Express® upon
the following:

MYERS BIGEL, P.A.
P.O. BOX 37428
Raleigh, NC 27627

With a courtesy copy sent via email to litigation counsel in *Hisense USA
Corporation v. Brightplus Ventures LLC*, No. 1:22-cv-02774 (N.D. Ga.).

Dated: September 6, 2023

By: /s/ Matias Ferrario
Matias Ferrario
Registration No. 51,082