

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Hisense USA Corporation

Petitioner

v.

Brightplus Ventures LLC

Patent Owner

Case IPR2023-01385

U.S. Patent No. 7,690,812

PATENT OWNER'S SUR-REPLY

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USE OF EMPHASIS IN QUOTATIONS

All emphases in quotations and exhibit citations have been added, unless otherwise indicated.

APPLICABLE STATUTES

References to 35 U.S.C. §§ 102 and 103 are to the AIA versions applicable to the '812 Patent.

I. INTRODUCTION

Brightplus Ventures LLC (“Patent Owner” or “Brightplus”) submits this Sur-Reply showing that each of the 3 grounds set forth by Hisense USA Corporation (“Petitioner” or “Hisense”) fail to render obvious challenged claims 1-7, 10-12, 14-21, and 23 of U.S. Patent No. 7,690,812 (“the ’812 Patent”).

As to Ground 1, Chou in view of a POSITA would not render obvious independent claims 1 and 15 nor dependent claims 12 and 18 as Chou fails to disclose at least the claimed element of a reflector sheet configured to conform to a shape of a protruding feature on the tile of claims 1 and 15 as well as additional limitations in the dependent claims.

As to Ground 2, a POSITA would not be motivated to combine LEDs mounted on a single circuit board and reflector sheet disposed on the circuit board of Chou with Starry’s edge lighting arrangement with a specific diffuse reflector positioned within an optical cavity. Furthermore, numerous elements of the dependent claims challenged in Ground 2 are not taught by either Chou or Starry.

As to Ground 3, Chou and Tabito in view of a POSITA would not render obvious the challenged dependent claims as Chou does not render obvious the independent claims that claims 7, 10-11, 14, 16-17, 19 and 23 depend from. Furthermore, neither Chou nor Tabito teach the explicit limitations of independent claim 20.

Accordingly, Patent Owner respectfully requests that the Board deny the petition for *inter partes* review of Claims 1-7, 10-12, 14-21, and 23 of the '812 Patent on the merits.

II. CLAIM CONSTRUCTION

Patent Owner incorporates its briefing regarding claim construction as if fully set forth herein.

III. CHOU IN VIEW OF A POSITA FAILS TO RENDER OBVIOUS CLAIMS 1, 12, 15 AND 18.

A. Chou does not disclose a “reflector sheet configured to conform to a shape of a protruding feature on the tile”

Under Patent Owner's construction the reflector must be configured to provide cover and relief for a shape of a protruding feature on the tile. In Chou, the reflector covers the lead and the solder, but it does not provide relief for the shape of the protruding feature and is certainly not configured to do so. Chou explains angle θ of the reflector will change with the “amount” of solder, the “length” of the lead and the “height” of the spotlight source. None of these attributes describe the shape of the corresponding element and how the reflector provides relief for a particular shape of those elements. For example, the reflector of Chou does not include a configuration to conform to the lead 650 or spotlight source 600, or a configuration that would conform to the solder 800. It is simply a straight reflector that rests on the spotlight source 600. According to Chou, the reflector will only cover the

elements at a specified angle, which is not the same as providing relief. And it does not appear to disclose a configuration to provide cover or relief at all.

Additionally, with respect to Chou, Petitioner's expert offers no credible argument as to why a "deformable material" would "conform" to the solder, lead, or spotlight source in a way that is different than what is illustrate in Fig. 3A. Indeed, Petitioner's expert refers to Chou's description that the reflector sheet can be deformable, but the section cited states the following, "reflector sheet 1700 adjacent to hole 1750 is deformed to form an angle θ between about 0 degree to about 90 degree with the circuit board 1500" (Ex. 1005 at 4:29-35). Thus, the "deformable material" would still deform as depicted in Fig. 3A, and Petitioner nor its expert offer any additional evidence as to how or why Chou's deformable material provides relief for the shape of either elements 600, 650 or 800. The deformable material is certainly not configured as required by the claims.

B. Chou does not disclose "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"

Patent Owner submits that Chou discloses a reflector that touches an LED, that Chou's key inventive concept is related to a reflector touching the LED, and that a POSITA would not be motivated to modify Chou's reflector to not contact the LED. Chou discloses one improvement over the prior art systems, improved lighting efficiency, specifically by improving the covering area of the reflector sheet (Chou

at 1:58-60, 1:64-66, 3:52-57). Thus, Chou's key, and only, inventive concept is directly tied to improving the coverage of the reflector sheet. Chou teaches that increasing the reflective area is the primary concern of the invention and the emission efficiency of a spotlight source can be "improved by increasing the reflecting area from a proper design of the reflector sheet 700" (*Id.* Fig. 4 and 3:52-56). Chou distinguished the invention from the prior art by stating that "the 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. Hence a method of improving the covering area of the reflector sheet as to improve the lighting efficiency of the backlight module is desirable." (*Id.* 1:44-60).

Petitioner is incorrect that Chou does not disclose or teach that the reflector touches the LED and this feature of Chou supports the key inventive concept discussed. Chou teaches that the reflector sheet touches the LEDs (See, Chou Figs. 3A, 3B, 5, 8). Chou describes that the "aperture of the hole 750 is slightly smaller than the size of the spotlight source (LED 600)" and explains that the reflector sheet is deformable when placed over the spotlights (Chou at 4:29-36 and 4:48-54). In each of these embodiments, the reflector touches the LED and Chou does not provide an embodiment in which the reflector is not touching the LED. Petitioner's argument that "providing slit to form a hole slight smaller than the size of the LED allows for the slits to rise upwards when contacting the solder 800/lead 650" (See, Paper 18 at

5) is not disclosed by Chou and omits the fact that the reflector would contact the LED in said embodiment. In Chou the LED is taller than the solder 800/lead 650, and the reflector would first come into contact with the LED before contacting the solder 800/lead 650. Both Figs. 3A and 3B refer to both the deformable reflector and the reflector with slits and both embodiments demonstrate that the edges of the reflector rest on the spotlight (See, Chou Figs. 3A and 3B; 3:22-41; 4:18-36).

Modifying Chou as proposed by Petitioner is in direct opposition to the key inventive concept of Chou. Indeed, Petitioner does not present any meaningful reason as to why a POSITA would be motivated to increase the size of the area around the spotlight. Chou's improvement of the prior art systems (shown in Fig. 1A and 1B) was to increase the coverage of the reflector, which resulted in substantially improved lighting efficiency, while being a relatively insubstantial physical modification to the reflector. In other words, Chou discloses, and a POSITA would understand, that the length of an LED's solder and lead frame is incredibly small, and the improvement disclosed by Chou was to cover that small distance with the reflector. Accordingly, Chou's disclosure is that small adjustments in the gap between the reflector and the solid state emitter have a large impact on light efficiency (see the comparison in Fig. 1A and 1B and Fig. 2 and 3A, as well as Fig. 4). Essentially the difference between Chou and the prior art disclosed therein is that Chou covered the "small gap." Adding a small gap back into Chou is in direct departure from the

disclosures made therein, and a POSITA would not find any meaningful motivation to make such a change. Contrary to Petitioner's argument, including a "small gap" would not only result in a large amount of light loss, but would also be a departure from Chou's key, and only, inventive concept. Thus, a POSITA would not be motivated to modify Chou as proposed by Petitioner.

Further, Petitioner provides no explanation of how the suggested modification would reduce mechanical friction. If the angled portion of the reflector did not contact the spotlight, then the result would be less structural support for that part of the reflector. Indeed, if that system were to move or experience external forces, there is a higher likelihood that the reflector would move, adjust, or break. Thus, Petitioner's modification would likely introduce more mechanical friction or a higher chance of mechanical failure into the system. Further, Petitioner doesn't clarify what damage the friction would cause in Chou's current system, as Chou doesn't include any disclosure of issues caused by the reflector being in contact with either the LED, the solder or the lead.

Also, Petitioner does not address the risk of short-circuit. Chou never discloses the reflector sheet as a conductive material. This argument is taken from thin air, as the "resin film" in Chou is never disclosed as a conductive or metal; a POSITA wouldn't be concerned with addressing a nonexistent problem. Additionally, the reason for making the modification, according to Petitioner, is that

the conductive material shouldn't contact the lead 650 or solder 800. However, as shown in Fig. 3A of Chou, the reflector is already in contact with the lead 650 or solder 800. There is no valid reason for a POSITA to make an unnecessary, unknown improvement that departs from Chou's key inventive concept. Additionally, Petitioner's argument here directly contradicts its argument that the reflector sheet would contact the solder 800/lead 650 (See, Paper 18 at 5).

C. None of the Other Cited Prior Art Or Combinations Thereof are

Tabito and Liu both disclose a flat, rigid reflective plate. As recognized by the Board, neither reference describes a reflective layer that "conforms" or provides cover or relief for a protruding feature. Additionally, none of the prior art discloses configuration of the reflector sheet to accommodate the shape of a protruding feature.

IV. PATENT OWNER'S EXPERT IS ENTITLED TO WEIGHT

Patent Owner's expert has provided detailed declarations and stood for a deposition in this matter. Petitioner seeks his exclusion merely because his opinions expose the fact that Petitioner's arguments are unsupported. They are also based on improper combinations of prior art that is simply unsuitable for combination as argued by Petitioner.

Petitioner complains of Patent Owner's expert declaration "parroting" the Response. However, Petitioner's expert declaration parrots the Petition in this matter, as shown below:

Petition (Paper 1)	Expert Declaration (EX. 1003)
Pg. 18 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. <u>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.</u> 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 <u>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.</u>	Paragraph. 43 <u>In my opinion, a person of ordinary skill in the art would recognize that the "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. This is also shown to a person of ordinary skill in the art because 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."). 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)).</u>
<u>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</u>	<u>In my opinion a person of ordinary skill in the art would have been motivated to modify the reflector sheet shown in Figure 3A (pasted above) to slightly increase the angle θ such that the reflector sheet does not contact the solid state lighting element 600. The motivation to make this modification is to avoid</u>

<u>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.</u>	<u>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. 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.</u>
See pgs. 20-22	See paragraphs 48-51
See pg. 26	See paragraph 67
See pg. 26	See paragraph 68
See pg. 30	See paragraphs 72-74

Furthermore, Petitioner's complaints about the deposition testimony are unfounded and unwarranted. Firstly, counsel never instructed the witness not to answer any questions other than based on privilege as shown in the transcript. Petitioner's accusation in this regard is unsupported and absolutely untrue. Additionally, in each of the depositions in the seven related IPRs between the parties, Petitioner's counsel has consistently harassed Patent Owner's expert for hour upon hour with questions about matters outside of the scope of the expert's declaration. That an expert's testimony should be limited to matters upon which the expert has opined upon is well settled. *Google LLC et al. v. Cywee Group Ltd.*, Case IPR2018-01257 (Patent 8,552,978 B2); Case IPR2018-01258 (Patent 8,441,438 B2) at Paper 60. Petitioner now seeks to use this improper harassment as a basis for excluding the expert testimony. In some instances, Petitioner's entire

deposition consisted of hours of harassing questions without a single question about the substance of the expert's declaration. Petitioner's argument should be rejected.

V. CONCLUSION

The Board should exercise its discretion to deny the petition for the reasons above.

Respectfully submitted,

/s/ Neal Massand
Neal Massand
Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE

Per 37 C.F.R. §42.24(a) and (d), the undersigned hereby certifies that the
Petition complies with the type-volume limitation of 37 C.F.R. §42.24(a)(i)
because, exclusive of exempted portions, it contains 2630 words as counted by the
word-processing program used to prepare it.

Dated: November 1, 2024,

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that the above-captioned Mandatory Notice was served on counsel of record for the Petitioner by filing this document through the Patent Review Processing System as well as by delivering a copy via electronic mail to:

MFerrario@kilpatricktownsend.com (Lead Counsel)
MMorlock@kilpatricktownsend.com (Back-Up Counsel)

Dated: November 1, 2024

/s/ Neal Massand
Hao Ni (Reg. No. 54,296)