

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 IPR2023-01311

U.S. Patent No. 8,177,382

PATENT OWNER'S RESPONSE

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Exhibit List

Exhibit	Description
2003	Declaration of William K. Bohannon (“Bohannon Decl.”)
2004	Curriculum vitae of William K. Bohannon

* * * *

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 '382 Patent.

I. INTRODUCTION

Brightplus Ventures LLC (“Patent Owner”) submits this sur-reply showing that each of the 12 grounds set forth by Hisense USA Corporation (“Petitioner”) fail to render obvious challenged claims 1-4, 7-9, and 11-20 of U.S. Patent No. 8,177,382 (“the ’382 Patent”)

II. GROUND 1 - PETITIONER’S KOBAYASHI IN VIEW OF A POSITA FAILS TO RENDER OBVIOUS CLAIMS 1-3, 7, 9, AND 11-15.

A. Kobayashi in View of a POSITA Fails to Disclose [Claim 1B] “a multiplane light diffuser including a first diffusion plane that is a first distance from the plurality of solid state emitters and a second diffusion plane that is a second distance from the plurality of solid state emitters that is different from the first distance”

A primary novelty of ’382 Patent is to optimize the distance between the solid state emitters and the diffusion planes in order to create an ideal illumination in the display panel. Ex. 2003, ¶56. Thus, the ’382 Patent is specific in its implementation of a first distance and a second distance as a function of a third distance. *Id.* As shown in Fig. 3 of the ’382 Patent the first and second distance (“**147**” and “**148**”, respectively) are both measured from the bottom of the solid-state emitters 113 / top of the support structure 114. Petitioner argues that the first distance and second distance are met in Kobayashi by distances “a” and “c” as described in FIG. 1 of Kobayashi. This is incorrect, Kobayashi describes a distance (**c** of Fig. 1 of

Kobayashi) from the ***top of the light emitters 1 to the bottom of a first plane¹ 4.***

This is different from the claimed invention in the '382 Patent, where a “first or second distance” is measured from the bottom of the solid state light emitters.

**B. Kobayashi in View of a POSITA Fails to Disclose [Claim 1D]
“wherein the multiplane light diffuser comprises a diffuser plate that includes the first side of the multiplane light, the diffuser plate configured to define the first diffusion plane, and.”**

Petitioner argues that translated Japanese patent application Kobayashi discloses a “diffusion” plate 4 which discloses the “diffuser plate configured to define the first diffusion plane.” However, the “diffusion” plate 4 of Kobayashi is not a diffuser as used in the '382 Patent or understood by a POSITA. Ex. 2003, ¶58.

More specifically, Kobayashi describes “diffusion” plate 4 as follows: “a diffusing plate of the side closer to the LED is a diffusing plate with a lens having a total light transmittance of 80 to 98% and ***a light diffusivity of 0.5 to 30%*** and having a lens shape on at least one surface.” See Kobayashi, claim 1 (emphasis added). Additionally, Kobayashi states that the lens is preferably a ***Fresnel lens*** and “The light emitting surface is preferably ***Fresnel*** with a convex apex angle of 40 to 70°, more preferably 45 to 65°, a pitch of 0.1 to 0.5mm, and a diameter of 20 to 50mm.” Kobayashi, [0034]. However, a POSITA would understand a Fresnel lens,

¹ As discussed *Infra*, first plane (4) is not a “diffusing plate” as claimed in the '382 Patent.

especially one with such a low light diffusivity to not qualify as the “diffusion plate” in element [D]. Ex. 2003, ¶¶ 43-45, 59

When questioned on this topic, Mr. Bohannon stated:

Q: All right. Thank you. So Kobayashi discloses a backlight unit with two diffusing plates. Right?

A.: Not necessarily. It's a backlight unit with a Fresnel lens in the place of one diffusing plate. I mean, I would call it a lens plate rather than a diffusing plate.

Q: Okay. So I understand what you call it. But Kobayashi calls it a diffusing plate 4. Right?

A: Kobayashi says diffusing plate with a lens having total light transmittance and light diffusivity of 0.5 to 30 percent, which is a really low percentage for diffusivity. I mean, 0.5 percent diffusivity is basically not there. I mean, anything is going to scatter that much light.

A piece of plain glass will probably be 0.5 percent diffused.

EX 1020 at 105:9-24. Accordingly, Kobayashi provides a sound bite rather than a disclosure of the invention of the '382 Patent.

C. Kobayashi in View of a POSITA Fails to Disclose the Brightness Enhancing Film of Claim 7.

Claim 7 depends from claim 2 and further recites “wherein the diffuser sheet comprises a diffuser film, *a brightness enhancing film*, a polarizing film and a

substantially clear plate configured to support the diffuser film, *the brightness enhancing film*, the polarizing film.” ’382 Patent, Claim 7. However, Kobayashi does not disclose a brightness enhancement film. While Petitioner claims that the “prism collection film” of Kobayashi is a brightness enhancing film as disclosed in the ’382 Patent, this is far from a clear disclosure and requires several unsupported logical leaps. The terminology itself is different, and the unequivocal testimony of Mr. Bohannon is that there is no widely accepted definition of a brightness enhancement film. Petitioner is, again, asking the board to find invalidity based on little more than a sound bite. This falls far short of Petitioner’s burden to show invalidity.

D. Kobayashi Fails to Disclose “wherein the second distance comprises a distance in a range between the third distance and 1.5 times the third distance” of Claim 9

Petitioner correctly states that Kobayashi discloses that a “ratio of a/b is preferably in the range of 0.2 to 1.0.” Kobayashi, [0020]. However, as recited in claim 9 of the ’382 Patent, the second distance comprises a distance in a range between the third distance and 1.5 times the third distance. In Kobayashi, the maximum second distance (“ a ”) is equal to the third distance (“ b ”). The second distance in Kobayashi (“ a ”) is not between the third distance and 1.5 times the third distance. Ex. 2003, ¶62. Petitioner goes so far as to fill in missing disclosure from Kobayashi by using numbers that do not even appear in the reference. As such, the

disclosure of Kobayashi cannot be invalidating. Also, because Kobayashi explicitly discloses the ratio of the second distance to the third distance there would not be motivation for a POSITA to make the second distance greater than what is described in Kobayashi as it would negatively impact the performance of the backlight unit.

Id.

E. Kobayashi Fails to Disclose “means for transmitting first diffused light from the first diffusion plane to the second diffusion plane” of Claim 11

As discussed above in Ground 1 with respect to claim 1D, Kobayashi does not disclose a first diffusion plate. Additionally, the light emitted from “diffuser plate 4” in Kobayashi is not “transmitted first diffused light,” but rather focused light emitted from convex Fresnel lenses. Ex. 2003, ¶¶44-45, 58-59, 64.

F. Kobayashi Fails to Disclose [Claim 13C] “transmitting first diffused light from a structured refractive diffuser plate at a second side of the first diffusion plane.”

As discussed above in Ground 1 with respect to *claim 1D*, the Fresnel lens of Kobayashi with a diffusivity of 0.5 to 30% does not actually qualify as a diffuser and therefore it does not “transmit[] a first diffused light.” Ex. 2003, ¶¶44-45, 58-59

Furthermore, Kobayashi does not disclose a “structured refractive diffuser plate” as claimed. Ex. 2003, ¶65 The '382 Patent requires “a structured refractive diffuser plate at a second side of the first diffusion plane.” '382 Patent, Claim 13. Kobayashi only discloses refractivity of diffusing agents inside the diffusing plates (4 and 5)

and does not disclose any refractive structure. Ex. 2003, ¶65. There is no mention of a structured refractive element in Kobayashi. Furthermore, the structured refractive element of the invention helps to scatter and spread light. The convex lenses in Kobayashi, as described above do the exact opposite and focus light. Ex. 2003, ¶¶44-45, 58-59

G. Kobayashi Fails to Disclose [Claim 13F] “wherein the plurality of solid state light emitters comprise a third distance between adjacent ones of the plurality of solid state light emitters, wherein the first distance is a function of the third distance.”

For the same reasons as discussed above with respect to Claim 1E, Kobayashi in view of a POSITA fails to disclose this limitation.

III. GROUND 3 - PETITIONER'S KOBAYASHI AND LIM IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS DEPENDENT CLAIM 8.

Just as Kobayashi in view of a POSITA does not render Independent Claim 1 obvious, Petitioner cannot demonstrate that the combination with the addition of Lim renders obvious dependent claim 8.

IV. GROUND 4 - PETITIONER'S KOBAYASHI AND TABITO IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS DEPENDENT CLAIMS 4-6 AND INDEPENDENT CLAIM 17.

A. A POSITA Would Not be Motivated to Combine Kobayashi and Tabito

Petitioner contends that a POSITA would be motivated to combine the diffuser mounting structure of Tabito with the backlight structure of Kobayashi. Patent Owner disagrees. Kobayashi provides direct guidance on how its backlight

unit is intended to operate. Kobayashi discloses the ideal light transmittance of diffusing plate 4 and 5 (See abstract). Ex. 2003, ¶67. Employing the optical stud members disclosed by Tabito into Kobayashi would result in completely different optical characteristics of the lighting panel, therefore a POSITA would not be motivated to combine the two. Ex. 2003, ¶68. The optical stud members of Tabito are intended to absorb light and partially diffuse light. Ex. 2003, ¶68. If combined, the interaction between light emitted from the LEDs (Kobayashi) and the optical studs (Tabito) would cause the amount of light entering the diffusing plate to change, as well as the amount of internal reflection/interference of the light traveling in the regions between the plates. *Id.* Tabito is, thus, not a suitable combination with Kobayashi.

- B. Kobayashi in view of Tabito and a POSITA Fails to Disclose [Claim 17C] “a first diffusion plane that is configured to receive light from the plurality of solid state light emitters and to transmit first diffused light, the first diffusion plane including a diffuser plate that is positioned a first distance from the plurality of solid state light.”**

See Responses to claims 1B and 11

- C. Kobayashi in view of Tabito and a POSITA Fails to Disclose [Claim 17D] a second diffusion plane that is configured to receive the first diffused light and to transmit second diffused light;**

See Responses to claims 1B and 1[C]

- D. Kobayashi in view of Tabito and a POSITA Fails to Disclose [Claim 17E] “a plurality of diffuser Supports configured to support a first diffuser plane structure at a first distance from the**

plurality of Solid state light emitters and to support a second diffuser plane structure at a second distance from the plurality of solid state light emitters, wherein the second distance is greater than the first distance; and

See Responses to claims 1[C] and the lack of motivation to and inoperability of combining Kobayashi and Tabito above.

E. Kobayashi in view of Tabito and a POSITA Fails to Disclose [Claim 17G] “wherein the first distance is a function of the third distance.”

See response to Claim 1[E]

V. GROUND 5 - PETITIONER’S KOBAYASHI AND TABITO AND ONISHI IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS DEPENDENT CLAIMS 18 AND 20.

Onishi is directed to a lighting System, a reflector, light sources, and a light control member sequentially disposed from a light incident side to a light outgoing Side. The disclosure of Onishi is preferably used for large displays requiring high uniformity and eliminates lamp image and removes the necessity to do light source repositioning, while enabling luminance in the exit plane to achieve excellent luminosity and uniformity. Onishi, at Abstract. This is far different from the invention of the ‘382 Patent and a POSITA would not be motivated to combine Onishi with the other cited prior art.

VI. GROUND 6 - PETITIONER’S KOBAYASHI, TABITO, ONISHI AND EPSTEIN IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS DEPENDENT CLAIM 19.

Epstein is directed to an optical film for use in transparent displays, such as LCDs. Epstein, at Abstract. This is far different from the invention of the ‘382 Patent

and a POSITA would not be motivated to combine Epstein with the other cited prior art.

VII. GROUND 7 - PETITIONER'S SCHIAVONI AND LIM IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS CLAIMS 1-2, 7-8 AND 11-15.

A. A POSITA Would Not Be Motivated to Combine Schiavoni and Lim.

The combination of Schiavoni with Lim is inappropriate. Petitioner does not make clear or even imply that optical system/element 100 of Schiavoni would be functional in the context of an R,G,B lighting system. Ex. 2003, ¶69. This is because Schiavoni's LEDs are used to make white light, whereas Lim's multiple RGB LEDs are used for R-G-B separately, line by line in a field sequential type of LCD system which Schiavoni does not operate with. *Id.* Nor does Petitioner demonstrate or imply that the light sources 11 of Schiavoni would achieve optimal illumination of an LCD panel by employing the distance relationship between the light sources and the diffusion film of Lim. *Id.*

B. Schiavoni and Lim in view of a POSITA Fails to Disclose [Claim 1B] "a multiplane light diffuser including a first diffusion plane that is a first distance from the plurality of solid state emitters and a second diffusion plane that is a second distance from the plurality of solid state emitters that is different from the first distance"

However, Schiavoni teaches a different system to solve a similar problem (achieving optimal illumination of an LCD screen) as the '382 Patent. The "optical system / optical element 100 transparent to said radiation and intended to be installed

between said sources and substantially planar diffuser [22]...” taught in Schiavoni does not teach a “multiplane light diffuser”² as claimed in claim 1. Schiavoni states the optical element 100 “consists of a plastic substrate or preferably glass...its upper face textured...to obtain grooves 121 of the prism type with a triangular section, with an apex angle preferable of 90°.” Schiavoni at 18. This is not a diffuser. Ex. 2003 at ¶71. FIG. 5 shows a first curve 60 giving the evolution of the parameter called normalized minimum area A as a function of the width d of the scattering zones for the optical element 100 and a second comparative curve 60 'giving the parameter A without the optical element. Schiavoni defines parameter A as “normalized minimum area” which is used to evaluate “sectorization.” Sectorization is defined in Schiavoni in the following excerpt:

The first optical element [optical system 100] according to the invention...has the dual function...to control the sectorization of the normal luminance, so that for a given row of point sources (or a given extended source occupying the row) the average of the normal luminance profile in a direction orthogonal to the sources does not significantly mix with the average luminance profile of a neighboring row (or a neighboring source). Schiavoni at 5-6.

The purpose of optical system 100 in Schiavoni is to ensure that the light from light sources 11 do not “significantly mix.” This is antithetical to the purpose of a diffuser of the '382 patent which is to spread out the light from the light sources to achieve

² The translation of Schiavoni uses the terms “optical element” and “optical system” interchangeably.

an even luminance profile. Ex. 2003, ¶¶70-71. Here, again, Petitioner relies on a sound bite rather than a true disclosure of the claimed element. This falls short of meeting Petitioner's burden.

C. Schiavoni and Lim in view of a POSITA Fails to Disclose: [Claim 1E] “wherein the plurality of solid state emitters comprise a third distance between adjacent ones of the plurality of solid state light emitters, and wherein the first distance is a function of the third distance.”

Petitioner's argument incorrectly posits that the distance relationships described in Schiavoni discloses those described in the '382 patent. The “first distance” as claimed in the '382 Patent is measured by the distance between the bottom of the plurality of solid state emitters/top of the support structure and the first diffusion plane. *See* Response to Ground 1 Claim 1[E] above.

However, as discussed above, the optical system/element 100 of Schiavoni is not a diffuser and as such Schiavoni does not describe the relationship between the distance of adjacent solid state lighting emitters to the spacing between the bottom of the plurality of solid state emitters/top of the support structure and the first diffusion plane. Lim also does not disclose this element. While Lim does acknowledge the relationship “between a diffusion plate and a lamp in accordance with the distance between lamps having the same visible angle,” it does so in the context of color mixing. The relationship between the spacing of the light sources and the distance from the light sources to the diffuser in color mixing is different

from the relationship in the use of white light sources such as in the claimed invention. The purpose of the distance between the light sources and the diffusion plate in the '382 patent is intended to achieve optimal illumination of the LCD panel, whereas the purpose of the distance between the light source and diffuser in Lim is ensure optimal color mixing. As such, the invention of the '382 Patent is not disclosed by this combination.

- D. Schiavoni and Lim in View of a POSITA Fails to Disclose [Claim 13B] “receiving the emitted light at a first side of a first diffusion plane that is a first distance from the plurality of solid state light emitters.”**

See Response to claim 1[B]

- E. Schiavoni and Lim in View of a POSITA Fails to Disclose [Claim 13F] “wherein the plurality of solid state light emitters comprise a third distance between adjacent ones of the plurality of solid state light emitters, wherein the first distance is a function of the third distance.”**

See Response to claim 1[E]

VIII. GROUND 8 - PETITIONER'S SCHIAVONI AND LIM AND KOBAYASHI IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS CLAIM 9.

- A. A POSITA Would Not be Motivated to Combine Schiavoni or Kobayashi with Lim**

Because Lim's RGB lamps uses R-G-B separately, line by line in a field sequential type of LCD system which Schiavoni, Kobayashi (and the '382 Patent) does not. There is no motivation to combine Schiavoni and/or Kobayashi with Lim. Ex. 2003, ¶72.

B. Schiavoni and Lim Does Not Render Obvious Independent Claims and Naturally Do Not Render Dependent Obvious Dependent Claim 9

Just as Schiavoni and Lim in view of a POSITA does not render Independent Claim 1 obvious, Petitioner cannot demonstrate that the combination with the addition of Kobayashi renders obvious dependent claims 9. Similar to the discussion of Kobayashi earlier, this Board agreed that Kobayashi does not disclose the 1:1 ratio since Petitioner had subtract the thickness diffusion plate 5 from the distance of a, as such the ratio of a/b would be slightly off from 1:1 Institution Decision at 26-27.

IX. GROUND 9 - SCHIAVONI AND LIM AND KIRITA IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS DEPENDENT CLAIMS 10 AND 16.

A. A POSITA Would Not be Motivated to Combine Schiavoni or Kirita with Lim

Because Lim's RGB lamps uses R-G-B separately, line by line in a field sequential type of LCD system which Schiavoni, Kirita (and the '382 Patent) does not. There is not motivation to combine Schiavoni and/or Kirita with Lim. Ex. 2003, ¶73.

B. Schiavoni and Lim Does Not Render Obvious Independent Claims 1 and 13 and Therefore Does Not Render Obvious Dependent Claims 10 and 16.

Kirita is directed to an LCD display using CFFL light sources in combination with a light selective transmission filter to improve color reproduction quality in the

LCD. This is far different from the invention of the '382 Patent and a POSITA would not be motivated to combine Kirita with the other cited prior art.

X. GROUND 10 - SCHIAVONI AND LIM AND TABITO IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS CLAIMS 4-6 AND 17.

A. A POSITA Would Not be Motivated to Combine Schiavoni and/or Lim with Tabito

A POSITA would not be motivated to combine Tabito and Schiavoni as the combination would lead to potential faults in the invention of Schiavoni. Ex. 2003, ¶¶74-75. The lens closest to the light emitters of Schiavoni (*e.g.* optical system 100) is “preferably glass, 3mm thick” and its “upper face 120 is textured...to obtain grooves 121 of the prism type with a triangular section.” Schiavoni at 18. Even assuming *arguendo* that optical element/system 100 of Schiavoni qualifies as a diffuser, it would be unworkable to insert Tabito’s diffuser supports through this glass optical element. Ex. 2003, ¶¶74-75. Glass is not an optimal material for the holes that are required for mounting the diffuser supports. *Id.* Further, Tabito's diffuser supports would disrupt the triangular grooves of Schiavoni, thus reducing the efficacy of the optical system. The references at issue are, therefore, not suitable for combination and a POSITA would find no motivation to look to this combination in solving the problems addressed by the '382 Patent.

B. Petitioner’s Schiavoni and Lim and Tabito Fails to Disclose [Claim 17E] “a plurality of diffuser supports configured to support a first diffuser plane structure at a first distance from the plurality of solid state light emitters and to support a second diffuser plane structure

at a second distance from the plurality of solid state light emitters, wherein the second distance is greater than the first distance; and.”

Petitioner cites Schiavoni in combination with Tabito as anticipating element 17E of the '382 patent. The diffuser supports of Tabito (optical stud member 25) are inserted through the support structure (back panel 13) and through a first light diffusing plate 23 which is mounted above the lighting elements (LEDs 18). The diffuser supports of the '382 Patent are mounted on, not through, the support structure. Tabito, accordingly, does not disclose this element.

C. Dependent Claims 4-6.

Tabito is directed to providing backlighting for a larger sized LCD display. A backlight section sending out illuminating light is formed by a plural number of rows made up of many light emitting units arranged on the back Surface of a liquid crystal display panel. This is far different from the invention of the '382 Patent and a POSITA would not be motivated to combine Tabito with the other cited prior art.

XI. GROUND 11 - PETITIONER'S SCHIAVONI AND LIM AND TABITO AND ONISHI IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS CLAIMS 18 AND 20.

Onishi is directed to a lighting System, a reflector, light sources, and a light control member sequentially disposed from a light incident side to a light outgoing Side. The disclosure of Onishi is preferably used for large displays requiring high uniformity and eliminates lamp image and removes the necessity to do light source repositioning, while enabling luminance in the exit plane to achieve excellent

luminosity and uniformity. Onishi, at Abstract. This is far different from the invention of the '382 Patent and a POSITA would not be motivated to combine Onishi with the other cited prior art.

XII. GROUND 12 - PETITIONER'S SCHIAVONI AND LIM AND TABITO AND ONISHI AND EPSTEIN IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS CLAIM 19.

Epstein is directed to an optical film for use in transparent displays, such as LCDs. Epstein, at Abstract. This is far different from the invention of the '382 Patent and a POSITA would not be motivated to combine Epstein with the other cited prior art.

XIII. PATENT OWNER'S EXPERT OPINIONS ARE 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 primarily based on sound bites rather than true disclosures of the claimed elements. They are also based on improper combinations of prior art that is simply unsuitable for combination as argued by Petitioner.

XIV. CONCLUSION

The Patentability of the Challenged Claims should be affirmed. In the event they are not, Patent is concurrently submitting a revised conditional motion to amend.

Respectfully submitted,

/Neal Massand/
Neal Massand
Counsel for Petitioner

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 4013 words as counted by the word-processing program used to prepare it.

Dated: October 18, 2024,

Respectfully submitted,

/Neal Massand/

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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: October 18, 2024

/Neal Massand/
Neal Massand (Reg. No. 54,296)