

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

Ex. 2003 - Declaration of William Bohannon

TABLE OF CONTENTS

I.	INTRODUCTION	1
A.	EXPERT QUALIFICATIONS	2
B.	BASIS OF MY OPINION AND MATERIALS CONSIDERED	3
C.	SUMMARY OF OPINIONS	3
II.	LEGAL STANDARDS TO BE APPLIED	3
A.	PERSON OF ORDINARY SKILL IN THE ART	4
B.	CLAIM CONSTRUCTION	4
C.	VALIDITY	4
III.	TECHNOLOGY OVERVIEW	6
IV.	THE '382 PATENT'S OVERVIEW	7
V.	A PERSON OF ORDINARY SKILL IN THE ART	8
VI.	CLAIM CONSTRUCTION	10
VII.	PETITIONER'S PRIOR ART SUMMARY	11
A.	KOBAYASHI	11
I.	<i>FRESNEL LENS IS NOT A DIFFUSER PLATE</i>	13
II.	<i>A PRISM COLLECTION FILM IN NOT A BRIGHTNESS ENHANCEMENT FILM</i>	13
B.	SCHIAVONI	14
C.	LIM	15
D.	KIRITA	16
E.	TABITO	16

F.	ONISHI.....	17
VIII.	PETITIONER’S KOBAYASHI IN VIEW OF A POSITA FAILS TO RENDER OBVIOUS CLAIMS 1-3, 7, 9, AND 11-15.	17
A.	KOBAYASHI DOES NOT DISCLOSE “A FIRST DIFFUSION PLANE THAT IS A FIRST DISTANCE FROM THE PLURALITY OF SOLID STATE EMITTERS” AS RECITED IN CLAIM 1B.	17
B.	KOBAYASHI DOES NOT DISCLOSE A “DIFFUSER PLATE CONFIGURED TO DEFINE THE FIRST DIFFUSION PLANE” AS RECITED IN CLAIM 1D.....	18
C.	BECAUSE KOBAYASHI DOES NOT DISCLOSE A “FIRST DISTANCE” IT CONCLUDES THAT KOBAYASHI ALSO CANNOT DISCLOSE “WHEREIN THE FIRST DISTANCE IS A FUNCTION OF THE THIRD DISTANCE” AS RECITED IN CLAIM 1E.	19
D.	KOBAYASHI DOES NOT DISCLOSE THE BEF OF CLAIM 7.....	19
E.	KOBAYASHI DOES NOT DISCLOSE THAT THE SECOND DISTANCE IS 1-1.5X THE THIRD DISTANCE OF CLAIM 9.....	19
F.	KOBAYASHI DOES NOT DISCLOSE A MEANS FOR TRANSMITTING FIRST DIFFUSED LIGHT FROM THE FIRST DIFFUSION PLANE AS THE LENS 4 OF KOBAYASHI DOES NOT ACTUALLY OPERATE AS A DIFFUSER.	20
G.	KOBAYASHI DOES NOT RENDER CLAIM 13 OBVIOUS AS THE CLAIM ELEMENTS ARE SIMILAR TO THOSE OF CLAIM 1.....	21
H.	KOBAYASHI DOES NOT DISCLOSE A STRUCTURED REFRACTIVE DIFFUSER PLATE AS RECITED IN CLAIM 13C.....	21
IX.	GROUND 4 - KOBAYASHI AND TABITO IN VIEW OF A POSITA	21
A.	A POSITA WOULD NOT BE MOTIVATED TO COMBINE KOBAYASHI AND TABITO	21
X.	GROUND 7 - PETITIONER’S SCHIAVONI AND LIM IN VIEW OF A POSITA FAIL TO RENDER OBVIOUS CLAIMS 1-2, 7-8 AND 11-15.	23

A.	A POSITA WOULD NOT BE MOTIVATED TO COMBINE SCHIAVONI AND LIM.....	23
B.	SCHIAVONI DOES NOT TEACH A MULTIPLANE LIGHT DIFFUSER.....	24
XI.	GROUND 8 - SCHIAVONI AND LIM IN VIEW OF KOBAYASHI AND IN VIEW OF A POSITA.	24
A.	A POSITA WOULD NOT BE MOTIVATED TO COMBINE SCHIAVONI OR KOBAYASHI WITH LIM.....	24
XII.	GROUND 9 - SCHIAVONI AND LIM AND KIRITA IN VIEW OF KOBAYASHI AND IN VIEW OF A POSITA.....	25
A.	A POSITA WOULD NOT BE MOTIVATED TO COMBINE SCHIAVONI OR KOBAYASHI WITH LIM.....	25
XIII.	GROUND 10 - SCHIAVONI AND LIM AND KIRITA IN VIEW OF KOBAYASHI AND IN VIEW OF A POSITA.....	25
A.	A POSITA WOULD NOT BE MOTIVATED TO COMBINE SCHIAVONI AND/OR LIM WITH TABITO.....	25

EXHIBIT LIST

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

I, William K. Bohannon, hereby declare under penalty of perjury:

I. INTRODUCTION

1. I am an independent consultant. I am over eighteen years of age, and I would otherwise be competent to testify as to the matters set forth herein if I am called upon to do so.

2. I have prepared this Declaration for consideration by the Patent Trial and Appeal Board in the Inter Partes Reviews of U.S. Patent No. 8,177,382 (“the ’382 Patent”).

3. I provide this Declaration at the request of and have been retained by Ni, Wang & Massand, PLLC, which represents Patent Owner Brightplus Ventures LLC (“Brightplus” or “Patent Owner”) in connection in connection with the above-captioned Inter Partes Review.

4. I have been informed and understand that Petitioner Hisense USA Corporation (“Hisense” or “Petitioner”) contends that claims 1-4, 7-9, and 11-20 of the ’382 Patent are invalid based on Grounds 1-12.

5. I am being compensated at an hourly rate of \$350 per hour. My compensation is not dependent on the outcome of or any issue in relation to the above-captioned Inter Partes Review, and I have no interest in either party.

6. In forming my opinions, I relied on my knowledge, education, experience, and training in the field and on documents and information referenced in this Declaration.

A. Expert Qualifications

7. My curriculum vitae (“CV”) is attached hereto as Exhibit 2002 and provides an accurate identification of my background and experience.

8. I have over (30) years of commercial industrial electronics experience including experience in the areas of LCD, Plasma, CRT and Large Screen Display Equipment: LCD manufacturing, substrates, drivers and other related components for rear screen displays including Avionics and cockpit displays.

9. From 1989 to 1994 I worked as a Chief Scientist for Display Products which included tracking liquid crystal display (LCD) and other display technology worldwide with a special emphasis on Japan and working closely with several Japanese companies and laboratories to develop new products and test existing LCD products.

10. Since 1994, I have been an independent consultant for Manx Research working on various display products including managing and conducting detailed technical product evaluations for all kinds of display products – LCD, CRT, Plasma and LED direct view, projection products of all types, CRT products and plasma products. Furthermore, I was also a design and procurement consultant to an

aerospace display company involved in re-designing Avionic LCD display sub-systems to use full color LED light sources instead of short arc lamps.

11. I also have 7 issued U.S. Patents in displays and display technology.

B. Basis of My Opinion and Materials Considered

12. I have reviewed the '382 Patent, including the claims of the patent in view of the specification. In addition, I have reviewed the '382 Patent's prosecution history, Dr. Pattison's declaration (Ex. 1003), the prior art discussed herein, and the remaining exhibits listed herein.

C. Summary of Opinions

13. In my opinion, claims 1-4, 7-9, and 11-20 of the '382 Patent are not rendered obvious by the prior art combinations cited in Grounds 1-12. In the remainder of this declaration, I demonstrate these in detail and also address the lack of motivation to combine certain references.

II. LEGAL STANDARDS TO BE APPLIED

14. Counsel has advised me of the following legal standards that are relevant to IPR proceedings, which I have applied in forming my opinions.

15. I understand that an inter partes review ("IPR") is a proceeding before the United States Patent & Trademark Office for evaluating the patentability of an issued patent's claims based on prior-art patents and printed publications.

A. Person of Ordinary Skill in the Art

16. I understand that the claims of a patent are reviewed from the point of view of a hypothetical person of ordinary skill in the art (“POSITA”) at the time of the filing of the patent. The “art” is the field of technology to which a patent relates.

B. Claim Construction

17. I understand that, in IPR proceedings, claim terms in a patent are given their ordinary and customary meaning as understood by a POSITA in the context of the entire patent and the prosecution history pertaining to the patent. If the specification provides a special definition for a claim term that differs from the meaning the term would otherwise possess, the specification’s special definition controls. I have applied these standards in preparing the opinions in this declaration.

C. Validity

18. I understand that, in this proceeding, Petitioner has the burden of proving that the challenged claims of the ’382 Patent are unpatentable by a preponderance of the evidence. I understand that “preponderance of the evidence” means that a fact or conclusion is more likely true than not true.

19. I understand that there are two ways in which prior art may render a patent claim unpatentable. First, the prior art can “anticipate” the claim. Second, the prior art can render the claim “obvious” to a POSITA. I understand that for an invention claimed in a patent to be patentable over the prior art, it must not be

anticipated and must not be obvious based on what was known before the invention was made.

20. I understand that a patent claim may be invalid as anticipated under 35 U.S.C. § 102 if a prior art reference discloses each element of the claimed subject matter.¹

21. I understand that a patent claim may be invalid as obvious under 35 U.S.C. § 103 if the differences between the subject matter claimed and the prior art are such that the claimed subject matter as a whole would have been obvious to a POSITA at the time the invention was made. I also understand that several factual inquiries underlie a determination of obviousness. These inquiries include (1) the scope and content of the prior art, (2) the level of ordinary skill in the field of the invention, (3) the differences between the claimed invention and the prior art, and (4) any objective evidence of non-obviousness (i.e., “secondary considerations”).

22. I further understand that when a party alleges obviousness, that party may rely on one reference or a combination of multiple references. I also understand that, when a party alleges obviousness based on a combination of references, that party should identify a reason why a POSITA would have been motivated to combine the asserted references in the manner recited in the claims and to explain

¹ Patent laws discussed herein refer to AIA versions of the relevant laws.

why a POSITA would have had a reasonable expectation of success in making such combinations.

23. I understand that an obviousness analysis permits the application of “common sense” in examining whether a claimed invention would have been obvious to a POSITA. For example, I understand that combining familiar elements according to known methods and in a predictable way may suggest obviousness when such a combination would yield nothing more than predictable results. And I understand a party asserting obviousness should still provide a specific motivation to combine the references as recited in the claims and explain why one would have reasonably expected to succeed in doing so.

24. I understand that one indicator of nonobviousness is when prior art teaches away from combining certain known elements. For example, a prior art reference teaches away from the patent’s particular combination if it leads in a different direction or discourages that combination, recommends steps that would not likely lead to the patent’s result, or otherwise indicates that a seemingly inoperative device would be produced.

III. TECHNOLOGY OVERVIEW

25. The relevant field for that of the ’382 Patent is that of solid-state lighting systems, and more particularly to invention using multiple solid state light emitters operating with a multiplane light diffuser for backlighting. Generally, the

field relates to diffusing solid state light emitters to achieve optimal illumination of an LCD panel.

26. This may be accomplished through the employment of a multiplane light diffuser having at a first diffusion plane a first distance from the solid state emitters and a second diffusion plane that is a second distance from the solid state emitters and a third distance between adjacent ones of the plurality of solid state light emitters, such that the first distance is a function of the third distance.

IV. THE '382 PATENT'S OVERVIEW

27. The '382 Patent describes how to use solid state lighting devices (e.g., LEDs) and other optical elements to illuminate a liquid crystal display (LCD) panel.

28. As show in Fig. 3 of the '382 Patent:

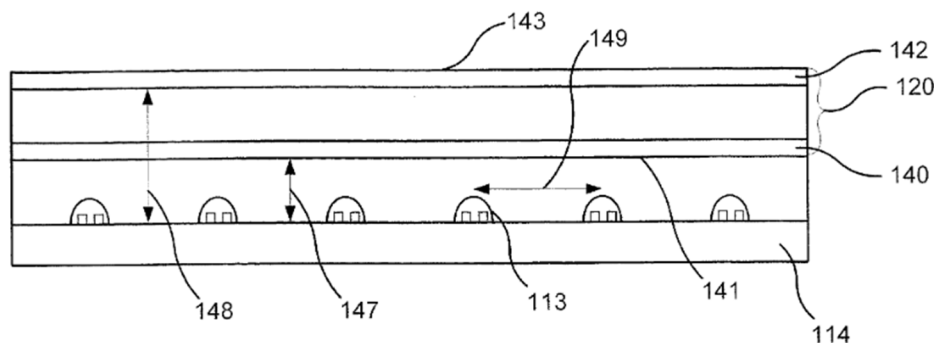


FIG. 3

29. An inventive concept of the '382 Patent is utilizing a distance between the solid state light emitters and both the first and second diffusion plates in a multiplane light diffuser to create an optimal display panel. Specifically, the distance between the centers of adjacent solid state light emitters is referred to in the

'382 Patent as the "third distance (shown as 149 in Fig. 3)." The distance between the top of support structure 114 / bottom of the solid state light emitters 113 to the first diffuser plate 140 is referred to as the "first distance (shown as 147 in Fig. 3)". The distance between the top of support structure 114 / bottom of the solid state light emitters 113 to the second diffuser plate 143 is referred to as the "second distance (shown as 148 in Fig. 3)."

30. The '382 Patent describes optimal embodiments for diffusing the light from the solid state light emitters by using first distance measured to be approximately $\frac{1}{2}$ of the third distance. *Id.* col. 6:26-28 Furthermore, in other optimal embodiments, the second distance may be in a range of 1 to 1.5x of the third distance. *Id.* col. 6:28-30

V. A PERSON OF ORDINARY SKILL IN THE ART

31. I understand that the factors considered in determining the ordinary level of skill in a field of art at issue include the level of education and experience of persons working in the field; the types of problems encountered in the field; and the sophistication of the technology at the time of the purported invention, which I understand to be as early as March 11, 2008. I understand that a person of ordinary skill in the art ("POSITA") is not a specific real individual, but rather is a hypothetical individual having the qualities reflected by the factors above. I

understand that a POSITA would also have knowledge from the teachings of the prior art, including the art cited below.

32. Based on these factors, on or before March 11, 2008, a POSITA relating to the technology of the '382 Patent would have (a) a Bachelor's of Science degree in a technical field and at least four years of experience in the field of design and/or manufacture of display systems; (b) a Master's of Science degree in a technical field and at least two years of experience in the field of design and/or manufacture of display systems; or (c) a PhD in a technical field relating to the design and/or manufacture of display systems. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education. A POSITA is presumed to have knowledge of all relevant prior art, and therefore would have been familiar with each of the references cited in this declaration and the full range of teachings they contain.

33. With respect to the subject matter of the '382 Patent, a Bachelor of Art in Mathematics is equivalent to a Bachelor of Science degree in a technical field.

34. Before March 11, 2008, my level of skill in the art was at least that of a POSITA. I am qualified to provide opinions concerning what a POSITA would have known and understood at that time, and my analysis and conclusions in this declaration are from the perspective of a POSITA prior to March 11, 2008. Furthermore, I have taught, worked with and supervised persons whom I would

consider to be persons of ordinary skill in the art according with the description given above.

VI. CLAIM CONSTRUCTION

35. For IPR petitions filed after November 13, 2018, I understand the Patent Trial and Appeal Board (“Board”) construes claim terms as having their ordinary and customary meaning to a POSITA at the time of invention (i.e., the same standard used in district court). I have applied this standard in rendering my opinions on claim construction. In addition, I have been asked to assume that the claims are not indefinite.

36. Claim terms are generally given their plain and ordinary meaning, which is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. When the words in the context of the surrounding claim language make the ordinary meaning readily apparent, claim construction involves little more than the application of the widely accepted meaning of commonly understood words.

37. The claims must be read in view of the specification of which they are a part. The specification is the best source for understanding a technical term. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.

38. Although terms must be construed in light of the specification, it is improper to import a limitation from the specification into the claims. Courts must capture the scope of the actual invention, rather than strictly limit the scope of claims to disclosed embodiments or allow the claim language to become divorced from what the specification conveys is the invention.

39. The prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be. The prosecution history consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.

VII. PETITIONER'S PRIOR ART SUMMARY

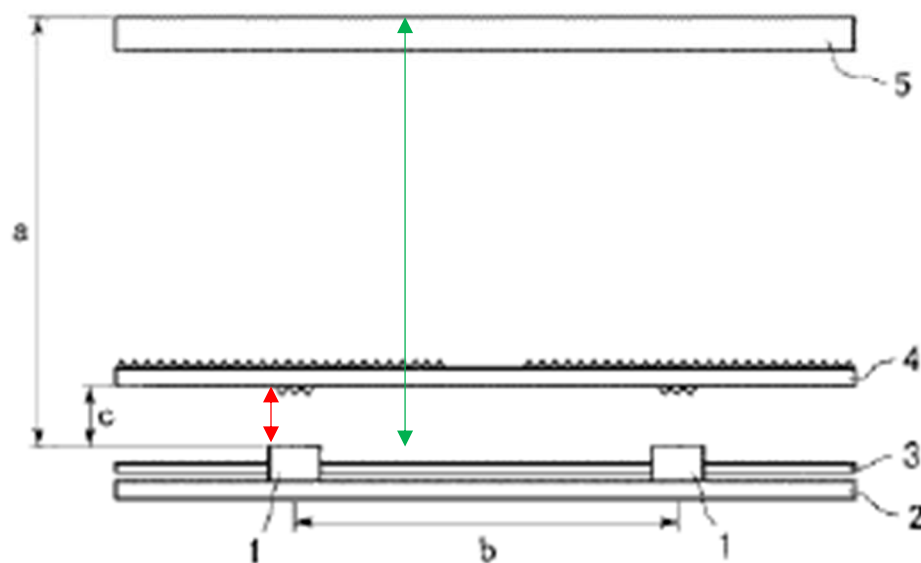
40. I understand that Petitioner has identified three primary references and various secondary references as prior art to the '382 Patent in its Grounds 1-12.

A. Kobayashi

41. Petitioner's primary reference for Grounds 1-6 is Japanese Patent Application Publication No. JP 2007-329016 ("Kobayashi") was published December 20, 2007. Kobayashi describes a backlight unit having multiple LEDs placed on a base at equal intervals with a diffusing plate having a total light transmittance of 80 to 98% and a light diffusivity of 0.5 to 30% is placed on the side

close to the LED 1, a diffusing plate 5 with a total light transmittance of 40 to 80% and a light diffusivity of 70 to 90% is placed on the side far to the LED 1, and a light diffusivity of 70 to 90% is placed on the side far to the LED 1, and a reflector 3 with a reflectance of 80% or more is placed between the diffusing plate 4 and the base 2. Ex-1006 at Pg. 1.

[FIG. 1]



42. While Kobayashi shows that the distance for adjacent light emitters is measured from the middle of the light emitters (**b**), Kobayashi does not describe the height of the light emitters, so a POSITA viewing Kobayashi would not be motivated to use a distance measured from the bottom of the light emitters. Furthermore, from the figures, Kobayashi teaches measuring the distance from the top of a diffuser plane to the top of the light emitter.

43. Kobayashi teaches that lens 4 is preferably a Fresnel Lens with a light diffusivity of 0.5 to 30%. This does not anticipate or disclose the “a diffuser plate that includes the first side of the multiplane light, the diffuser plate configured to define the first diffusion plane” as claimed.

i. Fresnel Lens is Not a Diffuser Plate

44. For background, Augustine Fresnel invented the lens that took his name to improve maritime safety by providing French light houses with a compact lens capable of concentrating the weak light sources available in the early 1800s and focusing that light into a tight beam visible for miles.

45. As such, the Fresnel Lens does not qualify to render obvious the diffuser of the '382 Patent as Fresnel lenses are typically used to collimate or maintain a tight beam of light. Some of my issued patents such as my U.S.. 5,299,039 Patent, issued in 1994, describes using Fresnel lenses to collimate light through LCD panels.

ii. A Prism Collection Film is Not a Brightness Enhancement Film

46. While Petitioner and their Expert make the blanket statement “[a] person of ordinary skill in the art would recognize that the “prism collection film” is a brightness enhancing film,” no actual support is provided. Petition at 21, Ex. 1003 ¶62. However, one of skill in the art would recognize that there is no standard definition or description of the term “prism collection film” and therefore there is no

support put forward by Petitioner's Expert for equating the two structures other than both being some kind of "film."

B. Schiavoni

47. One of Petitioner's primary references for Grounds 6-12 is PCT Publication WO2008/025909 (Ex. 1012 – "Schiavoni") published March 6, 2008. Schiavoni describes in its Abstract: "The invention relates to an optical system (100) for a lighting device having one or more sources (11) of visible and/or ultraviolet radiation which consist of light-emitting diodes, especially for backlighting a liquid-crystal display screen, comprising: a first substantially planar optical element (100) transparent to said radiation and intended to be installed between said sources and a substantially planar diffuser that makes the normal luminance uniform, the first optical element being approximately parallel to the diffuser and being capable of contributing to making the normal luminance output by the diffuser uniform. Said first optical element (100) is capable of sectorizing the normal luminance output by the diffuser, and/or the optical system includes a second substantially planar optical element transparent to said radiation, which is intended to be installed between the first element and the diffuser, being approximately parallel to said first optical element, the second optical element being capable of sectorizing the normal luminance output by the diffuser. The invention also relates to the lighting device and to a method of controlling this device." Schiavoni, Abstract.

48. Page 4 of Schiavoni states, “to control the sectorization of the normal luminance, so that, for a given row of point sources (or a given extended source occupying a row), the average of the profile of the normal luminance along a direction orthogonal to the sources does not mix significantly with the average luminance profile of a neighboring row (or of a neighboring source).” Schiavoni at 4. This explains that in Schiavoni the purpose is to control the local contrast and reduce electrical power by dimming one or more LED’s output to create dark areas or sectors on screen when needed.

C. Lim

49. Petitioner’s other primary references for Grounds 6-12 is US Patent Publication No. 2002/0071288 (Ex. 1013 – “Lim”) published June 13, 2002. Lim describes in the abstract, “A backlight unit in a liquid crystal display enabling to realize high brightness over 2000 nit and provide a thin backlight unit is described. In a backlight unit using LED as a backlight lamp in a field Sequence type liquid crystal display including a light-guiding plate, a reflection plate, and a diffusion plate, a plurality of lamps or chips are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps or chips.” Lim, Abstract. Lim uses these R, G and B LEDs separately to illuminate a color filter-free "field sequential" LCD such that during one image line, one led color is used, and this process is done sequentially per line and per R-G-B led color to produce a full color, high light

output display of "over 2000 nits" which is about 10 times brighter than the typical display. *Id.*

D. Kirita

50. U.S. Patent Application Publication No. US 2006/0050198 (Ex. 1008 – “Kirita”) was published on March 9, 2006. Petitioner relies on Kirita as a secondary reference for Grounds 2 and 9.

51. Kirita describes an LCD having a wide color reproduction range. The LCD contains a “light selective transmission filter, which has wavelength selective transmission characteristics corresponding to spectral characteristics of the light source, selectively transmits light generated from the light source in the specific wavelength regions based on the wavelength selective transmission characteristics” Kirita at 1.

E. Tabito

52. U.S. Patent Application Publication No. US 2007/0103908 (Ex. 1007 – “Tabito”) was published on May 10, 2007. Petitioner relies on Tabito as a secondary reference for Grounds 4, 5, 6, 10, 11, and 12.

53. Tabito describes a light transmitting LCD apparatus. The device is formed by several rows of many light emitting units mounted on an interconnection substrate and a heat dissipating plate, as well as a reflecting section formed by a

number of reflective sheet pieces and a reflective plate secured to reflective plate supports formed on the heat dissipating plate. Tabito at 1.

F. Onishi

54. U.S. Patent Application Publication No. US 2005/0243551 (Ex. 1009 – “Onishi”) was published on November 3, 2005. Petitioner relies on Onishi as a secondary reference for Grounds 5, 6, 11, and 12.

Onishi describes “A lighting system, a reflector, light sources and a light control member are sequentially disposed from a light incident side to a light outgoing side.” Onishi further explains that the “invention achieves total transmittance of more than 50% when light is incident on the normal direction of the incident plane at a predetermined angle α .” Onishi at 1.

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

55. Petitioner relies on Kobayashi as its primary reference for Gound 1. But it is my opinion that a POSITA viewing Kobayashi would not find claim 1 to be obvious for at least the claim elements discussed below in my declaration.

A. Kobayashi Does Not Disclose “a first diffusion plane that is a first distance from the plurality of solid state emitters” as Recited in Claim 1B.

56. As discussed above, to create an ideal illumination in an LCD Patent, the ’382 Patent optimizes the distance between the solid state emitters and the bottom of diffusion planes. This is done by optimizing a first distance and

sometimes a second distance as a function of a third distance between adjacent solid state emitters.

57. In the '382 Patent, the “first distance” is a distance measured from the bottom of the solid state emitters / top of the support structure to the first diffusion plate. However, Petitioner points to “c” of FIG. 1 of Kobayashi. As the figures show, the measurement for “c” is a distance measured from the top of the solid state emitters to a first plate. This difference is significant because the backlighting for LCD displays is designed to be thin so a measurement difference of the thickness of a solid state emitters and/or other optical elements will alter the optimal distance and ideal illumination intended by the '382 Patent. As such, Kobayashi does not disclose this element.

B. Kobayashi Does Not Disclose a “diffuser plate configured to define the first diffusion plane” as Recited in Claim 1D.

58. The '382 Patent refers to a diffuser plate as a “scattering diffuser” ('382 Patent, 5:1-2) which is intended to scatter and spread light emitted therethrough. A diffusing plate is a term which is understood by a POSITA and this definition is consistent with my experience and knowledge.

59. Kobayashi on the other hand teaches that the lens closest to the light emitters has only a small amount of light diffusivity (.5 to 30%) and further the “diffusing” plate 4 utilizes convex Fresnel lenses. As discussed above, this would not be understood by one of skill in the art as equivalent to the diffusing plate

described and claimed in the '382 Patent. As such, Kobayashi does not disclose this element.

C. Because Kobayashi Does Not Disclose a “first distance” it concludes that Kobayashi also cannot disclose “wherein the first distance is a function of the third distance” as Recited in Claim 1E.

60. As discussed above, Kobayashi does not disclose the “first distance” as described and claimed in the '382 Patent. Logically, it cannot disclose that a first distance is a function of the third distance.

D. Kobayashi Does Not Disclose the BEF of Claim 7

61. Petitioner's Expert claims that a POSITA would recognize that the “prism collection film” is a brightness enhancing film. I respectfully disagree. As stated above the only thing that equates the two elements is the word, "film" because there is no recognized definition of either a “prism collection film” or a "brightness enhancing film."

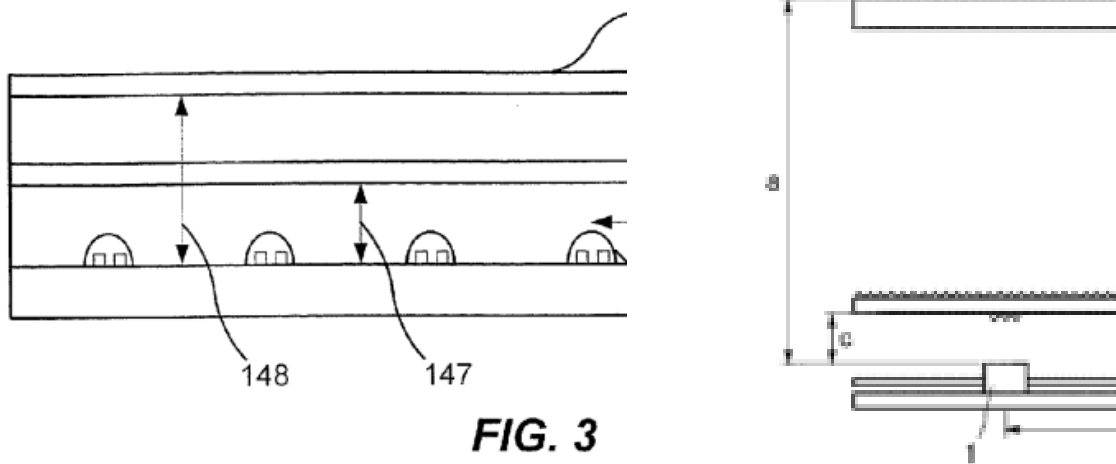
E. Kobayashi Does Not Disclose that the Second Distance is 1-1.5x the Third Distance of Claim 9

62. Kobayashi discloses that the ratio of the second distance to the third distance (described as “a/b” in Kobayashi) is between 0.2 to 1.0. Petitioner's expert claims a POSITA would be motivated to explore different distances of the multiple diffusor arrangement to modify the arrangement in Kobayashi. I respectfully disagree. A POSITA would not have been motivated to modify the ratio between

the distances by such a high amount (e.g. 5x on the low end) as it would either increase the thickness of the backlight or drastically increase the amount of solid state light emitters needed.

63. Furthermore, Kobayashi is intended to operate far differently than the '382 Patent which in some embodiments has an equal distance between the light emitters and the first diffusion plate as the distance between the first diffusion plate and second diffusion plate. *See below* (compare 147 to 148 vs c to a)

[FIG. 1]



F. Kobayashi Does Not Disclose a means for transmitting first diffused light from the first diffusion plane as the lens 4 of Kobayashi does not actually operate as a diffuser.

64. As discussed above, the “diffuser” plate 4 of Kobayashi does operate as a diffuser so consequently Kobayashi does not disclose a means for transmitting first diffused light from the first diffusion plane.

G. Kobayashi Does Not Render Claim 13 Obvious as the Claim Elements are Similar to those of Claim 1**H. Kobayashi Does Not Disclose a Structured Refractive Diffuser Plate as Recited in Claim 13C**

65. According to the '382 Patent and consistent with the knowledge of a POSITA, a structure refractive diffuser plate typically includes multiple refractive extrusions. Nothing disclosed in Kobayashi teaches or suggests that the “diffusing plates 4 and 5” includes any refractive structures. Rather, Kobayashi teaches away from using refractive structures as light diffusion elements, instead using lenses to focus or concentrate light.

IX. GROUND 4 - KOBAYASHI AND TABITO IN VIEW OF A POSITA**A. A POSITA Would Not be Motivated to Combine Kobayashi and Tabito**

66. Tabito is directed to a high light output device based upon arrays of powerful red, green, and blue LEDs. Tabito's device is designed to have such a large light output that it is designed and constructed from heat resistant materials and even contains heat pipes to conduct all of the LEDs' high heat to other safe heat radiating elements. Kobayashi's device is not directed to high light output so there is no motivation to combine Kobayashi and Tabito and would not render claim 17 obvious. Kobayashi also does not disclose a plurality of diffuser supports and Tabito does not disclose a first distance that is a function of the third distance.

67. Kobayashi is explicit in how the backlight unit is intended to operate. Specifically, Kobayashi discloses the ideal light transmittance of diffusing plate 4 and 5 (See abstract). Additionally, Kobayashi describes exact distances between the components inside the backlight unit (see distances a, b, and c - [0020]). Kobayashi derived these results from a very specific testing process (see, [0046] through [0081]).

68. 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. As stated by Tabito, “It is noted that the optical stud member 25 is formed by the milk-white light conducting polymer material, as described above, and hence diffuses the illuminating light introduced into its inside from the outer peripheral surface to prevent the distal end 25h from being partially illuminated to enable the illuminating light to be incident evenly from the light guide section 14 into the light diffusing conducting plate 21.” Kobayashi, [0095]. It can be assumed that Tabito intends the optical standoffs to absorb light and partially diffuse light. The interaction between light emitted from the LEDs (Kobayashi) and the optical studs (Tabito) would cause the amount of light entering the diffusing plate 4 and 5 to change, as well as the amount of internal reflection/interference of the light traveling in the regions between the diffusing plate 4 and the LEDs, and between diffusing plate 4 and

diffusing plate 5. Additionally, creating separation or holes in the diffusing plate 23, would change the diffusivity as well as impact the Fresnel lens functionality of plate 4 (Kobayashi). As one example, Kobayashi describes a ratio of c/b that is preferably in the range of 2×10^{-3} to .4 [0020], this was derived by the measurement in Kobayashi. This relationship between the distance b and c would be entirely different with the presence of optical studs. It is not reasonable to assume that there would be an optimal relationship, in terms of backlight performance, between the two distances (b and c) in Kobayashi when optical studs are present. Therefore, the relationship between the first distance and third distance of the '382 Patent is non-obvious. The ratio c/b described in Kobayashi is not relevant when combined with Tabito.

X. 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

69. The combination of Schiavoni with Lim is further inappropriate for several reasons - mainly because Schiavoni's LEDs are used to make white light, whereas Lim's RGB LEDs are used for R-G-B separately, line by line in a field sequential type of LCD system which Schiavoni (and the '382 Patent) does not. Petitioner does not make clear or even imply that optical system/element 100 of Schiavoni would be functional in the context of Lim's R,G,B lighting system. Nor

does Petitioner demonstrate or imply that the light sources 11 of Schiavoni would achieve optimal illumination of a field sequential LCD panel (also not used in '382) by employing the distance relationship between the light sources and the diffusion film of Lim.

B. Schiavoni Does Not Teach a Multiplane Light Diffuser

70. 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.

71. Schiavoni does not disclose a diffuser like the claimed diffuser in the '382 Patent since Schiavoni is directed towards local dimming, sector by sector where turning off one led leaves a dark spot on screen - this would not happen in '382. The purpose of optical system 100 in Schiavoni is to ensure that the light from light sources 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 an even luminance profile.

XI. GROUND 8 - SCHIAVONI AND LIM IN VIEW OF KOBAYASHI AND IN VIEW OF A POSITA.

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

72. Because as described above, 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. A POSITA would know that with the wide success of TFT based LCDs, one would not use field sequential LCDs today therefore LEDs are all used to make white light.

XII. GROUND 9 - SCHIAVONI AND LIM AND KIRITA IN VIEW OF KOBAYASHI AND IN VIEW OF A POSITA.

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

73. Because as described above, Lim's RGB lamps uses R-G-B separately, line by line in a field sequential type of LCD system which Schiavoni, Kartia (and the '382 Patent) does not. A POSITA would know that with the wide success of TFT based LCDs, one would not use field sequential LCDs today therefore LEDs are all used to make white light.

XIII. GROUND 10 - SCHIAVONI AND LIM AND KIRITA IN VIEW OF KOBAYASHI AND IN VIEW OF A POSITA.

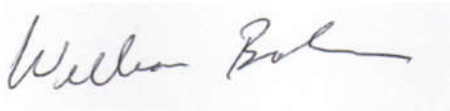
A. A POSITA Would Not be Motivated to Combine Schiavoni and/or Lim with Tabito

74. Schiavoni discloses lens "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. It would be unworkable to insert Tabito's diffuser supports through this glass optical element. Glass is not an optimal material for the holes that are required for mounting the diffuser supports.

75. A diffuser support that passed through Schiavoni's diffusing layer 22 would punch into the “transparent support 21 preferably glass.” This structure would be heavier and more fragile.

76. I declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated November 30, 2023

By 
William K. Bohannon,