

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K.J. PRETECH CO., LTD.,
Petitioner,

v.

INNOVATIVE DISPLAY TECHNOLOGIES LLC,
Patent Owner.

Case IPR2015-01868¹
Patent 7,434,974

Before THOMAS L. GIANNETTI, MIRIAM L. QUINN, and
BEVERLY M. BUNTING, *Administrative Patent Judges*.

BUNTING, *Administrative Patent Judge*.

DECISION

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

¹ Case IPR2016-00910 has been joined with this proceeding.

I. INTRODUCTION

K.J. Pretech Co., Ltd. (“Petitioner”), filed a Petition pursuant to 35 U.S.C. §§ 311–319 requesting *inter partes* review of claims 1, 3–5, 7, 8, 10, and 11 of U.S. Patent No. 7,434,974 (Ex. 1001, “the ’974 patent”). Paper 2 (“Pet.”). Patent Owner, Innovative Display Technologies LLC (“Patent Owner”), timely filed a Preliminary Response to the Petition. Paper 11 (“Prelim. Resp.”). Taking into account the arguments presented in the Preliminary Response, we determined that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail on its challenge of claims 1, 3–5, 7, 8, 10, and 11 (“the challenged claims”) of the ’974 patent. Pursuant to 35 U.S.C. § 314, we instituted this trial on March 17, 2016, based on the grounds identified in the Order section of the Decision on Institution. Paper 15, 25. (“Dec. on Inst.”).

During the course of trial, Patent Owner timely filed a Patent Owner Response (Paper 20 (“PO Resp.”)), and Petitioner timely filed a Reply thereto (Paper 22 (“Pet. Reply”)). An oral hearing was conducted on January 10, 2017, and a transcript of the hearing is entered in the record. Paper 39 (“Tr.”). IPR2016-00910 was joined with this proceeding. Paper 24.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the challenged claims of the ’974 patent. For the reasons that follow, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1, 3–5, 7, 8, 10, and 11 of the ’974 patent are unpatentable.

II. BACKGROUND

A. Related Proceedings

The parties identify numerous proceedings in which infringement of the '974 patent has been alleged. Pet. 1–2; Paper 5, 2–6. Patent Owner additionally identifies other petitions requesting *inter partes* review of the '974 patent, as well as related patents. Paper 5, 6. For example, in IPR2014-01092, one such petition was denied as to claims 1, 3–5, 7–11, 13 and 17 of the '974 patent. See *LG Elecs., Inc. v. Innovative Display Techs. LLC*, Case IPR2014-01092 (PTAB January 13, 2015) (Paper 9).

B. The '974 Patent (Ex. 1001)

The '974 patent, titled “Light Emitting Panel Assemblies,” was issued on October 14, 2008, from U.S. Patent Application No. 11/378,080 filed on March 17, 2006. Ex. 1001, at [54], [45], [21], and [22]. The '974 patent is directed to a light emitting panel assembly having a light emitting panel member received in a cavity or recess in a tray or housing (*id.* at [57]) as illustrated below in Figure 6.

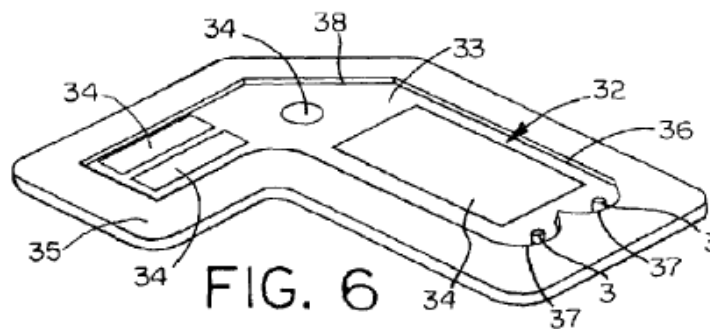


Fig. 6 is a schematic view of a light emitting panel assembly.

The light emitting panel assembly 32 includes panel member 33, one or more light sources 3, and one or more light output areas 34. *Id.* at 6:53–56. Panel assembly 32 is received within a cavity or recess 36 in tray 35.

Id. at 6:56–58. Tray 35 serves as back, end or edge reflectors for panel 33 and side and/or back reflectors for the light sources. *Id.* at 6:58–60. One or more secondary reflective or refractive surfaces 38 may be formed on the panel member to reflect a portion of the light around corners or curves in the panel member. *Id.* at 6:61–65. As shown in Figure 4a, light extracting deformities “may be provided on one or both sides of the panel members or on one or more selected areas on one or both sides of the panel members.” *Id.* at 4:31–34.

C. Illustrative Claim

Challenged claims 1 and 7 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below:

1. A light emitting panel assembly comprising
at least a light emitting panel member having a light
entrance surface and a light emitting surface,
at least one LED light source positioned near or against
the light entrance surface, and
a tray or housing having a cavity or recess in which the
panel member is entirely received,
wherein the panel member has a pattern of light
extracting deformities on or in at least one surface to cause light
to be emitted from the light emitting surface of the panel
member, and the tray or housing includes end walls and side
walls that act as end edge reflectors and side edge reflectors for
the panel member to reflect light that would otherwise exit the
panel member through an end edge and/or side edge back into
the panel member and toward the pattern of light extracting
deformities for causing additional light to be emitted from the
light emitting surface of the panel member,
wherein the tray or housing provides structural support to
the panel member and has posts, tabs, or other structural
features that provide a mount for mounting of the assembly into
a larger assembly or device.

Ex. 1001, 9:9–27.

D. References

The Board instituted *inter partes* review based on the following references:

References	Patents/Printed Publications	Date	Exhibit
Kisou	JP H7-64078A	March 10, 1995	1006
Niizuma	JP H5-45651	June 18, 1993	1007
Yagi	US 4,017,155	April 12, 1977	1008
Furuya	JP 6-214230	August 5, 1994	1009

Petitioner also relies on a Declaration from Mr. Thomas L. Credelle. Ex. 1004. With its response, Patent Owner submitted the Declaration of Mr. Kenneth Werner. Ex. 2006.² Transcripts of the depositions of Mr. Credelle and Mr. Werner are entered in the record as Exhibits 2007 and 1026, respectively.

E. Instituted Grounds

As explained in the Introduction section above, we instituted trial based on the following asserted grounds of unpatentability (Dec. on Inst. 25):

Reference(s)	Basis	Claims Challenged
Kisou	§ 102(a)	1, 5, 7, 8, 10, and 11
Kisou	§ 103(a)	5, 10, and 11
Kisou, Yagi	§ 103(a)	3 and 4
Furuya, Niizumz	§ 103(a)	1, 3–5, 7, 8, 10, and 11

² Petitioner’s general argument that Mr. Werner’s testimony be accorded “little or no weight” (Pet. Reply 16–17) is unpersuasive. We review the testimony of each party’s expert and allocate the appropriate weight to such testimony, as supported by the evidence.

III. ANALYSIS

A. Claim Construction

Petitioner asserts, and Patent Owner does not challenge, that the '974 patent expired on June 27, 2015. Pet. 6. The Board interprets claims of an expired patent using the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). See 37 C.F.R. § 42.5(b); see also *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012) (“While claims are generally given their broadest possible scope during prosecution, the Board’s review of the claims of an expired patent is similar to that of a district court’s review.”) (internal citation omitted).

“In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). The words of a claim generally are given their ordinary and customary meaning, which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. See *Phillips*, 415 F.3d at 1312–13. Although it is improper to read a limitation from the specification into the claims, the claims still must be read in view of the specification of which they are a part. See *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1347 (Fed. Cir. 2004). In certain circumstances, however, a claim term may not be given its ordinary and customary meaning. “[A] claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.”

CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). A claim term also will not receive its ordinary meaning where the intrinsic record contains “an intentional disclaimer, or disavowal, of claim scope by the inventor.” *Phillips*, 415 F.3d at 1316.

In our Decision on Institution, we adopted Petitioner’s proposed construction for the term “deformities” appearing in claims 1 and 7. Dec. on Inst. 7. Namely, we construed “deformity” as “any change in the shape or geometry of the panel surface and/or coating or surface treatment that causes a portion of light to be emitted.” *Id.* at 7 (citing Ex. 1001, 4:36–40) (“deformities limitation”). Patent Owner takes no position on claim construction in its Patent Owner Response. See Paper 16, 3 (“The patent owner is cautioned that any arguments for patentability not raised in the response will be deemed waived.”). Given the parties’ acceptance of our construction of deformities in the Decision on Institution, we discern no reason to address or alter this construction for the purpose of this Final Written Decision.

B. Anticipation by Kisou

Petitioner first challenges claims 1, 5, 7, 8, 10, and 11 as anticipated under 35 U.S.C. § 102(a) by Kisou. Pet. 10–24. In support thereof, Petitioner provides a claim chart identifying the disclosure in Kisou alleged to describe the subject matter in the challenged claims. Petitioner further cites the Declaration of Mr. Credelle in support of the analysis advocated in the Petition. Ex. 1004. Patent Owner counters that Kisou does not disclose certain limitations. PO Resp. 4–15.

We have reviewed the parties’ contentions and supporting evidence. Given the evidence of record, we conclude that Petitioner has demonstrated

by a preponderance of the evidence that challenged claims 1, 7, and 8 are anticipated by Kisou, but not as to claims 5, 10, and 11. We begin our analysis with the principles of law that generally apply to a ground based on anticipation, followed by a brief summary of Kisou, and then address the parties' contentions in turn.

1. Principles of Law

A claim is anticipated if each limitation of the claim is disclosed in a single prior art reference arranged as in the claim. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). As recently reiterated by the Federal Circuit, "a reference can anticipate a claim even if it 'd[oes] not expressly spell out' all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would 'at once envisage' the claimed arrangement or combination." *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (citing *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)). We analyze this ground based on anticipation in accordance with the above-stated principles.

2. Overview of Kisou (Ex. 1006)

The Kisou reference is an Unexamined Japanese Patent Application Publication, JP H07-64078 A, titled "LCD Backlight Device," published on March 10, 1995. Ex. 1006 at [12], [11], [54], and [43].

Kisou relates generally to "an LCD backlight device that allows for a light-emitting surface free of brightness irregularities, a stable supply of light, prevention of degradation in properties, a slimmer profile, and modular design." *Id.* at [57]. The backlight device includes light conductor 30, reflector 40 disposed behind the light conductor, and a light source positioned at both ends of the light conductor. *Id.* A plurality of recessed

light paths 31, having a triangular cross-section, are formed on a rear surface of the light conductor, and extend between the light sources. *Id.* at ¶ 26.

3. Claims 1, 7, and 8

Petitioner relies on Kisou to describe each of the limitations recited in challenged claims 1, 7, and 8. Pet. 10–25. Patent Owner challenges the sufficiency of Petitioner’s proofs in several respects that we discuss *infra*. PO. Resp. 4–15. We note, however, that most of the claim elements are undisputed. On this record, with respect to the undisputed limitations, we find that, based on the evidence cited in the Petition, Petitioner has presented sufficient evidence to support a finding that those limitations are disclosed by Kisou. We address the disputed limitations below. *See In re Nuvasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (Although the Board did not make findings as to whether any of the other claim limitations (such as fusion apertures or anti-migration teeth) are disclosed in the prior art, it did not have to: NuVasive did not present arguments about those limitations to the Board.).

a. Deformities Limitation

Independent claims 1 and 7 include the deformities limitation, “wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member.” Ex. 1001, 9:14–17; 48–51. Petitioner argues that this limitation is satisfied by the disclosure in Kisou of “recessed light paths 31 having a triangular cross-section on a rear surface of the light conductor 20” (Pet. 12 (citing Ex. 1006 ¶ 26)), and that the triangular cross-section forms a “corrugated shape” on the rear surface of the light conductor (*id.* (citing Ex. 1004 ¶ 85)). Additionally, Petitioner argues that these

recessed light paths extract light toward the light-emitting surface of the light conductor, and that one of skill in the art “would understand that the recessed light paths 31 apply equally to the light conductor 30 in Figs. 10–12 as to light conductor 30 in Figs. 1–9.” *Id.* at 13 (citing Ex. 1006 ¶ 29).

Patent Owner interprets the language of independent claims 1 and 7 as requiring that the pattern of light extracting deformities *cause* the light to be emitted from the light emitting surface of the panel member. PO Resp. 5 (citing Ex. 1001, 9:14–17, 9:48–51, Ex. 2006 ¶ 80). According to Patent Owner, the light paths 31 disclosed by Kisou do not extract light because they are “the spaces between the light conductor 30 and reflector, not the surface of the light conductor.” *Id.* (citing Ex. 1006 ¶¶ 26, 27, Fig. 9; Ex. 2006 ¶¶ 81–83). Relying on Figures 4 and 8 of Kisou, reproduced below, Patent Owner argues that light paths 31 are an alternative to the use of light extracting deformities because lamp units L “divide the light into light progressing obliquely downward and forward, so that the light will tunnel under the light conductor 30 into the light pathways 31.” *Id.* at 6 (citing 1006 ¶¶ 13, 23, 27, Fig. 4, Fig. 8; Ex. 2006 ¶ 84).

[FIG. 4]

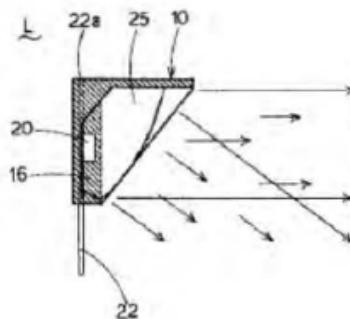


Figure 4 is a cross-sectional view of the lamp unit.

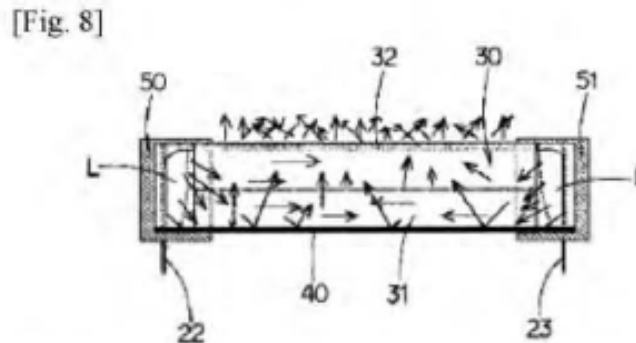
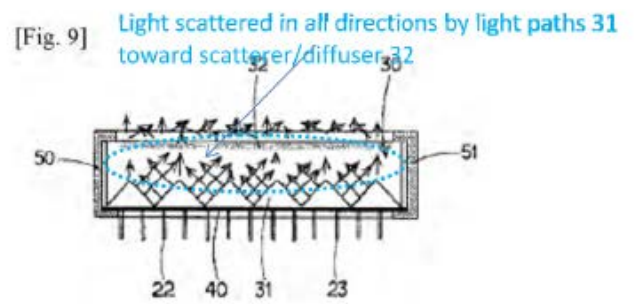
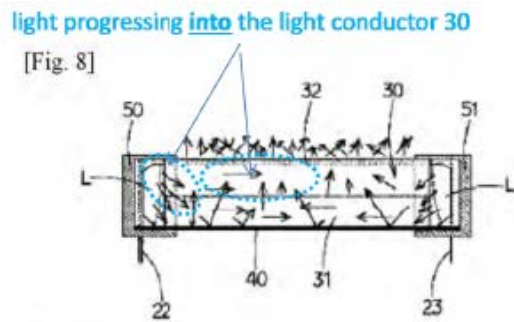


Figure 8 is a cross-sectional view of operation of the backlight device. Relying on this interpretation of Kisou, Patent Owner argues that after the light is split and diffused, reflector 40 and scatterer 32 “cause[] light to be emitted from the light emitting surface of the panel.” PO Resp. 7 (citing Ex. 1006 ¶ 27).

As discussed in Section III.A. *supra*, we construe the term deformities as “any change in the shape or geometry of a surface and/or coating or surface treatment that causes a portion of light to be emitted.” We agree with Petitioner that the light paths, in forming a corrugated shape on the rear surface of light conductor 30, represent changes to the shape of the light conductor surface. Pet. Reply 2–3. As noted by Petitioner, Mr. Werner agreed during cross-examination that the corrugated shape represents a change in shape to the rear surface of light conductor 30. *Id.* at 3 (citing Ex. 1026, 58:9–59:1, 63:9–20).

As to the remainder of Patent Owner’s contention, i.e., the reflector and scatterer of Kisou cause light to be emitted from the panel, we are more persuaded by Petitioner’s observation that the triangular light paths cause the emission of *at least some light*. Pet. Reply 3. Petitioner directs us to the passage in Kisou describing how “**light progressing into the light conductor 30 is scattered in all directions** as it progresses inward.” *Id.* at

4 (citing Ex. 1006 ¶ 27). With respect to Figures 8 and 9, Petitioner explains persuasively how triangular light paths 31 function as light extracting deformities, to direct some light towards the light emitting surface of the light conductor. *Id.* at 4–5. Petitioner further supports its position by annotating Figures 8 and 9, reproduced below, to provide context to the passage from Kisou describing how “some of the light from the lamp units L reaches **all parts of the entire effective light-emitting surface thanks to the recessed light paths 31.**” *Id.* at 5 (citing Ex. 1006 ¶ 28).



Id. Indeed, Petitioner’s annotations highlight light rays (i.e., shown by arrows) progressing into the light conductor, and at least some of the light rays scattering in an upward direction towards the diffuser after contacting a change in shape in the rear surface of the conductor and being emitted from the light emitting surface of the display panel.

Thus, we are persuaded by Petitioner’s argument that the recessed light paths 31 disclosed by Kisou satisfy the deformities limitation because they “distribute the light to the light emitting surface of the light conductor 30 and *cause at least a portion* of the light to be emitted from the light emitting surface.” *Id.* (emphasis added).

b. End or Side Edge Reflector Limitation

Independent claims 1 and 7 recite, in relevant part, that

the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel member.

Ex. 1001, 9:17–24, 9:51–58. (“end or side edge reflector limitation”).

Petitioner contends that reflector 60 satisfies this limitation because it “has a ‘light reflecting function’ that ‘yield[s] comparable light-reflecting effects’ to an alternative arrangement where reflectors are directly attached to light conductor 30 and lamp units L.” Pet. 13, citing Ex. 1006 ¶ 30. Petitioner also points to the disclosure in Kisou regarding reflecting rear and side surfaces of lamp units L, and asserts that these surfaces direct light towards light conductor 30. *Id.* (citing Ex. 1004 ¶ 88; Ex. 1006 ¶ 23). Patent Owner disputes Petitioner’s contention that the end walls or side walls of reflector 60 or rear and side surfaces of lamp units L “*reflect light towards the light paths 31.*” PO Resp. 8 (citing Ex. 2007 ¶ 90). Patent Owner characterizes Petitioner’s argument that the reflective surfaces disclosed by Kisou reflect light towards the light paths, as “legally insufficient.” *Id.* at 9.

We find no evidence supporting Patent Owner’s contention that the reflective surfaces disclosed by Kisou would not be capable of reflecting light towards the light paths. Instead, we are persuaded by Petitioner’s argument and evidence that the side and end edge of reflector 60 are capable of reflecting light, such that “the light progressing in the light conductor 30 toward the internal surfaces of the light paths 31 includes light reflected by the light-reflecting plates such as rear plate 11 and plates 14, 15 and/or reflector 60.” Pet. Reply 6–7 (citing Pet. 13; Ex. 1026, 75:22–76:1).

Thus, on this record, we are persuaded by Petitioner’s argument that the end or side edge limitation is satisfied because Kisou discloses “end and side edge reflectors for reflecting light towards the deformities for causing additional light to be emitted.” *Id.* at 7. (See Ex. 1006 ¶ 23 (“ . . . the lamp case 10 of this lamp unit L is constituted by a light-reflecting rear plate 11, upper plate 12, lower plate 13, and side plates 14, 15 . . . ”)).

c. Tray or Housing Limitation

Independent claim 1 recites, in relevant part, “a tray or housing” having “posts, tabs, or other structural features that provide a mount for mounting of the assembly into a larger assembly or device.” Ex. 1001, 9:24–27 (“tray or housing limitation”). Claim 7 recites a similar limitation (*Id.* at 9:58–61) and the parties address claims 1 and 7 together. As to the “larger assembly or device” element, Petitioner asserts that backlight device 1 of Kisou is incorporated into a larger device, which is an LCD device. Pet. 14 (citing Ex. 1006 ¶ 29). Petitioner annotated Figure 10 of Kisou to demonstrate how “LCD 3 mounted onto the driver board 2 is one of the ‘main parts’ of the larger LCD device or assembly which also includes the rubber joint connectors 4.” *Id.* (citing Ex. 1006 ¶ 17). Patent Owner does not dispute this assertion. See PO Resp. 9–13.

Next, Petitioner explains how Kisou satisfies the “other structural features claim element.” *Id.* at 15. Specifically, because reflector 60 has “mounting holes” that, in conjunction with lead wires 22/23 and solder, mount the backlight device to the LCD, and “represent ‘other structural features’ for mounting the light emitting panel assembly (*e.g.*, backlight device 1) of Kisou to the larger assembly or larger LCD device (including the driver board 2).” *Id.* (citing Ex. 1004 ¶ 91).

Patent Owner contends that the reflector itself does not contain the requisite structural features because the rubber joint connectors disclosed by Kisou are part of driver board 2 and not the reflector. PO Resp. 10–11 (citing Ex. 1006 ¶ 17, Figures 1, 2, 10; Ex. 2006 ¶ 94). Patent Owner argues that because the LCD backlight device is indirectly mounted to backlight device 1, it is not “mounted.” *Id.* at 11 (citing Ex. 1006 ¶ 17; Ex. 2006 ¶ 94). Additionally, Patent Owner asserts that the lead wires and solder disclosed by Kisou are electrical elements, not structural, because they are part of Lamp unit L and not reflector 60. *Id.* at 11–12 (citing Ex. 1006 ¶¶ 9, 10, 14, 15, and 30; Ex. 2006 ¶ 96).³

We agree with Petitioner that the claimed structural features serve as a mount or provide structural support, and that the disclosure of a mounting feature in Kisou would satisfy both claims 1 and 7. Pet. Reply 7. Petitioner explains persuasively how the mounting holes in reflector 60 together with lead wires and solder represent “other structural features” as recited in the claims. *Id.* at 7–8. Similarly, Petitioner argues persuasively that reflector 60 disclosed by Kisou provides structural support to the panel member. *Id.* at 8. Patent Owner’s assertion that the structural feature “must be part of the reflector 60” (PO Resp. 10 (citing Ex. 2007 ¶ 94)) is unavailing because the claims only require that the structural features “provide a mount” (Ex. 1001, 9:26, 59). Petitioner also argues persuasively that the mounting holes located in reflector 60 are a “structural feature for mounting” (Pet. Reply 8) and the lead wires and solder are structural elements, *e.g.*, the solder is a

³ Patent Owner’s argument challenging the credibility of Mr. Credelle’s opinion with respect to this claim limitation is not persuasive. PO Resp. 12 (citing Ex. 2008). We have reviewed the cited testimony and allocated the appropriate weight to such testimony, as supported by the evidence.

structural feature for mounting another device to the reflector through the mounting holes (*id.* at 9). As to Patent Owner’s argument that driver board 2 is not part of the backlight device, we are more persuaded by Petitioner’s argument and evidence that “because the driver board 2 is not part of the backlight device, it is also another part or component mounted to the reflector 60 via the mounting holes 62, in accordance with dependent claim 9 of the ’974 Patent, which states that ‘the other part or component is a printed circuit.’” *Id.* (citing Pet. 16–17; Ex. 1004 at ¶ 96).

Thus, based on the record presented by the parties, we are persuaded by Petitioner’s argument and evidence that the tray or housing limitation is satisfied by the disclosure in Kisou of backlight device 1 incorporated into the larger device that includes driver board 2, LCD 3 and rubber joint connectors 4, as well as the mounting holes of reflector 60 used in conjunction with lead wires 22/23 and solder to mount backlight device 1 to a larger assembly. Pet. 14–15.

4. Claims 5, 10, and 11

Claims 5 and 11 recite, in relevant part, “a film positioned near the light emitting surface of the panel member for changing the output ray angle distribution of the emitted light to fit a particular application.” Ex. 1001, 9:36–39, 10:1–5 (“film limitation”). Similarly, Claim 10 recites that “the film is at least one of a diffuser and a brightness enhancing film.” *Id.* at 9:66–67. Patent Owner disputes that Kisou discloses “a separate film positioned near the light emitting surface of the panel member. PO Resp. 13 (citing Ex. 2007 ¶ 99). Instead, Patent Owner maintains that light conductor 30 has a surface that serves as a diffusing layer. *Id.* at 13–14. Recognizing that Kisou discusses the use of a diffuser layer on the “inside of the light-

emitting surface, or a translucent diffuser sheet applied to the outside of the light-emitting surface” (*id.* at 14 (citing Ex. 1006 ¶ 3)), Patent Owner considers this disclosure “part of Kisou’s discussion of prior art, not the invention.” (*Id.* (citing Ex. 2006 ¶ 100)).

This particular ground is based on anticipation. We agree that Petitioner does not explain sufficiently how one of skill in the art would envision the proposed combination based on the discussion in Kisou of how it was known in the art to place a diffuser layer on the inside of the light-emitting surface or translucent diffuser sheet on the outside, and subsequent disclosure of a specific embodiment that included an external diffuser film rather than a built-in scatterer. PO Resp. 14. Based on the arguments and evidence presented at trial, we are persuaded by Patent Owner’s argument that Kisou does not disclose a separate film positioned near the light emitting surface of the panel member.

5. Summary

Based on further review of the record and for the reasons discussed above, Petitioner has demonstrated, by a preponderance of the evidence, that claims 1, 7, and 8 are anticipated under 35 U.S.C. § 102(b) by Kisou, but not as to claims 5, 10, and 11.

C. Obviousness Based on Kisou

Petitioner also challenges the patentability of dependent claims 5, 10, and 11 of the ’974 patent under 35 U.S.C. § 103(a) as obvious based on Kisou. Pet. 25–26. In support thereof, Petitioner provides a claim chart identifying the disclosure in Kisou alleged to describe the subject matter in the challenged claims. *Id.* at 22, 24–25. Petitioner again cites the Declaration of Mr. Credelle in support of the analysis advocated in the

Petition. Ex. 1004. Patent Owner disagrees, arguing that Kisou does not disclose an external film, and further that one of skill in the art would not have replaced the light diffusing layer (scatterer) with a separate film. PO. Resp. 15–17.

For the reasons given below, after consideration of the Petition, the arguments in the Patent Owner Response, Petitioner’s Reply, and the evidence of record, we conclude that Petitioner has demonstrated, by a preponderance of the evidence that challenged claims 5, 10, and 11 are obvious based on Kisou. We begin our analysis with the principles of law that generally apply to a ground based on obviousness, and then address the parties’ contentions in turn.

1. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze this ground based on obviousness in accordance with the above-stated principles.

2. Level of Skill in the Art

There is no discussion of the level of ordinary skill in the Petition or in Patent Owner’s responses, but the subject is addressed in the expert

declarations. Petitioner's expert, Mr. Thomas L. Credelle, opines that "a person of ordinary skill in the art relevant to the '974 patent would have at least an undergraduate degree in physics, optics, electrical engineering, or applied mathematics AND 3 years of work experience (or a graduate degree) in a field related to optical technology." Ex. 1004 ¶ 25. Patent Owner's expert, Mr. Kenneth Werner, generally accepts this framework, but according to his formulation:

a person of ordinary skill in the art would hold an undergraduate degree in physics, material science, electrical engineering, or mathematics and have one or both of the following: (1) three or more years of work experience in a field related to optical technology; or (2) a graduate degree in a field related to optical technology.

Ex. 2006 ¶ 73. Our determination does not turn on the minor differences between these definitions. However, for the purpose of our analysis, we accept Mr. Werner's more inclusive formulation, with the addition of Mr. Credelle's identification of optics as a permissible undergraduate degree.

Additionally, we note that the prior art of record in this proceeding—namely, Kisou, Yagi, Furuya, and Niizuma—is indicative of the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

3. Discussion

Referring to its contention that claims 5, 10, and 11 are anticipated by Kisou, Petitioner argues that these claims are likewise obvious based on Kisou. Pet. 25. Petitioner again directs us to the discussion in the background of Kisou regarding application of a translucent diffuser sheet to the outside of the light-emitting surface, and further to the discussion in Kisou regarding an

embodiment in which the light diffusing layer (e.g., scatterer) is “a separate translucent diffuser sheet applied to the outside of the light-emitting surface.” Pet. 25–26 (citing Ex. 1006 ¶ 3). Relying on the testimony of Mr. Credelle, Petitioner reasons that a person of ordinary skill in the art would place the diffusion sheet on the outside of the light emitting surface “to improve the diffusing effect of a light guide that does not already have a diffuser layer formed on its surface.” *Id.* at 26 (citing Ex. 1004 ¶¶ 102, 104). Petitioner further asserts that the film disclosed by Kisou is a translucent diffuser sheet as required by claim 10. *Id.* (citing Ex. 1004 ¶ 103).

Patent Owner refers to its arguments for claims 5, 10 and 11, as discussed in Section III.B.4 *supra*, challenging the sufficiency of the disclosures of Kisou as to the film limitation (PO Resp. 17) that we found unavailing. In its Reply, Petitioner counters that Kisou explicitly discloses that it is known in the prior art to position the diffuser sheet to the inside of the light-emitting surface or the translucent diffuser sheet to the outside of the light-emitting surface. Pet. Reply 11–12. We agree. In discussing the prior art, we find that Kisou recognizes that one type of LCD backlight device is an edge-lit device, and that

[i]n edge-lit backlighting devices, the front surface of the light conductor is generally a light emitting surface, and the other surfaces (rear and sides) are reflective surfaces. In backlight devices of this sort, light from the light source is dispersed by the light conductor, and ultimately released from the light-emitting surface. For the sake of more efficient light diffusion, a diffuser layer (scatterer) may be provided to the inside of the light-emitting surface, or a translucent diffuser sheet may be applied to the outside of the light-emitting surface.

Ex. 1006 ¶ 3. We therefore determine that Kisou satisfies the film limitation. Specifically, the prior art discussion in Kisou concerning placing

a diffuser layer on the inside of the light-emitting surface or separate translucent diffuser sheet on the outside, and subsequent disclosure regarding a specific embodiment that included an external diffuser film applied to the outside of the light-emitting surface rather than an integral light diffuser layer. *See* Pet. 22, 24–25; Ex. 1006 ¶¶ 2, 3, 27, Fig. 8; Ex. 1004 ¶¶ 94, 99, 100, 102–104.

Patent Owner also challenges Petitioner’s proffered reasoning for replacing the integral light diffusing layer of Kisou with a separate film, i.e., “to improve the diffusing effect of a light guide that does not already have a diffuser layer formed on its surface.” (Pet. 25–26). PO. Resp. 15–17. Noting that the light diffusing layer of Kisou both “extracts light from the panel” and “diffuses the light to create a more uniform output,” Patent Owner argues that Kisou uses the light diffusing layer to simplify the structure, “by making a separate diffusing film unnecessary.” *Id.* at 16 (citing Ex 2006 ¶ 103).

Patent Owner’s arguments regarding Kisou’s desire for a simpler structure are not persuasive because they do not convincingly address why one skilled in the art would seek to improve the diffusing effect of a light guide that does not already have a diffuser layer formed on its surface by replacing the integral light diffusing layer of Kisou with a separate film. “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). *See also In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) (“[I]t is not necessary that the inventions of the

references be physically combinable to render obvious the invention under review.”); and *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”). Rather, “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR*, 550 U.S. at 417.

Patent Owner also argues that if the top surface of Kisou’s light conductor were smooth, thus requiring a separate light diffuser above it, “some portion of the light will not hit the surface at a sufficient angle to be refracted (i.e., emitted), and instead will reflect.” PO Resp. 16 (citing Ex. 2006 ¶ 104). Because some portion of the light would continue to reflect within the light conductor, efficiency would be reduced “in direct contradiction to what Kisou teaches.” *Id.* (citing Ex. 2006 ¶ 104). Patent Owner contends one of skill in the art would not add a separate diffusing layer above a smooth surface of the Kisou’s light conductor because “some of the light still would not be emitted and would not get the benefit of being diffused by the separate diffuser.” *Id.* at 17 (citing Ex. 2007 at 147:22–148:23. (“If it was smooth, light entering the conductor, not below the conductor, but entering the conductor would be trapped.”)).

Petitioner counters that in addition to the diffusion sheet causing light extraction, Kisou recognizes that the light reflected towards the light paths, “scatters and diffuses the light (for example light progressing downward and forward) in all directions including toward the light emitting surface of the light conductor 30” (Pet. Reply 12 (citing Ex. 1006 ¶ 27; Ex. 1026, 70:1–

13)) and concludes that “light that enters the light conductor at an angle that exceeds a condition for total internal reflection “TIR” would not be trapped” (*id.* (citing Ex. 2007, 148:20-23)). We agree with Petitioner that some of the light in Kisou would not be trapped, based on the disclosure in Kisou regarding “light progressing forward and light progressing obliquely downward and forward . . . light progressing into the light conductor 30 is scattered in all directions as it progresses inward.” Ex. 1006 ¶ 27. Patent Owner’s expert, Mr. Credelle confirms our understanding:

Q. What about light that is below the conductor and is reflected up; would any of that be trapped?

A. If it exceeds the TIR, it wouldn't be trapped. If it enters the light guide with a small angle, then it would be trapped.

Ex. 2007, 148:17–23.

Having considered the arguments and evidence presented during trial, we determine that, for the reasons set forth by Petitioner, the disclosure in Kisou regarding a translucent diffuser sheet applied to the outside of the light-emitting surface of Kisou satisfies the claim limitation “a film positioned near the light emitting surface of the panel member for changing the output ray angle distribution of the emitted light to fit a particular application.” Moreover, we are persuaded that Petitioner has proffered sufficient articulated reasoning with rational underpinning to support the legal conclusion of obviousness. *See* KSR, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)). Namely, we find, for the reasons stated by Petitioner, that Kisou explicitly discloses that it was known

in the prior art to position the diffuser layer to the inside of the light-emitting surface or the translucent diffuser sheet to the outside of the light-emitting surface (Pet. Reply 11–12 (citing Ex. 1006 ¶ 3))), and that a “person of ordinary skill in the art would be motivated to follow the teachings of Kisou to provide the diffusion sheet to the outside of the light emitting surface, for example, to improve the diffusing effect of a light guide that does not already have a diffuser layer formed on its surface” (*id.* at 12 (citing Pet. 25–26, which relies on Ex. 1004 ¶¶ 102, 104)).

4. Summary

Given the evidence before us, we are persuaded sufficiently by Petitioner’s arguments concerning the teachings of Kisou, and also by Petitioner’s proffered rationale for modifying the light guide of Kisou by applying the diffuser layer to the inside of the light-emitting surface or the translucent diffuser sheet to the outside of the light-emitting surface “to improve the diffusing effect of a light guide that does not already have a diffuser layer formed on its surface.” Accordingly, on the record before us, Petitioner has demonstrated, by a preponderance of the evidence, that claims 5, 10, and 11 are unpatentable as obvious based on Kisou.

D. Obviousness based on Kisou and Yagi

Next, Petitioner challenges the patentability of claims 3 and 4 of the ’974 patent under 35 U.S.C. § 103(a) as obvious based on Kisou and Yagi (Ex. 1008). Pet. 26–30. In support thereof, Petitioner provides a claim chart identifying the disclosure in Kisou and Yagi alleged to describe the subject matter in the challenged claims, and cites the Declaration of Mr. Credelle in support of the analysis advocated in the Petition. Patent Owner argues that

neither Kisou nor Yagi discloses the limitation of dependent claims 3 and 4, and challenges Petitioner's articulated reason to combine Kisou and Yagi. PO. Resp. 17–22.

Having further reviewed the parties' contentions and supporting evidence concerning the combination of Kisou with Yagi, we conclude that Petitioner has demonstrated, by a preponderance of the evidence that challenged claims 3 and 4 are obvious based on Kisou and Yagi.

1. Overview of Yagi (Exhibit 1008)

Yagi discloses a liquid crystal display having upper and lower transparent plates with a reflecting plate disposed beneath the lower transparent plate and a light source located alongside one side edge of the reflecting plate. Ex. 1008, Abstract. Yagi discloses that side reflecting plates 10, 11, 12 and bottom reflecting plate 13 can be constructed from one sheet or as separate parts. *Id.* at 2:41–46, Figure 2.

2. Discussion

Dependent claim 3 recites in relevant part that the “tray or housing provides a support for supporting and/or positioning a film near the panel member.” Ex. 1001, 9:31–33. Claim 4 depends from claim 3, and similar to claim 10, recites that “the film is at least one of a diffuser and a brightness enhancing film.” Ex. 1001, 9:34–35. Patent Owner addresses claims 3 and 4 together.

Petitioner contends that Kisou discloses an embodiment in which the function of light diffuser layer 32 is performed by a separate translucent diffuser sheet applied to the outside of the light-emitting surface. Pet. 26. Additionally, Petitioner contends that Kisou discloses that reflector 60 fits and holds the diffusion layer or translucent diffusion sheet applied to the

outside of the light-emitting surface of the light conductor. *Id.* at 27 (citing Ex. 1006 ¶ 27). Petitioner observes that “both the light conductor 30 and the diffusion sheet 32 rest on light reflecting surface 61 of reflector 60 and have their sides surrounded by the walls of reflector 60” to maintain and position the diffusion sheet with respect to the light conductor as shown in Figure 12. *Id.* (citing Ex. 1006 ¶ 29, Figure 12; Ex. 1004 ¶ 106. We are persuaded by Petitioner’s arguments for the reasons discussed *infra*.

We have considered Patent Owner’s responses with respect to the “film” element and do not find them persuasive. Patent Owner repeats its unsuccessful argument that Kisou does not disclose that light diffuser layer 32 is a separate translucent diffusion sheet. PO Resp. 18. For the reasons discussed in Section III.C.3 *supra*, Patent Owner’s arguments in this regard are not persuasive. We agree that Kisou discloses expressly that it was known in the prior art to position the diffuser layer to the inside of the light-emitting surface or the translucent diffuser sheet to the outside of the light-emitting surface. *See* Ex. 1006 ¶ 3.

Petitioner relies alternatively on the disclosure in Yagi regarding a support for “supporting and/or positioning a film near the light conductor 30 of Kisou.” Pet. 27. Specifically, Petitioner points to the disclosure in Yagi of reflecting plates 10, 11, and 12 that serve as end and side reflectors for transparent reflecting plate 7. *Id.* Petitioner asserts that it would have been obvious to a person of ordinary skill in the art to provide additional structures on Kisou’s reflector to support or position the film. *Id.* Noting that the side reflecting plates of Yagi have projections “to receive and hold a liquid display panel” (*id.* at 27–28 (citing Ex. 1008, 2:41–50)), Petitioner argues that a person of ordinary skill would have modified Kisou’s reflector

to include Yagi's projections to hold the diffuser sheet against the light conductor. *Id.* at 28. Specifically, Yagi helps to (1) contain the components of the backlight together as one piece (*Id.* (citing Ex. 1006 ¶ 16; Ex. 1004 ¶ 108)); and (2) reduce parts by consolidating the enveloping and holding function of the lamp holder into the reflector (*Id.* (citing Ex. 1006 ¶¶ 24, 30, Figs. 7, 8; Ex. 1004 ¶ 109)).

Patent Owner does not challenge Petitioner's assertion that reflecting plates 10, 11, and 12 disclosed in Yagi serve as end and side reflectors for transparent reflecting plate 7. PO Resp. 17–22. We agree that this limitation is satisfied by the disclosure in Yagi regarding a display panel having “side reflecting plates 10, 11, 12” (Ex. 1008, 2:41–42), and further that “[i]ncident light entering the side of the reflecting plate 7 is reflected by metallic film 7b, by each side reflecting plate 10, 11, and 12 and by the bottom reflecting plate 13” (*id.* at 2:56–58).

Relying on the testimony of its expert, Patent Owner argues further that because one of skill in the art would not substitute a separate diffuser sheet for the diffuser layer of the light conductor, “a person of skill would not modify the reflector of Kisou to hold a separate film, with structure disclosed by Yagi, because such a device would not achieve the uniform and enhanced brightness that Kisou intends.” PO Resp. 18 (citing ex. 2006 ¶ 111). Patent Owner concludes that the modified device teaches away from Kisou. *Id.* We are not persuaded by Patent Owner's argument that the proposed modification would have led one in a divergent direction and, thus, teaches away from the recited method. Showing that Kisou's brightness and intensity would not be optimal does not persuade us that a person of ordinary skill in the art would not pursue a separate diffuser sheet. Indeed, we find

that Kisou does not criticize, discredit, or otherwise discourage the use of a separate diffuser sheet instead of a diffuser layer. *See Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not “criticize, discredit, or otherwise discourage” investigation into the invention claimed.). Moreover, Patent Owner’s arguments are not convincing because they do not address directly Petitioner’s above-stated rationale for modifying Kisou’s reflector using Yagi’s projections. We agree with Petitioner’s argument and evidence that a person of ordinary skill in the art would hold the diffuser sheet against the light conductor, *i.e.*, “so that reflector 60 would function as a tray or housing that provides a support for supporting and/or positioning a film near the panel member.” (*Id.* at 29). *See* Pet. 26–29; Ex. 1004 ¶¶ 105–109; Ex. 1006 ¶¶ 16, 24, 27, 29, 30; Ex. 1008, 2:41–50, 2:56–65.

Patent Owner proffers additional arguments directed to why it believes Kisou and Yagi are not combinable. PO Resp. 18–22. Specifically, because (1) both address different problems in different ways (*id.* at 18–19); (2) the teaching of Kisou and Yagi were not considered as a whole (*id.* at 19–21); and (3) the object of Kisou is to have a slimmer profile, and Yagi’s projections would detract from this purpose (*id.* at 21). Patent Owner characterizes the proposed modification of Kisou using the components of Yagi as hindsight. *Id.* at 21–22.

Patent Owner’s arguments directed to the purpose of Kisou and Yagi are not persuasive. Both Kisou and Yagi are in the same field of endeavor, light emitting display panels. Ex. 1001, 18–22; Ex. 1008, 1:5–6. As noted by Petitioner and acknowledged by Patent Owner’s expert during cross-

examination, both share the goal of light output uniformity and thin devices. Pet. Reply 13 (citing Ex. 1026, 112:18–22; 41:3–11, 42:1–4, 40:25–41:2, 111:9–112:17). Patent Owner’s argument regarding Kisou’s desire for a thinner profile is likewise not persuasive because showing that the profile would not be optimal does not persuade us that a person of ordinary skill in the art would not pursue using Yagi’s reflecting plates to hold a diffusing sheet over Kisou’s light conductor. Nor does this argument inform us that the proposed modification “is beyond his or her skill.” *KSR*, 550 U.S. at 417.

Thus, Petitioner explains persuasively why one of skill in the art would have attempted to modify Kisou’s reflector using Yagi’s projections to support or position a film near a light conductor. Moreover, Petitioner explains, and we agree, that the advantage of the proposed modification allows reflector 60 to serve “as a tray or housing that provides a support for supporting and/or positioning a film near the panel member.” Pet. 29.

3. Summary

We find that Kisou discloses that it was known in the prior art to position the diffuser layer to the inside of the light-emitting surface or the translucent diffuser sheet to the outside of the light-emitting surface. See Ex. 1006 ¶ 3. We also find that the Yagi discloses reflecting plates that serve as end and side reflectors, and agree that in light of such disclosure, it would have been within the knowledge of one skilled in the art to provide additional structures on Kisou’s reflector to support or position the film. Based on a full review of the record and for the reasons discussed above, Petitioner has demonstrated, by a preponderance of the evidence that claims 3 and 4 are unpatentable as obvious based on Kisou and Yogi.

E. Obviousness based on Furuya and Niizuma

Petitioner challenges claims 1, 3–5, 7, 8, 10, and 11 as obvious under 35 U.S.C. § 103(a) based on Furuya and Niizuma. Pet. 31–54. In support thereof, Petitioner provided a claim chart identifying the disclosure in Furuya and Niizuma alleged to describe the subject matter in the challenged claims. Pet. 45–54. Petitioner again cites the Declaration of Mr. Credelle in support of the analysis advocated in the Petition. Patent Owner counters that the cited embodiments of Furuya are not combinable. PO. Resp. 22–30.

We have reviewed the parties’ contentions and supporting evidence. Given the evidence of record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that challenged claims 1, 3–5, 7, 8, 10, and 11 are obvious based on Furuya and Niizuma. A brief summary of the cited references follows, and then we address the parties’ contentions in turn.

1. Overview of Furuya (Ex. 1009)

The Furuya reference is an Unexamined Japanese Patent Application Publication, JP H6-214230, titled “Liquid Crystal Display Device,” and published on August 5, 1994. Ex. 1009 at [11], [54], and [43].

Furuya relates generally to “a liquid crystal display device in which a liquid crystal display board is backlit using a reflector plate or a light-guiding plate.” *Id.* at ¶ 1. Liquid crystal display device 11 includes case 12 having opening 13 for receiving the liquid crystal display board 10. *Id.* at ¶ 7. Transparent protection plate 14 is located inside opening 13 to protect liquid crystal display board. Flat panel light emitter 16 is housed in the case and backlights the liquid crystal display board, and includes reflection plate 24 behind the liquid crystal display board. *Id.* at ¶¶ 7, 9. Light diffusing

plate 25 is disposed between the liquid crystal display board and reflector plate. *Id.* at ¶ 9. Figure 3, reproduced below, is illustrative of one embodiment of the device with reflector plate 24.

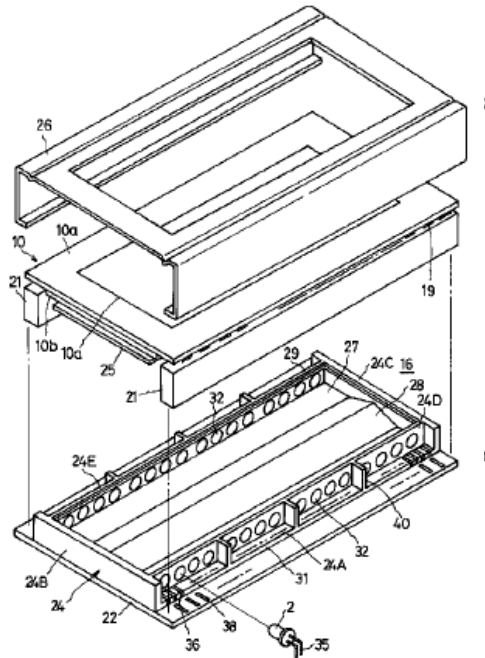
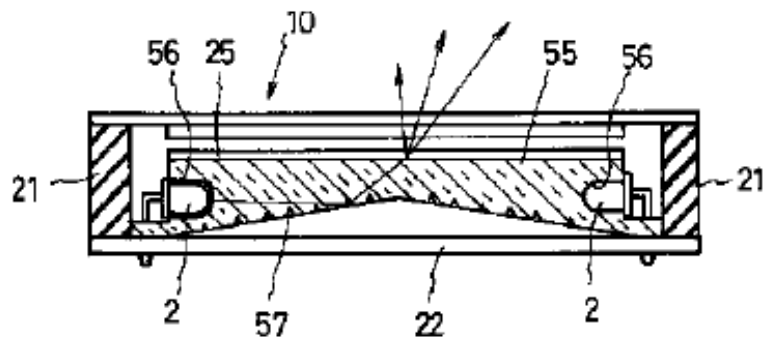


Figure 8, reproduced below, is illustrative of another embodiment that instead uses light guide plate 55.

【図 8】



2. Overview of Niizuma (Ex. 1007)

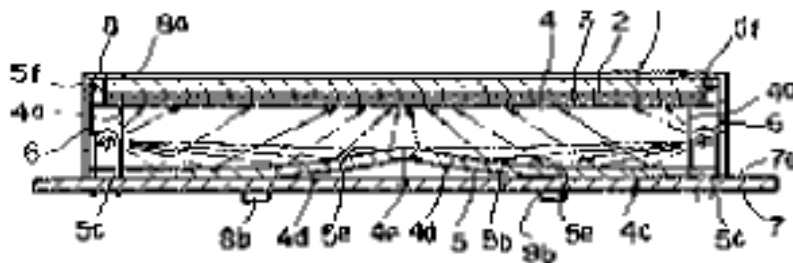
The Niizuma reference is a Japanese Utility Model Publication, JP H5-45651, titled “Liquid Crystal Display Device,” and published on June 18, 1993. Ex. 1007 at [12], [54], and [43].

Niizuma relates generally to a liquid crystal display device. *Id.* [57]. Niizuma discloses that

The back surface (4c) of a light conductor (4) is provided with a pair of sloped surfaces (4d, 4d) which slope from both ends towards the middle, and a ridge (4e) is formed where this pair of sloped surfaces (4d, 4d) intersect. This light conductor (4) is inserted and locked into the recess (5a) of a holder (5), and an LCD (1) is attached to the front of the light conductor (4). The four corners of the holder [995]] are provided with extruding pieces (5f), and these extruding pieces (5f) control the movement of the LCD (1) in the direction of both ends.

Id. Figure 3, reproduced below, is representative.

Figure 3



toward the back of the LCD board. Pet. 31 (citing Ex. 1009 ¶ 7, Figs. 1–4). Petitioner also relies on the disclosure of a second embodiment of Furuya illustrated in Figure 8, of light guide plate 55 that emits light toward LCD board 10. *Id.* at 31–32 (citing Ex. 1009 ¶ 18, Fig. 8). Petitioner asserts that Furuya’s reflector plate 24 forms a cavity or recess and is attached to circuit board 22, such that “the reflector plate 24 and attached circuit board 22 function together as a tray.” *Id.* at 32 (citing Ex. 1004 ¶ 118).

Recognizing that Furuya does not explicitly disclose that locating light guiding plate 55 in reflector plate 24 will cause uniform light to be emitted towards the surface of liquid crystal display board 10 (*Id.* at 33 (citing Ex. 1004 ¶ 120)), Petitioner asserts that “it was known in the art to place a light guiding plate in a reflective tray of a flat panel light emitter” (*id.* (citing Ex. 1004 ¶ 121)). Niizuma, according to Petitioner, discloses fitting a specially shaped light conductor in a reflector holder and that the light conductor in the holder will emit a uniform light toward a liquid crystal display. *Id.* at 33 (citing Ex. 1007 ¶¶ 17, 21). Relying on the testimony of Mr. Credelle, Petitioner contends “a person of ordinary skill in the art would have been motivated to follow the express teachings of Niizuma, to place the V-shaped light-guiding plate 55 of Furuya in the V-shaped reflector plate 24 of Furuya to obtain the claimed ‘tray or housing having a cavity or recess in which the panel member is entirely received.’” *Id.* (citing Ex. 1004, ¶¶ 121–122).

Patent Owner does not dispute the sufficiency of Petitioner’s proofs regarding the manner in which the asserted prior art teaches the elements of the claims against which the prior art is asserted. On this record, based on the evidence cited in the Petition, we find that Petitioner has presented

sufficient evidence (Pet. 31–38, 42–54) to support a finding that the limitations presented in the challenged claims are disclosed by the cited references. Specifically, we find persuasive the disclosure in Furuya of (1) a light emitting assembly having a reflector that directs light from the LED light source toward the back of the LCD board (Ex. 1009 ¶ 7, Fig. 1); and (2) light guide plate 55 that emits light toward LCD board 10 (*id.* at ¶ 18, Fig. 8). Likewise, we find persuasive the disclosure in Furuya concerning placing a specially shaped light conductor in a reflector holder and that the light conductor emits a uniform light toward a liquid crystal display. Ex. 1007 ¶¶ 17, 21.

Petitioner proffers several reasons why one of skill in the art would have been motivated by the express teachings of Niizuma to place the light guide plate disclosed in the first embodiment of Furuya in the reflector plate disclosed in another embodiment. Pet. 38 (citing Ex. 1004 ¶134). Taking the position that Niizuma demonstrates it was known to place a light guide reflector in a reflective case, Petitioner asserts that “placing the light guiding plate 55 of Furuya in the reflector plate 24 of Furuya would have been a simple combination of known elements according to known methods to yield a predictable result.” *Id.* (citing Ex. 1004, ¶135). Petitioner supports this reasoning by expressing that

a person of ordinary skill in the art would have been motivated to improve the flat-panel-type light emitter 16 of Furuya by adding a reflector plate 24 at the back of the light guiding plate 55 of Furuya to increase the amount of light reflected back toward the liquid crystal display board and limit the amount of light loss at the back of the light guiding plate 55.

Id. at 38–39.

Because it was known that using the light-guiding plate alone could cause efficiency issues, Petitioner contends that the skilled artisan would improve efficiency of the light emitting device by following the solution provided by Niizuma, *i.e.*, “placing a specially shaped light guide in a correspondingly shaped reflector.” *Id.* at 39 (citing Ex. 1004 ¶¶ 136–137). We have considered Petitioner’s arguments and reasoning and adopt them for the following reasons: (1) Furuya’s reflector plate 24 forms a cavity or recess and when attached to circuit board 22, both “function together as a tray” (Ex. 1004 ¶ 118); (2) Niizuma fits a light conductor in a reflector holder so that the light conductor emits a uniform light toward a liquid crystal display (Ex. 1007 ¶¶ 17, 21); and (3) that the proposed combination of known elements for their known purpose would achieve a predictable result, *i.e.*, to improve efficiency of the light emitting device (Ex. 1004 ¶¶ 136–138; Ex. 1007 ¶ 20).

We have also considered Patent Owner’s response and do not find them persuasive. After pointing out the differences between the relied upon embodiments of Furuya, Patent Owner disputes that one of skill in the art would combine the first embodiment utilizing light-guiding plate 55 with the second embodiment that includes a lightbox and reflector 24, because these embodiments are described by Furuya “as alternatives to one another.” PO Resp. 25 (citing Ex. 2006 ¶ 123). Patent Owner’s arguments directed to the differences between the two embodiments of Furuya are not persuasive. Essentially, Patent Owner is asserting that one of ordinary skill, in reading Furuya, would not look beyond the teachings of each particular embodiment. *KSR* states “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR* at 421. Patent Owner’s inflexible

approach to Furuya is more akin to that of an automaton, than to one of ordinary creativity. Furthermore, *KSR* explains explicitly that the ordinarily skilled artisan recognizes “that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *KSR* at 420. We agree with Petitioner that one skilled in the art would have recognized the benefit of improving Furuya’s flat-panel-type light emitter 16 by adding a reflector plate 24 at the back of the light guiding plate 55 “to increase the amount of light reflected back toward the liquid crystal display board and limit the amount of light loss at the back of the light guiding plate 55. Pet. 38–39.

Patent Owner also argues that adding a reflector plate 24 from one embodiment to the back of the light guiding plate 55 from another embodiment would be disfavored due to the additional cost of adding another component. *Id.* at 25–26 (citing Ex. 2006 ¶ 123). This argument is not persuasive because the possibility that the proposed combination may add additional cost, does not mean necessarily that the result of such combination would not have been obvious to one of skill in the art. *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000) (“The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.”)

Additionally, Patent Owner does not view the proposed combination as “simple,” and maintains that the result of the proposed combination is not predictable. *Id.* (citing Ex. 2006 ¶ 125). We find that the alleged lack of

simplicity would not deter a person of ordinary skill in the art to pursue the proposed modification based on different embodiments disclosed by Furuya. As *Winner Int’l Royalty Corp.* counsels, the benefit of adding the reflector plate to increase reflected light is a motivating benefit even if there is a cost or added complexity in the design. Petitioner supports its reasoning with the disclosure in Niizuma that placement of the light guide plate in the reflector plate was known in the art. See *KSR*, 550 U.S. at 416 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Patent Owner also challenges whether Furuya and Niizuma are even combinable, asserting that the disclosed devices are incompatible. PO Resp. 27. Specifically, Patent Owner argues that Furuya teaches away from using light sources along the short ends of the display because (1) Furuya places LEDs along a long edge to achieve uniform luminance; (2) Niizuma positions light sources along the shorter side of the display; and (3) Niizuma is “highly non-uniform by design.” *Id.* at 27–29. Patent Owner concludes that Petitioner relied on hindsight to combine these prior art references. *Id.* at 30.

As to Patent Owner’s teaching away argument, Patent Owner has not pointed to anything in Furuya that criticizes, discredits, or otherwise discourages the proposed combination. See *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (A reference does not teach away by merely disclosing an alternative invention without criticizing, discrediting, or otherwise discouraging investigation into the claimed invention.). Petitioner, on the other hand, explains persuasively how the disclosure in the references supports the proposed combination. Instead, we are persuaded by

Petitioner's explanations of how the LEDs remain on the longer side of the display in the proposed combination. Pet. Reply 18 (citing Pet. 32–33). Petitioner notes that irrespective of which side the LEDs are positioned against, the reflector plate and reflective holder still reflect light towards the LCD. *Id.* (citing Pet. 48; Ex. 1009 ¶10; Pet 47, Ex. 1007 ¶ 20. Petitioner points out, and we agree, that Niizuma seeks to eliminate light and dark states on the display and uniformly illuminate the back of the LCD. *Id.* at 19 (citing Ex. 1007 ¶ 3, 7, 27; Pet. 39; Ex. 1026, 144:17–25.

We are therefore persuaded by Petitioner's arguments and evidence that it would have been obvious to place the light guide plate disclosed in the first embodiment of Furuya in the reflector plate disclosed in another embodiment, in light of the disclosure in Niizuma demonstrating that it was known to place a light guide reflector in a reflective case. As such, Petitioner argues persuasively that the proposed combination represents combining known elements for their known purpose to achieve a predictable result, *i.e.*, to improve efficiency of the light emitting device.

4. Summary

After considering Petitioner's and Patent Owner's positions, as well as their supporting evidence we determine that, by a preponderance of the evidence, Petitioner has shown that claims 1, 3–5, 7, 8, 10, and 11 would have been obvious based on Furuya and Niizuma .

F. Statutory Time Bar -- 35 U.S.C. § 315(b)

Referring to its unsuccessful contention from the Preliminary Response that the Petition fails to name LG, a supplier to Petitioner, as a real party in interest, Patent Owner again argues that the Petition should be denied under the one year time-bar of 35 U.S.C. § 315(b). PO Resp. 30–32.

The Petition, in Patent Owner's view, was filed by Petitioner "at LG's behest." PO Resp. 2. In particular, Patent Owner contends:

Petitioner is a supplier to LG (who indisputably is time-barred) and is represented by the same counsel that represents LG both before the PTAB and in the District of Delaware regarding the same patents, and LG and its counsel used this and two other IPR petitions by Petitioner as the basis for their motion to stay the district court proceedings (which was denied).

Id. at 30. The Board previously determined that this showing was insufficient. Dec. on Inst. 24–25. Pointing to "recent events," Patent Owner requests reconsideration of that decision. PO Resp. 30. Namely, after institution of review in this proceeding, LG renewed its motion to stay in the District of Delaware. *Id.* (citing Ex. 2009). In arguing that motion, which was denied, LG's counsel stated "we'll have one patent that completely – and I'm presuming that we win the IPRs – that KJ Pretech wins the IPRs," and the court said "I think the 'we' was right." *Id.* at 31 (citing Hr'g Tr. at 9:11–14 (C.A. 13-2109-RGA, D.I. 348, D. Del. June 2, 2016)).

We are not persuaded by this argument. First, the hearing transcript referred to by Patent Owner has not been entered as evidence in this proceeding. Thus, we have no basis to evaluate the context in which this statement was made. Our position from the Decision on Institution stands uncontroverted, namely, that "Patent Owner has provided insufficient evidence of control of this proceeding by LG." Dec. on Inst. 24. That Petitioner used the pronoun "we" during oral argument in another proceeding is not, by itself, evidence "that Petitioner is acting at LG's behest in this proceeding." PO Resp. 31.

We, therefore, determine that the Petition should not be denied on this basis.

IV. CONCLUSION

For the foregoing reasons, we determine Petitioner has established, by a preponderance of the evidence, that claims 1, 3–5, 7, 8, 10, and 11 of the '974 patent under unpatentable.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 3–5, 7, 8, 10, and 11 of the '974 patent are held to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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PETITIONER:

Robert G. Pluta
Amanda K. Streff
Baldine B. Paul
Anita Y. Lam
Saqib J. Siddiqui
MAYER BROWN LLP

rpluta@mayerbrown.com
astreff@mayerbrown.com
bpaul@mayerbrown.com
alam@mayerbrown.com
ssiddiqui@mayerbrown.com

PATENT OWNER:

Justin B. Kimble
Jeffrey R. Bragalone
Terry A. Saad
Nicholas C. Kliewer
T. William Kennedy
BRAGALONE CONROY P.C.

JKimble-IPR@bcpc-law.com
jbragalone@bcpc-law.com
nkliewer@bcpc-law.com
tsaad@bcpc-law.com
bkennedy@bcpc-law.com