Trials@uspto.gov
571-272-7822

Paper 26
Entered: June 23, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG DISPLAY CO., LTD.,
Petitioner,

v.

DELAWARE DISPLAY GROUP LLC,
Patent Owner.

Case IPR2015-00506[1]
Patent 7,434,973 B2

Before THOMAS L. GIANNETTI, BEVERLY M. BUNTING, and MICHELLE N. WORMMEESTER, *Administrative Patent Judges.*

WORMMEESTER, *Administrative Patent Judge.*

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

---

[1] Case IPR2015-01666 has been joined with this proceeding.

I. BACKGROUND

LG Display Co., Ltd. filed a Petition seeking *inter partes* review of claims 1–5 of U.S. Patent No. 7,434,973 B2 (Ex. 1001, "the '973 patent"). Paper 1 ("Pet."). Delaware Display Group LLC ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). Pursuant to § 314(a), we instituted an *inter partes* review of all challenged claims 1–5 on one ground of unpatentability. Paper 8 ("Dec. on Inst."). Patent Owner filed a Patent Owner Response (Paper 17, "PO Response"), and LG Display Co., Ltd. filed a Reply (Paper 20, "Reply").

Following institution, LG Electronics, Inc. filed timely a Petition and Motion for Joinder in Case IPR2015-01666, challenging the same claims of the '973 patent on the same ground as that on which we instituted review in this proceeding, plus one additional ground. *See* Paper 24, 2. LG Electronics, Inc. agreed to abandon the additional ground should IPR2015-01666 be joined with this proceeding. *See id.* at 2 n.1. To administer the proceedings more efficiently, we granted LG Electronics, Inc.'s Motion for Joinder, joining Case IPR2015-01666 with the instant proceeding. *Id.* at 5. For purposes of this Decision, we refer to LG Display Co., Ltd. and LG Electronics, Inc., jointly, as "Petitioner."

An oral hearing was held on March 1, 2016, and a copy of the transcript is included in the record (Paper 25, "Tr.").

We have jurisdiction under 35 U.S.C. §6(c). This final written decision is issued 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 '973 patent.

For the reasons that follow, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–5 of the ’973 patent are unpatentable.

A. Related Proceedings

Patent Owner states that it has asserted infringement of the ’973 patent in the following proceeding: *Delaware Display Group LLC v. Lenovo Holding Co.*, Case No. 1:13-cv-02108 (D. Del., filed Dec. 31, 2013). Paper 4, 2.

B. The ’973 Patent

The ’973 patent is titled “Light Emitting Panel Assemblies.” The Abstract describes the subject matter as follows:

> Light emitting panel assemblies include a light emitting panel member having at least one light source optically coupled to a portion of an input edge of the panel member. A plurality of individual light extracting deformities on or in at least one panel surface of the panel member are of well defined shape and have a length and width substantially smaller than the length and width of the panel surface. At least some of the deformities have at least one surface that is angled at different orientations relative to the input edge depending on the location of the deformities on the panel surface to face a portion of the input edge to which a light source is optically coupled.

Ex. 1001, at [57].

C. Illustrative Claim

Independent claim 1 of the ’973 patent recites:

> 1. A light emitting panel assembly comprising
>
> a light emitting panel member having at least one input edge,
>
> a plurality of light sources optically coupled to different portions of the width of the input edge, and
>
> a pattern of individual light extracting deformities associated with respective light sources,
>
> wherein the deformities are projections or depressions on or in at least one surface of the panel member for producing a desired light output from the panel member,
>
> wherein each of the deformities has a length and width substantially smaller than the length and width of the panel surface,
>
> wherein the deformities that are in close proximity to the input edge increase in density, size, depth and/or height as the distance of the deformities from the respective light sources increases across the width of the panel member, and
>
> wherein the density, size, depth and/or height of the deformities in close proximity to the input edge is greatest at approximate midpoints between adjacent pairs of the light sources.

D. Claim Construction

Patent Owner asserts that the ’973 patent has expired and that we should use the claim construction standard of the district courts, specifically the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). PO Resp. 21; Tr. 16:17–19. Petitioner contends that the ’973 patent has not expired and that “regardless of the claim construction standard that is applied, the constructions put forth by Petitioner should not change.” Reply 1. For the reasons that follow, we

need not decide, for purposes of this Decision, whether the ’973 patent has expired.

1. “deformities”

In our Decision on Institution, we adopted Petitioner’s proposed construction of the term “deformities”: “any change in the shape or geometry of a surface and/or coating or surface treatment that causes a portion of the light to be emitted.” Dec. on Inst. 4. Petitioner asserts that its proposed construction is based on the “express definition” of the term provided in the ’973 patent. Pet. 6. Patent Owner does not oppose that construction. PO Resp. 24. Like Petitioner, Patent Owner also does not specify how our construction of “deformities” would be different under the standard for expired patents. Nor do we discern the construction of the term to be different under the two standards. Indeed, both parties point out in their submissions that our construction reflects “an agreed upon construction entered by the district court in a related proceeding.” Reply 2; *see* PO Resp. 24 (“Patent Owner’s proposed definition is the same as the Board’s construction in the institution decision. Patent Owner notifies the Board that the district court in [related cases] has enter[ed] an agreed construction of ‘deformities’ from patents related to this patent that mimics the construction offered here.”).

The parties agree that a claim construction under either a *Phillips* interpretation or a broadest reasonable interpretation would not impact the scope of the claim. *See* Pet. 5–6; PO Resp. 24; *see also* Prelim. Resp. 2–3 (“the district court in [a related case] has ruled on constructions of terms that appear in this patent . . . , including entering an agreed construction of

'deformities,' which Petitioner adopts in its Petition."). In view of the record developed during trial, we confirm that the construction of "deformities" agreed to by the parties is the correct construction, namely, "any change in the shape or geometry of a surface and/or coating or surface treatment that causes a portion of the light to be emitted." Dec. on Inst. 4. Moreover, we are not persuaded by Patent Owner's argument that the Petition "fails on its face" for failure to construe the claims properly.

2. "each of the deformities has a length and width substantially smaller than the length and width of the panel surface"

Claim 1 of the '973 patent recites, in relevant part, "each of the deformities has a length and width substantially smaller than the length and width of the panel surface." In its Patent Owner Response, Patent Owner proposed the following construction for this claim term:

> each of the deformities has a length and width such that the pattern is nearly invisible to the human eye when incorporated into its application, e.g., a print pattern of deformities with 0.006 square inch per deformity/element or less, or a print pattern of deformities with 60 lines per inch or finer.

PO Resp. 23.

Patent Owner repeats its unsuccessful argument that, "[w]ithout offering a construction for this term, the Petitioner has failed to meet the burden of 37 C.F.R. § 42.104(b)(3)." *Id.* Petitioner responds that this term (1) does not require construction; (2) is limited to a specific embodiment in the specification; (3) and imports a limitation from the specification into the claims. Reply 3–4. Having considered the full record developed during trial, we agree with Petitioner that this term does not require construction. *See, e.g., Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed.

Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Patent Owner's arguments distinguishing the prior art do not rely on a particular construction for this term. *See infra*.

E. References

Petitioner relies on the following reference: Shinohara, US 6,167,182, issued December 26, 2000 (Ex. 1010). Petitioner also relies on a Declaration of Michael J. Escuti, Ph.D. (Ex. 1004, "Escuti Decl.").

Patent Owner's Response (Paper 17) is accompanied by a Declaration of Mr. Kenneth Werner (Ex. 2010, "Werner Decl.").

Deposition transcripts for the witnesses have been entered in the record as Exhibits 1040 ("Werner Dep.") and 2007 ("Escuti Dep.").

F. Ground of Unpatentability

We instituted trial on one ground of unpatentability: anticipation of claims 1–5 by Shinohara.

II. ANALYSIS

A. Effective Filing Date for Claims 1–5

As a preliminary matter, we first consider Patent Owner's contention that the '973 patent is entitled to an effective filing date of June 27, 1995. PO Resp. 25. If this contention were to succeed, the Shinohara reference, which has an effective date of October 27, 1997, would not qualify as prior art. *See Res. Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 870 (Fed.

Cir. 2010) ("patentee must show that the prior art . . . is not prior art because the asserted claim is entitled to the benefit of an earlier filing date").

Through a chain of continuing applications, the application for the '973 patent claims the benefit under 35 U.S.C. § 120 of U.S. Patent Application No. 08/495,176 ("the '176 grandparent application"), which has a filing date of June 27, 1995. *Id.* at [60]; Ex. 1002, 89. In our Decision on Institution, we determined that the challenged claims of the '973 patent are not entitled to the benefit of the June 27, 1995 filing date of the '176 grandparent application because that application does not disclose at least the following disputed limitation recited in the challenged claims: "wherein the density, size, depth and/or height of the deformities in close proximity to the input edge is greatest at approximate midpoints between adjacent pairs of the light sources." Dec. on Inst. 8–10. For purposes of the Decision on Institution, we thus determined that Patent Owner is instead entitled only to the filing date of the application for the '973 patent, February 9, 2007. *Id.* Accordingly, we considered Shinohara as prior art. *See id.* at 12–17.

In its Patent Owner Response, Patent Owner maintains its position that the '176 grandparent application provides sufficient written description support for the challenged claims of the '973 patent. PO Resp. 27. In particular, Patent Owner argues that the '176 grandparent application discloses five elements that support the disputed limitation: (1) placing multiple light sources along an edge of the panel; (2) placing deformities in areas of the panel as desired; (3) increasing the density and/or size of deformities in areas of the panel where greater light output is desired; (4) increasing the density of deformities in areas of the panel as the distance from the light source increases; and (5) varying the deformities on the panel

to control light output. PO Resp. 27–32; Tr. 34:1–22. According to Patent Owner, these disclosure elements "necessarily taught the [disputed] limitation" because "[t]he '176 grandparent application discloses deformities placed anywhere on the panel as desired, which includes in close proximity to an input edge," and "[o]ne of ordinary skill reading the '176 grandparent application would know that, along the input edge, the approximate midpoint between the two light sources is an area farther away from a light source, and thus is an area of the input edge in which the light would be less plentiful." PO Resp. 28, 33.

In response, Petitioner argues that "[a]ll Patent Owner attempts to show is that the challenged limitations would have been obvious over the disclosure, not that the challenged limitations are expressly disclosed or necessarily present." Reply 6. In support of its argument, Petitioner relies on Mr. Werner's testimony regarding the disclosure of element (4) discussed above, which relates to increasing the density of deformities in areas of the panel as the distance from the light source increases. *Id.* at 11 (citing Ex. 1040, 115:2–116:25). Petitioner points out that Mr. Werner testified that "the increased distance from the light source is not limited to a distance along the length of the panel member, along the width of the panel member, or along any direction at all." *Id.* Given this testimony, Petitioner contends that the "the disclosure in the ['176 grandparent application] does not show that the density, size, depth and/or height of the deformities in close proximity to the input edge is **greatest at approximate midpoints between adjacent pairs of light sources** is *necessarily present*." *Id.* at 11–12. Moreover, Petitioner contends, the '176 grandparent application does not

even mention deformities, or the need for deformities, when discussing panels with multiple light sources. Tr. 42:24–44:11.

We agree with Petitioner that, for the reasons given, the disclosure of the ’176 grandparent application is insufficient. “Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed.” *Lockwood v. Am. Airlines Inc.*, 107 F.3d 1565, 1571–72 (Fed. Cir. 1997); *see also* Reply 5–6. We find that the cited disclosures in the ’176 grandparent application do not describe the density, size, depth, or height of the deformities *at approximate midpoints between adjacent pairs of light sources*. As discussed above, Patent Owner maintains that a skilled artisan reading the ’176 grandparent application would know that “the approximate midpoint between the two light sources is *an* area farther away from a light source.” PO Resp. 28 (emphasis added). We are not persuaded by this argument, for it does not establish that the approximate midpoint between adjacent pairs of light sources is the only area farther away from a light source. As Petitioner points out, “the increased distance from the light source is not limited to a distance along the length of the panel member, along the width of the panel member, or along any direction at all.” Reply 11. Thus, Patent Owner fails to meet its burden under *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1379–80 (Fed. Cir. 2015) (burden of production shifted to patent owner to prove entitlement to earlier filing date).

We note Patent Owner’s reliance on the testimony of Mr. Werner, and further argument that the “‘minutiae of descriptions or procedures perfectly obvious to one of ordinary skill in the art yet unfamiliar to laymen need not be set forth.’” PO Resp. 26–27, 34 (quoting *Hyatt v. Boone*, 146 F.3d 1348,

1353 (Fed. Cir. 1998)), 27–34 (citing Ex. 2010 ¶¶ 72–82). We are not persuaded by this argument and supporting testimony, however, for the *Hyatt* court explained that "when an explicit limitation . . . is not present in the written description whose benefit is sought it must be shown that a person of ordinary skill would have understood, at the time the patent application was filed, that the description *requires* that limitation." *Hyatt*, 146 F.3d at 1353 (emphasis added). Based on the record before us, including the arguments presented by Petitioner, we are not persuaded that the '176 grandparent application *requires* all the recited features of the disputed limitation.

In view of the foregoing, we determine that Patent Owner has not demonstrated that the '176 grandparent application, as originally filed, provides written description support for the disputed limitation. Therefore, we determine that claims 1–5 are not entitled to the benefit of the filing date of the '176 grandparent application and Patent Owner is thus entitled only to the effective filing date of the application for the '973 patent, February 9, 2007. As a consequence, we find that Shinohara qualifies as prior art.

B. Anticipation by Shinohara

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) (quoting *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)). We analyze this ground based on anticipation in accordance with the above-stated principles.

Petitioner argues that Shinohara anticipates claims 1–5 of the ’973 patent. Pet. 29–38. We have reviewed the Petition, the Patent Owner Response, and Reply, as well as relevant evidence discussed in each of those papers. Based on our review, we are persuaded that Petitioner has established, by a preponderance of the evidence, that Shinohara anticipates claims 1–5.

1. Shinohara

Shinohara describes a surface light source device with a plurality of point light sources spaced apart along an optical guide plate. Ex. 1010, Fig. 27. Figure 27 of Shinohara is reproduced below.

Fig. 27

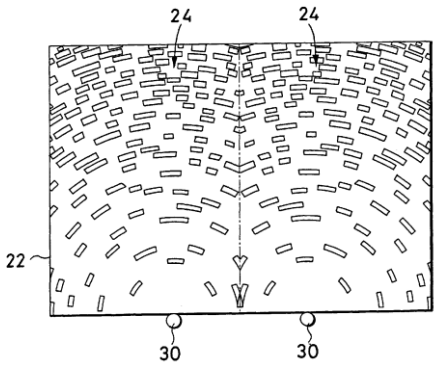


Figure 27 shows an optical guide plate 22 in a surface light source device. *Id.* at 11:23–25. The optical guide plate 22 is divided into areas corresponding to point light sources 30. *Id.* at 20:1–4. Each area includes a diffuse pattern 24. *Id.* Each diffuse pattern 24 includes diffuse pattern elements 24a that are arranged concentrically around the point light source

30. *Id.* at 13:41–43. A diffuse pattern element 24a may be a recess formed on the lower surface of the optical guide plate 22. *See id.*, Fig. 10. The density of the diffuse pattern elements 24a increases as the distance from the point light source 30 increases. *Id.* at 13:47–49, 20:9–11. Thus, "the luminance distribution is uniform with respect to the corresponding point light source 30, and the luminance of the surface light source device is increased." *Id.* at 20:6–8.

2. Analysis

Petitioner contends that Shinohara discloses every element of claim 1. Pet. 29–38. In support of its contention, Petitioner provides detailed claim charts and expert testimony through the Escuti Declaration. *See id.* For the most part, Patent Owner does not dispute Petitioner's analysis of claim 1 in relation to Shinohara. *See* Paper 9, 3 ("The patent owner is cautioned that any arguments for patentability not raised in the response will be deemed waived."). We therefore focus our discussion on the disputed elements of the claim.

a. "the density, size, depth and/or height of the deformities in close proximity to the input edge is greatest at approximate midpoints between adjacent pairs of the light sources"

Claim 1 recites "the density, size, depth and/or height of the deformities in close proximity to the input edge is greatest at approximate midpoints between adjacent pairs of the light sources." For this disputed limitation, Petitioner directs us to Shinohara's equation (2) that represents the density of pattern elements (i.e., deformities) as a function of the radial distance "r" from a light source. Pet. 35–36; Reply 16 (citing Ex. 1010,

18:27–37). Equation (2) follows: $\rho=Q/S=2\cdot(R^2-r^2)$. Shinohara explains that, in accordance with equation (2), "[t]he density of the diffuse pattern elements is zero at the position of the point light source 30, while linearly increasing with the distance r in the vicinity of the point light source 30." Ex. 1010, 18:32–35. Referring to Figure 27 (reproduced *supra*), Shinohara further explains:

> When the plurality of point light sources 30 are arranged so as to be spaced apart from each other, an optical guide plate 22 may be divided for each of the point light sources 30, to respectively design diffuse patterns 24 such that for each of areas obtained by the division, the luminance distribution is uniform with respect to the corresponding point light source 30, and the luminance of the surface light source device is increased, that is, the equation (2) is satisfied. Particularly, it is desirable that the density of the diffuse pattern 24 is zero in the vicinity of each of the point light sources 30.

Id. at 20:1–11 (cited at Pet. 35–36; Reply 17).

Petitioner contends that equation (2) in conjunction with Figure 27 and the other disclosures in Shinohara meets the density distribution limitations of the challenged claims. Reply 16–18; *see* Pet. 35–36. Petitioner explains that "[b]ecause the density distribution in each of the areas . . . satisfies equation (2), the diffuse pattern 24 in each of the areas also has a density of zero at the light source (*i.e.*, smaller density near light source) and increasing linearly with the radial distance "r" in the vicinity of the light source." Reply 17; *see* Pet. 35–36. Petitioner also points out that "[b]ecause the density increases in each of the respective areas as the radial distance from the light source increases, it will be maximum at the boundaries between the adjacent areas, that is at the midpoint between adjacent light sources." Reply 17; *see also* Pet. 35–36 (citing Ex. 1010,

18:32–35, 20:1–11, Fig. 27; Ex. 1004 ¶¶ 132–133). Thus, Petitioner concludes, Figure 27 of Shinohara discloses the disputed limitation. Reply 17–18; *see* Pet. 35–36.

Patent Owner makes four arguments in response. First, Patent Owner argues that Shinohara does not disclose "the part of the limitation that requires the deformities to be in 'close proximity' to the input edge." PO Resp. 45. Patent Owner refers to Petitioner's annotated version of Figure 27 of Shinohara, which is reproduced below. *See id.*

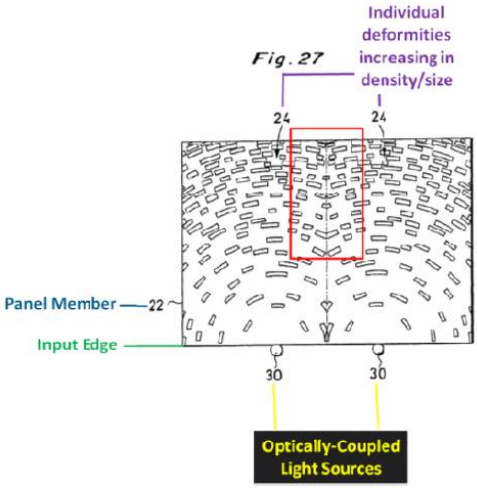
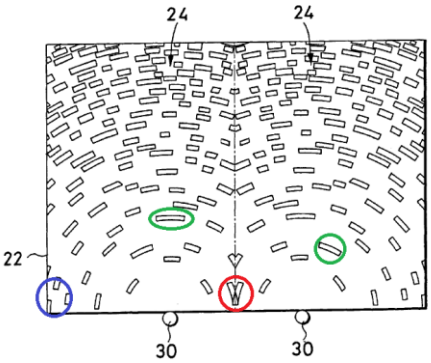


Figure 27 of Shinohara shows a diffuse pattern on an optical guide plate. Ex. 1010, 11:23–25. According to Patent Owner, "Petitioner is focusing on a midpoint that is not in close proximity to the input edge" because "[t]he red box added by Petitioner is at an area not in close proximity to the input edge." PO Resp. 45. Moreover, Patent Owner contends, "Shinohara shows other deformities in close proximity to the input edge that are greater in density and size than the deformities at the approximate midpoint between light sources 30 at the input edge." *Id.* at 46. To illustrate this point, Patent Owner refers to its annotated version of Figure 27 of Shinohara, which is reproduced below. *Id.*

Fig. 27



As discussed above, Figure 27 of Shinohara shows a diffuse pattern on an optical guide plate. Ex. 1010, 11:23–25. Patent Owner explains that the red circle represents the midpoint between the two light sources 30, the blue circle represents a point where the density of elements is greater than the density of elements at the midpoint, and the green circle represents a point where the elements are larger than the elements at the midpoint. PO Resp. 46.

In response, Petitioner points out that Shinohara describes the density of the pattern elements (i.e., deformities) as being "zero at the position of the point light source 30, while linearly increasing with the distance r in the vicinity of the point light source 30." *See* Reply 18 (citing Ex. 1010, 18:33–35). Petitioner contends that this description in Shinohara satisfies the "close proximity" feature because "the variation in density in Fig. 9 and Fig. 27 expressly applies to 'the vicinity of the point light source.'" *Id.*

We find Petitioner's arguments to be persuasive on this issue. Figures 9 and 27 of Shinohara are reproduced below.

Fig. 9

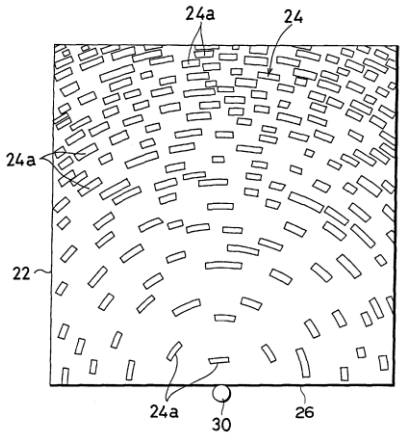
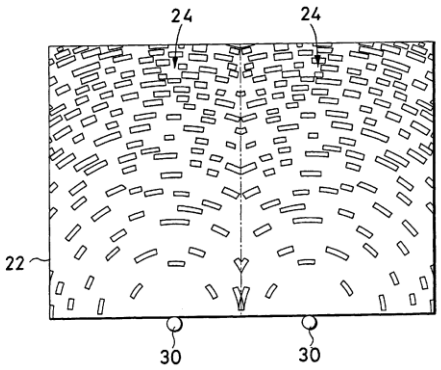


Fig. 27



Each of these figures shows a diffuse pattern formed on an optical guide plate in a surface light source device. Ex. 1010, 10:41–42, 11:23–25. The point light sources 30 are located along a light incidence surface 26. *Id.*, Figs. 9, 27. Thus, we find that Shinohara discloses pattern elements 24a (i.e., deformities) that are in the vicinity of a point light source 30, which is located along a light incidence surface (i.e., input edge).

Patent Owner does not rebut Petitioner's persuasive evidence that the pattern elements in the vicinity of a point light source in Shinohara meet the recited claim element of "deformities in close proximity" to an input edge. We are not persuaded by Patent Owner's contentions based on the appearance of these features in Figure 27 of Shinohara. *See* PO Resp. 46. Indeed, Patent Owner acknowledged at oral hearing that Shinohara's figures are not drawn to scale. *See* Tr. 26:1–2. Such "arguments based on drawings not explicitly made to scale in issued patents are unavailing." *See Nystrom v. TREX Co., Inc.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005). Accordingly, we are persuaded that Shinohara discloses the "close proximity" feature recited in claim 1.

Second, Patent Owner argues that Shinohara's discussion of equation (2) (*see* Ex. 1001, 18:32–35) does not disclose the disputed limitation because Figure 27 of Shinohara shows "points in close proximity to the input edge that are farther away from the light source than the midpoint," and "at the area of the input edge at the ends of the plate 22, the density of diffuse pattern elements 24 is greater than at the midpoint of two light sources 30 on the input edges." PO Resp. 51–52. We are unpersuaded by this argument for reasons discussed above, namely, "arguments based on drawings not explicitly made to scale in issued patents are unavailing." *See Nystrom*, 424 at 1149. Moreover, also as discussed above, Shinohara teaches that the plate 22 is divided into areas, one for each light source. Ex. 1010, 20:3–4. Shinohara also teaches that for each area, equation (2) is satisfied (i.e., the density of the diffuse pattern elements is zero at the light source, while linearly increasing with the distance "r"). *Id.* at 18:30–35, 20:5–9. As Petitioner explains, "[b]ecause the density increases in each of the respective areas as the radial distance from the light source increases, it will be maximum at the boundaries between the adjacent areas, that is at the midpoint between adjacent light sources." Reply 17; *see also* Pet. 35–36 (citing Ex. 1010, 18:32–35, 20:1–11, Fig. 27; Ex. 1004 ¶¶ 132–133). We find this explanation persuasive.

Third, Patent Owner argues that Shinohara's discussion of Figure 27 (*see* Ex. 1001, 20:1–11) does not disclose the disputed limitation, but instead "discloses that the light guide is divided, and the diffuse patterns are mirrored such that each light source has its own diffusion pattern similar to the pattern afforded to a single point source" and such that "<u>the luminance distribution is uniform with respect to the corresponding point light source</u>."

PO Resp. 48–49. Patent Owner asserts that "[t]his is fundamentally different from the disclosure of the '973 patent, which is directed to making the distribution of two combined light sources uniform." *Id.* at 50. According to Patent Owner, such mirrored patterns "would yield an uneven combined light distribution, and an uneven distribution of densities in the elements." *Id.* at 49. Patent Owner further explains that "because of the mirroring of the patterns [in Shinohara], one of ordinary skill in the art would see a hole of deformities in close proximity to the input surface" that "create[s] a dark area where light is not uniformly diffused." *Id.* at 50.

We do not find this argument to be persuasive. Patent Owner's argument is not commensurate in scope with the language of claim 1 and relies on distinctions not present in the claim. Claim 1 requires "producing a desired light output." There is nothing in the claim that suggests how the light is distributed, much less requiring that the combined light from two sources (as opposed to the light from individual sources) be distributed uniformly. Nor is there any language in claim 1 that excludes the use of divided light guides, mirrored diffuse patterns, or holes, as Petitioner points out. *See* Reply 20–21. Moreover, we note that claim 1 recites "wherein the deformities . . . increase in density . . . as the distance of the deformities from the respective light sources increases across the width of the panel member." Patent Owner fails to explain persuasively why this language would not encompass "an uneven distribution of densities in the elements." *See* PO Resp. 50.

Finally, Patent Owner argues that Petitioner's reliance on Shinohara "is improper for anticipation because it relies on the embodiment shown [in] Fig. 9, and that figure relates to only single light source panels." PO Resp.

47; *see id.* at 44 ("Fig. 27, which shows multiple light sources" and "Figure 9, which is an embodiment without multiple light sources"); Prelim. Resp. 9. Patent Owner points out that "[t]he PTAB has regularly found that an examiner erred when combining various passages from different embodiments to support an anticipation rejection." PO Resp. 48; *accord* Prelim. Resp. 10. We are not persuaded by this argument. As we explained in our Decision on Institution, "[a]lthough Figures 9 and 27 of Shinohara describe different embodiments as a whole, Petitioner relies on Figure 9 for illustrating a particular aspect of the diffuse pattern elements 24a, which is present in both embodiments." Dec. on Inst. 13–14.

In view of the foregoing, Petitioner has presented persuasive evidence to support a finding that Shinohara discloses the limitation "the density, size, depth and/or height of the deformities in close proximity to the input edge is greatest at approximate midpoints between adjacent pairs of the light sources" recited in independent claim 1.

b. "each of the deformities has a length and width substantially smaller than the length and width of the panel surface"

Claim 1 further recites "each of the deformities has a length and width substantially smaller than the length and width of the panel surface." For this disputed limitation, Petitioner directs us to Shinohara's disclosure that "[t]he diffuse pattern 24 formed on the optical guide plate 22 includes a lot of diffuse pattern elements 24a." Pet. 34 (citing Ex. 1010, 13:39–41); Reply 22. Petitioner contends that this disclosure "must necessarily mean that each of the diffuse pattern elements has a length and width that is 'substantially smaller' than the length and width of the panel surface." Reply 22; *see* Pet.

34. Petitioner also directs us to Figures 9 and 27, which are reproduced *supra*. Pet. 34; Reply 22. As noted above, each of these figures shows a diffuse pattern formed on an optical guide plate in a surface light source device. Ex. 1010, 10:41–42, 11:23–25. According to Petitioner, these figures particularly show "a lot" of diffuse pattern elements 24a (i.e., deformities) on the guide plate 22 (i.e., panel). Pet. 34; Reply 22.

Patent Owner makes three arguments in response. First, Patent Owner argues that including "a lot" of diffuse pattern elements "does not rise to the level to meet the [disputed] limitation" because "'a lot' of diffuse pattern elements can exist within the panel that are substantially as long as the panel." PO Resp. 52. We do not agree. Shinohara teaches that "the diffuse pattern elements 24a are arranged concentrically around the point light source 30 in correspondence with the light propagating while being radially spread." Ex. 1010, 13:41–44 (cited at Pet. 34). Shinohara also teaches that "[w]hen the diffuse pattern 24 is viewed in a relatively narrow range, the arrangement of the diffuse pattern elements 24a is approximately random." *Id.* at 13:49–52 (cited at Pet. 35). In light of these teachings in Shinohara, Patent Owner does not persuade us that each of the diffuse pattern elements can be substantially as long as the panel. When asked at oral hearing whether Shinohara's disclosure would be operative if the diffuse pattern elements were on the same order of magnitude as the panel, Patent Owner's counsel replied, "Maybe not." Tr. 28:23–29:2, 30:1–3. Based on the record before us, we are not persuaded by Patent Owner's argument.

Second, Patent Owner argues that "it cannot be said that the diffuse elements in Fig. 9 [of Shinohara] are each substantially smaller than the length and width of the optical guide plate" because "the light sources in

Shinohara are only 'smaller than the width' of the optical guide plate" and "the Fig. 9 diffuse elements are [shown as being] much larger in width than the light sources." PO Resp. 53; *see also id.* at 52 ("Shinohara repeatedly mentions the size of the light sources with respect to the optical guide plate. But Shinohara never makes a similar disclosure comparing the diffuse elements to the length and width of the optical guide plate.") (citations omitted).

We are not persuaded by Patent Owner's argument based on Figure 9 of Shinohara. As Petitioner points out, "patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." Reply 22 (citing *Nystrom*, 424 F.3d at 1148–49). *See also* discussion, *supra*. At oral hearing, both parties agreed that the drawings in Shinohara are not drawn to scale. Tr. 12:16–17, 25:24–26:2.

Nevertheless, Petitioner's reliance on Figure 9, however, does not depend on precise dimensions. Thus, we agree with Petitioner that Figure 9 of Shinohara shows "a lot" of diffuse pattern elements on the optical guide plate, confirming that the length and width of each element is substantially smaller than the length and width of the optical guide plate. *See* Pet. 34 (citing Ex. 1010, 13:39–41); Reply 22; Tr. 11:3–6 ("the description in column 13 together with figure 9, someone of skill in the art would understand that Shinohara discloses deformities having a length and width substantially smaller than the length and width of the panel surface").

Finally, Patent Owner argues that Shinohara's disclosure describing the length of a diffuse pattern element as being no less than twice its width "does not show the size of elements 24a relative to the length and width of a

panel member." PO Resp. 53–54. We agree with Patent Owner in this regard but do not find this argument persuasive. As discussed above, Shinohara's disclosure that "[t]he diffuse pattern 24 formed on the optical guide plate 22 includes a lot of diffuse pattern elements 24a" indicates that the elements 24a are substantially smaller than the optical guide plate 22 with respect to length and width. *See* Pet. 34 (citing Ex. 1010, 13:39–41); Reply 22.

In view of the foregoing, Petitioner has presented persuasive evidence to support a finding that Shinohara's disclosure meets the limitation "each of the deformities has a length and width substantially smaller than the length and width of the panel surface" recited in claim 1.

For the foregoing reasons, we are persuaded by a preponderance of the evidence that Shinohara anticipates claim 1. Patent Owner presents no separate arguments for claims 2–5. Having reviewed Petitioner's arguments and claim charts (*see* Pet. 36–38), we also are persuaded for the reasons stated above that Petitioner has shown by a preponderance of the evidence that Shinohara anticipates these claims, as well.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that Shinohara anticipates claims 1–5 of the '973 patent.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–5 of the ’973 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.

PETITIONER:

Robert Pluta
rpluta@mayerbrown.com

Amanda Streff
astreff@mayerbrown.com

Baldine Paul
bpaul@mayerbrown.com

Anita Lam
alam@mayerbrown.com

PATENT OWNER:

Justin Kimble
jkimble@bcpc-law.com