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571-272-7822

Paper 42
Date: November 16, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NICHIA CORPORATION,
Petitioner,

v.

DOCUMENT SECURITY SYSTEMS, INC.,
Patent Owner.

IPR2020-00908
Patent 6,879,040 B2

Before SCOTT C. MOORE, AMBER L. HAGY, and JASON M. REPKO,
Administrative Patent Judges.

REPKO, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

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I. INTRODUCTION

Nichia Corporation (“Petitioner”) filed a petition to institute *inter partes* review of claims 1–4, 8, and 11 of U.S. Patent No. 6,879,040 B2 (Ex. 1001, “the ’040 patent”). Paper 1 (“Pet.”). Document Security Systems, Inc. (“Patent Owner”) did not file a Preliminary Response.

On November 17, 2020, we instituted an *inter partes* review of all challenged claims based on all grounds in the Petition. Paper 6 (“Inst. Dec.”). Patent Owner filed a Response. Paper 23 (“PO Resp.”). Petitioner filed a Reply. Paper 29 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 33 (“Sur-reply”). An oral hearing was held on August 20, 2021. A transcript of that hearing has been entered into the record. Paper 41 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued under 35 U.S.C. § 318(a). For the reasons that follow, Petitioner has not shown by a preponderance of the evidence that any of claims 1–4, 8, and 11 are unpatentable.

A. Related Matters

The parties indicate that *Document Security Systems, Inc. v. Nichia Corporation*, No. 2:19-cv-08172 (C.D. Cal.) is related. Pet. 1; Paper 4, 2 (Patent Owner Mandatory Notices).

B. The ’040 Patent

The ’040 patent generally relates to surface-mount technology and light emitting diodes (LEDs). Ex. 1001, 1:1–22. Surface-mount technology refers to devices that are mounted directly onto a surface without being “plugged into” it. *Id.* at 1:10–12. Surface-mounted LEDs are used in signs and video screens, among other things. *Id.* at 1:17–22. It is desirable for surface-mountable LEDs to have a small footprint, while maintaining low

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thermal resistance. *Id.* at 2:48–58. By contrast, Figure 1A, below, shows a prior-art LED with undesirable properties. *See id.* at 2:18–26.

Figure 1A (Prior Art)

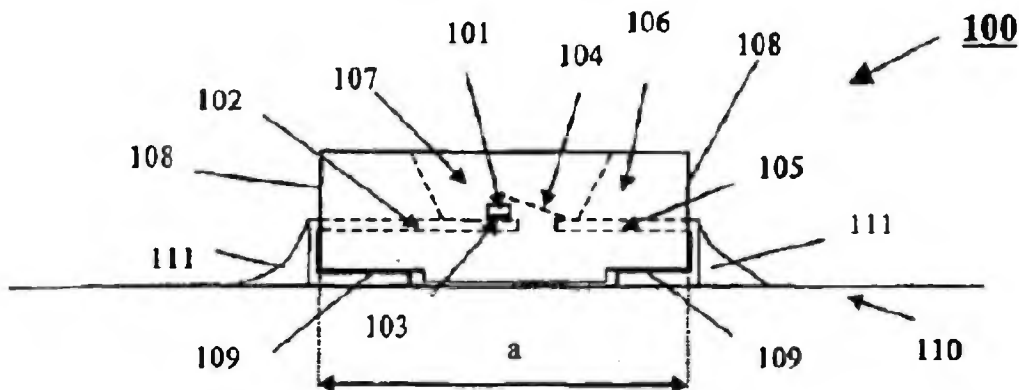


Figure 1A, above, shows device 100 connected to substrate 110 by solder joints 111. *Id.* at 1:63–67.

Device 100 contains LED 101. *Id.* at 1:49. The device's footprint corresponds to the size of its body (106). *Id.* at 2:23–26. But solder joints 111 extend beyond that footprint. *Id.* As a result, the joints are visibly exposed to an observer. *Id.* at 2:40–46. A display that uses these devices can suffer from visual disturbances caused by reflections from these joints. *Id.* Also, the device's thermal resistance is high because the heat path between the LED and the substrate is very long. *Id.* at 2:19–22. This, in turn, increases the LED's temperature, which affects the drive current. *Id.* at 2:19–23.

To purportedly mitigate these and other issues, the '040 patent's surface-mountable device has a smaller footprint and recesses that minimize the amount of solder that is visible. *Id.* at 5:29–36. Figure 4A, below, shows one embodiment. *Id.* at 3:7–9.

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Figure 4A

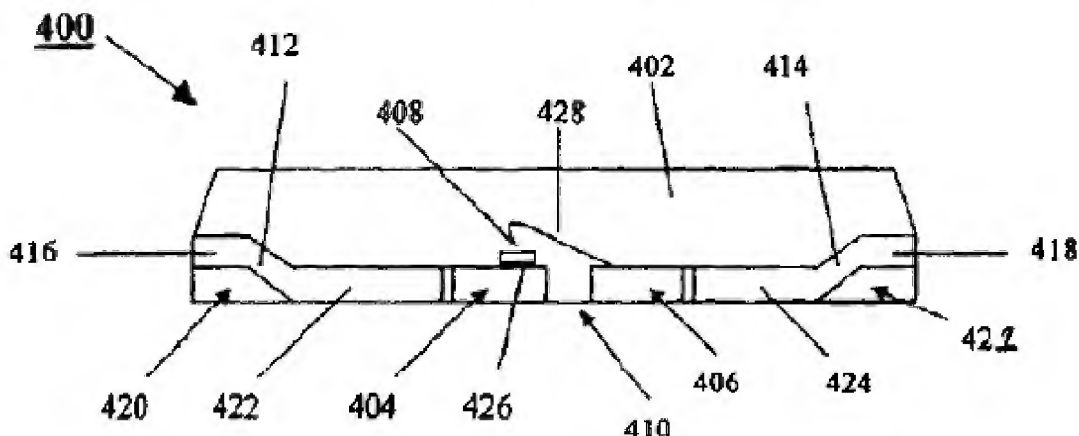


Figure 4A, above, is a side view of surface-mountable opto-electronic device 400 with transparent body 402. *Id.* at 4:60–63.

Because the contacts do not extend horizontally beyond the package's body, this device's footprint is smaller than the one in Figure 1A. *Id.* at 5:29–31. Also, the recesses provide enough room for solder so that it does not extend beyond the length of the body. *Id.* at 5:32–35. As a result, the devices can be more closely packed, and the solder is not visible from the viewing direction. *Id.* at 5:35–36.

C. Claims

Of the challenged claims, only claim 1 is independent.

1. A surface mountable electronic device, comprising:
 - a packaged body having a mounting surface, the mounting surface having a plurality of recesses at side edges of the body and
 - a plurality of electrical contacts, each of which extends from an interior portion of the mounting surface and terminates in one of said recesses, and each of which conforms to one of said recesses, wherein said recesses and electrical contacts are sized to provide offsets between said mounting surface and said electrical contacts.

Id. at 11:16–28.

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D. Evidence

Name	Reference	Exhibit No.
Kim	Japanese Unexamined Patent Application Publication No. 10-200038	1004 ¹
Adachi	Japanese Unexamined Patent Application Publication No. 6-350206	1005
Nagayama	Japanese Unexamined Patent Application Publication No. 2000-77725	1006
Okazaki	Japanese Unexamined Patent Application Publication No. 6-90026	1007
Shirahata	Japanese Examined Patent Publication No. 7- 50754B2	1019

The declaration of James R. Shealy, Ph.D. (“Shealy Decl.”) is Exhibit 1003. The declaration of R. Jacob Baker, Ph.D., P.E. (“Baker Decl.”) is Exhibit 2001.

E. Instituted Grounds

Claim(s) Challenged	Pre-AIA² 35 U.S.C. §	Reference(s)/Basis
1–3, 11	102(b)	Kim
8	103(a)	Kim, Shirahata
1–4, 8	102(b)	Adachi
1–4, 8	102(b)	Nagayama
1–4, 8, 11	102(b)	Okazaki

¹ All citations in this Decision refer to the translated version of Kim.

² Congress amended §§ 102 and 103 when it passed the Leahy-Smith America Invents Act (AIA). Pub. L. No. 112–29, § 3(c), 125 Stat. 284, 287 (2011). Because the ’040 patent issued before the effective date of the AIA’s amendments to §§ 102 and 103, the previous versions of §§ 102 and 103 apply.

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II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

According to Petitioner, “a person of ordinary skill in the art (‘POSA’) would have had at least a B.S. in mechanical or electrical engineering or a related field, and four [years of] experience designing or developing semiconductor—including LED—packages.” Pet. 13 (citing Shealy Decl. ¶ 31). Petitioner adds that “a higher education or skill level might make up for less experience, and vice-versa.” *Id.* at 13–14.

Patent Owner does not propose an alternative assessment but states: “For the purposes of this IPR proceeding, Patent Owner adopts Petitioner’s definition of level of ordinary skill.” PO Resp. 7 (citing Baker Decl. ¶ 26).

We apply Petitioner’s proposed definition, which appears to be consistent with the level of skill reflected in the asserted references. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that the prior art itself can reflect an appropriate level of skill in the art).

B. *Claim Construction*

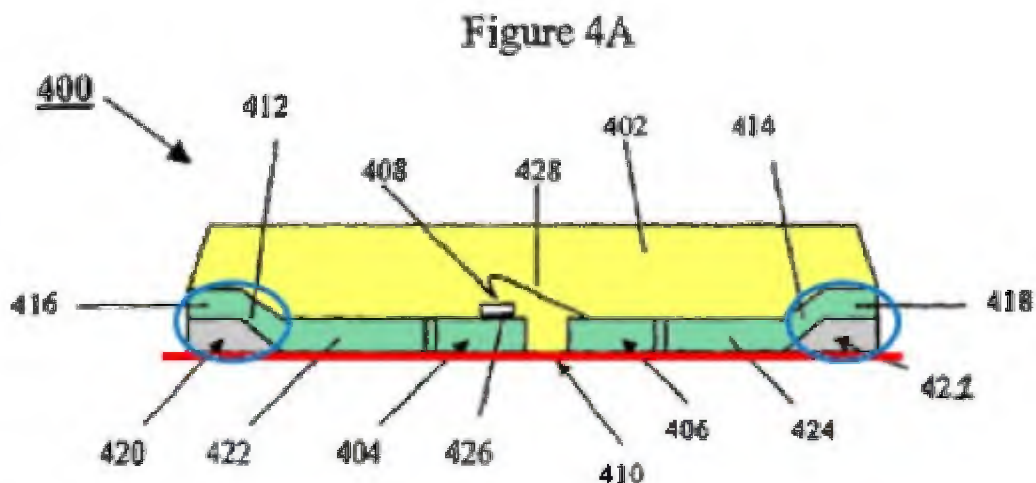
1. *Petitioner’s Constructions*

In the Petition, Petitioner asks the Board to construe the claim terms (1) “packaged body” and “body” as a “protective shell to hold a semiconductor and electrical contacts,” (2) “conforms to” as “is adapted to and follows the shape of,” (3) “offset” as “space,” and (4) “mounting surface” as a “planar surface at which the device is mounted, which surface is essentially co-planar with the planar bottom surface of the body, and which surface does not follow the contours of its recesses.” Pet. 18–26.

The Petition discusses two possible constructions for “recesses.” *Id.* at 17–19. First, Petitioner asserts that the recited “recesses” are “the depressions or indentations at the side edges of the body.” *Id.* at 17. To

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illustrate this construction, Petitioner annotates Figure 4A with the recesses circled in blue, which is shown below. *Id.*



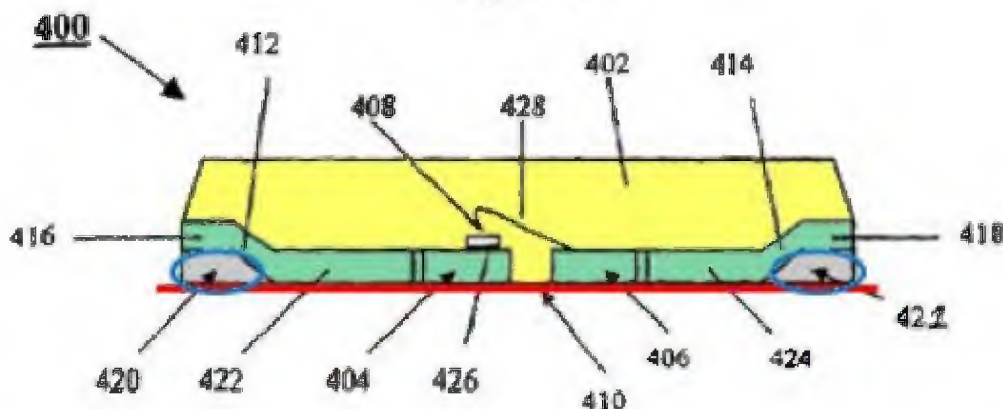
Annotated Figure 4A, above, shows a lead-less surface mountable opto-electronic device. Ex. 1001, 3:7–8.

As annotated by Petitioner, Figure 4A shows the packaged body in yellow, the mounting surface as a red line, the electrical contacts in green, the offsets as gray regions, and the area defined by the recesses circled in blue. Pet. 17.

Second, Petitioner explains that “Patent Owner may also argue that the ‘recesses’ are the depressions or indentations in the device as a whole (including the electrical contacts), as opposed to in the body.” *Id.* at 18 (citing Ex. 1009, 13–14; Ex. 1010, 1–2; Ex. 1011, 3–4; Ex. 1017, 1; Ex. 1018). To illustrate this construction, Petitioner provides a different annotated version of Figure 4A, also with the area defined by the recesses circled in blue, as shown below. *Id.*

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Figure 4A



Annotated Figure 4A, above, shows a lead-less surface mountable opto-electronic device. Ex. 1001, 3:7–8.

As annotated by Petitioner, Figure 4A shows the packaged body in yellow, the mounting surface as a red line, the electrical contacts in green, the offsets as gray regions, and the area defined by the recesses circled in blue. Pet. 18. Petitioner asserts that “this ‘alternative’ construction does not affect the Grounds [in the Petition], as the prior art teaches both ‘recesses’ in the body, as well as conforming electrical contacts, such that the contacts also have ‘recesses.’” *Id.* at 19.

2. *The Institution Decision*

Patent Owner did not file a Preliminary Response. Thus, when the Board instituted this proceeding, the record did not contain any alternatives to Petitioner’s proposed constructions.

For the purpose of determining whether to institute this proceeding, the Board adopted Petitioner’s proposed constructions. Inst. Dec. 8. The Board requested that “the parties address the proper construction of the claim terms ‘mounting surface’ and ‘recesses’” during trial. *Id.* The Board also requested that the parties “address the related issue of how (1) the mounting surface has ‘recesses’ to which portions of the ‘electrical contacts’

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conform yet (2) the mounting surface is spaced apart from those contacts by ‘offsets.’” *Id.*

3. Patent Owner’s Construction

In its Response, Patent Owner disputes only Petitioner’s proposed construction of “mounting surface.” PO Resp. 11. In particular, Patent Owner argues that “the mounting surface having a plurality of recesses” should be construed as “the mounting surface having indentations or clefts that provide room for solder to mount the device.” *Id.* According to Patent Owner, the mounting surface must “follow the contours of the recesses.” *Id.* In Patent Owner’s view, the patent’s inventive concept is a mounting surface with indentations or clefts to provide room for solder. *Id.* at 11–12.

Patent Owner also responds to the issue of how the mounting surface has recesses to which portions of the electrical contacts conform and yet the mounting surface is spaced apart from those contacts by offsets. In particular, Patent Owner explains that the District Court in the parallel proceeding provided one example in its order denying Petitioner’s motion to dismiss: “if the *lead frame* were simply a flat piece of metal at the bottom of the recess and in the shape of the recess, that could be one example of a way that the *lead frame* could conform to the recess and yet not fill the space.” *Id.* at 13–14 (quoting Ex. 2003, Order Regarding Motion to Dismiss, 3) (emphasis added). In Dr. Baker’s opinion, the term “lead frame” in the order refers to “[t]he metal used for the electrical contacts.” Ex. 1025 (Transcript of Dr. Baker’s Deposition), 36:15. Dr. Baker added that “[p]art of a lead frame is the electrical contacts” but “the lead frame can be more than just [the] electrical contacts, it can be a mounting.” *Id.* at 36:16–37:12.

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4. *Analysis*

We need only construe terms that are in controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). We use “the same claim construction standard that would be used to construe the claim[s] in a civil action under 35 U.S.C. [§] 282(b).” *See* 37 C.F.R. § 42.100(b) (2019). Under this standard, we construe the claims in accordance with the ordinary and customary meaning as would have been understood by one of ordinary skill in the art in light of the patent’s written description and the prosecution history. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

For purposes of this decision, we need only address the proper construction of “mounting surface,” which is disputed by the parties. Here, Patent Owner’s argument and evidence produced during trial show that Petitioner’s construction of “mounting surface” is not in accordance with the ordinary and customary meaning as would have been understood by one of ordinary skill in the art. In particular, we agree with Patent Owner that “the mounting surface having a plurality of recesses,” as recited in claim 1, means that the recesses are in the mounting surface itself. PO Resp. 10–11.

As we discuss further here, this requirement cannot be satisfied by a single planar surface, as used in Petitioner’s analysis. *See, e.g.*, Pet. 18. Both parties acknowledge the argument that the claimed recesses could be interpreted in at least two ways: The recesses could be (1) only in the packaged body, excluding the contacts; or (2) in the device as a whole. PO Resp. 12 n.6; *see also* Pet. 18–19 (reviewing the second interpretation). Under both interpretations, Petitioner asks the Board to construe the mounting surface as a plane. *See* Pet. 18–19. We need not resolve which

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interpretation is correct because Petitioner's construction of "mounting surface" is flawed under either interpretation of recesses.

In particular, Petitioner's construction relies heavily on the embodiment shown in Figure 4A. *See id.* at 17–18. But, read in light of Figure 4A alone, the claim would fail to inform one skilled in the art, with reasonable certainty, how the recited mounting surface can have "recesses," to which portions of the "electrical contacts" conform, while also being spaced apart from those contacts by "offsets," as required by claim 1. Figure 4A from the patent is reproduced below:

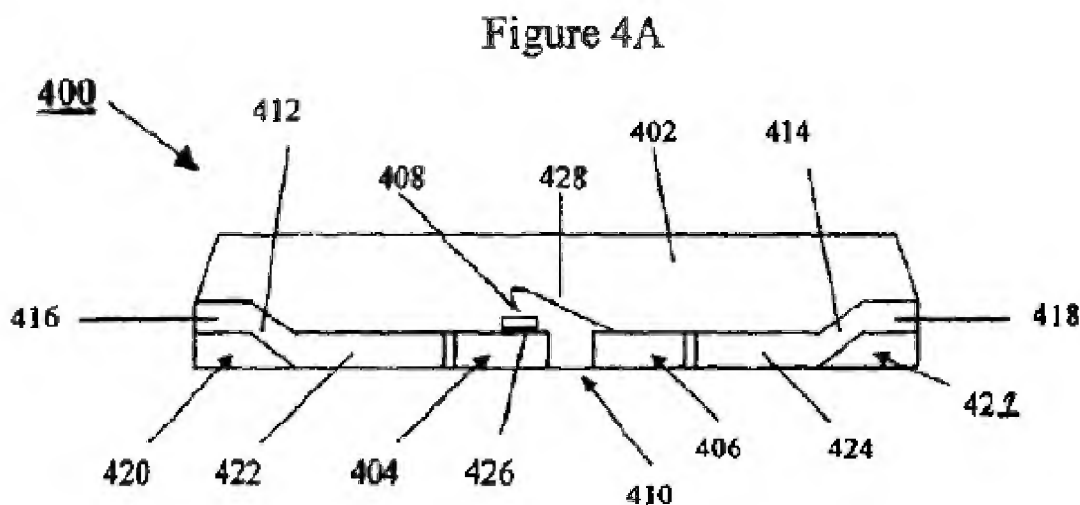


Figure 4A above shows a lead-less surface mountable opto-electronic device. Ex. 1001, 3:7–8.

The written description states that, in Figure 4A, "underside 410 is itself the mounting surface of the device." *Id.* at 5:3–4. By contrast, the written description refers to the surface underneath the device as "a flat surface on which the device is mounted." *Id.* at 5:11–14. That is, the written description distinguishes "the mounting surface" (underside 410) from another surface "on which the device is mounted" in the Figure 4A embodiment. *See id.* at 5:3–14. Unlike this embodiment, Petitioner's construction equates the

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recited mounting surface to “a planar surface at which the device is mounted.” Pet. 18.

Also, claim 1 recites that the “recesses and electrical contacts are sized to provide offsets between said mounting surface and said electrical contacts.” Ex. 1001, 11:25–28. But Figure 4A shows recesses 420, 421 formed between parts of the contact (412, 414, 416, and 418) and “a flat surface on which the device is mounted.” *Id.* at 5:11–14. In fact, “electrical contacts 404, 406 are mounted *in* the underside 410” *Id.* at 5:1–3 (emphasis added). We emphasize “in” here because it suggests that contacts 404, 406 are within underside 410, not offset from it. In view of these differences, we see no persuasive support for the position that Figure 4A falls within the scope of claim 1, contrary to Petitioner’s arguments here. *See, e.g.*, Pet. 17–18; Pet. Reply 3–4.

In a deposition during trial, Patent Owner’s declarant, Dr. Baker, gave an opinion on how Figure 4A might fall within the scope of claim 1. *See, e.g.*, Ex. 1025, 44:24–93:5 (Baker Deposition Transcript). As part of his testimony, Dr. Baker annotated Figure 4A, which is reproduced below.

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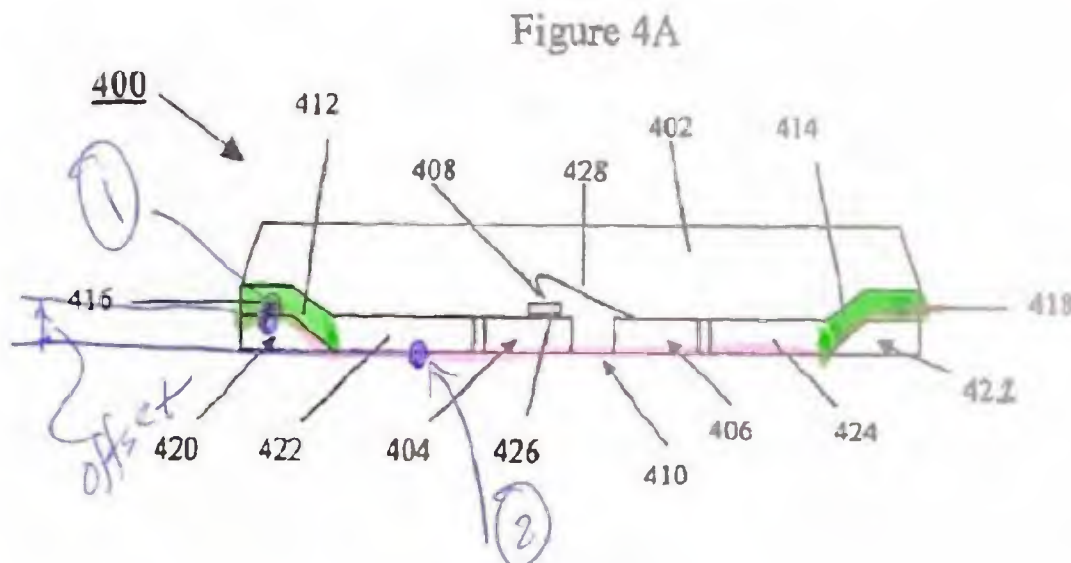


Figure 4A with annotations from Dr. Baker: green highlighting on the contacts, pink highlighting on the mounting surface, and blue labels on the offset and parts of the mounting surface (“1” and “2”). Ex. 1026, 12; Pet. Reply 5–6; Ex. 1025, 82:6–83:8.

According to Petitioner, “Dr. Baker stated that the ‘offset’ he identified was a distance, in a ‘y direction,’ between the bottom of electrical contact portion 416 in the recess (blue dot labeled ‘1’) and ‘a line that extends from’ a different portion of the mounting surface (blue dot labeled ‘2’).”

Pet. Reply 6 (citing Ex. 1025, 84:5–85:18, 85:21–86:4).

Patent Owner’s arguments suggest that it believes Dr. Baker’s interpretation of the recited “mounting surface” is correct. Sur-reply 9–13.³ We disagree because Dr. Baker’s identified mounting surface is inconsistent with the claim language and written description. In particular, it is unclear how the offset that Dr. Baker drew on Figure 4A is “between said mounting surface and said electrical contacts,” as recited by the claim. Ex. 1026. Rather, Dr. Baker appears to have drawn an offset from a mounting surface

³ We note that Patent Owner states that it “has not offered a construction for ‘mounting surface.’” Sur-reply 9 n.1.

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with hypothetical “planar projections” that extend beyond the device. *Accord* Pet. Reply 6. This is inconsistent with the ’040 patent’s description of Figure 4A, which describes that “underside 410 is itself the mounting surface of the device.” Ex. 1001, 5:3–4.

To the extent that Dr. Baker’s testimony contemplates a mounting surface as a single plane, such a surface is inconsistent with the claim language requiring a mounting surface *having recesses*, which cannot be satisfied by a plane for the reasons discussed in connection with Petitioner’s construction. Thus, we assign Dr. Baker’s testimony on this issue little weight. *See, e.g.*, Ex. 1025, 39:4–12, 41:7–10, 44:7–45:2; Ex. 1026, 12.

Petitioner argues that its construction resolves an impossibility inherent to the claim language. *See* Pet. 14–19; Pet. Reply 3. In Petitioner’s view, “a mounting surface that follows the contours of the recesses renders impossible an offset between the recess-conforming electrical contacts and the mounting surface’s recesses.” Pet. Reply 3. Testimony from Petitioner’s own declarant, though, does not support this assertion. In a deposition during the trial, Dr. Shealy testified that the construction of mounting surface offered in the Petition is not the proper construction that one of ordinary skill in the art would understand, and the planar mounting surface described in the Petition “may not be the only way” to resolve the claim language. Ex. 2002, 22:5–19.

In sum, neither party has sufficiently explained how the mounting surface in Figure 4A (1) has “recesses” to which portions of the “electrical contacts” conform and (2) is spaced apart from those contacts by “offsets,” as required by the claim. Specifically, Petitioner construes “mounting surface” as a plane. Pet. 18–19. And Patent Owner’s argument suggests that it believes Dr. Baker’s interpretation correctly reconciles how the Figure 4A

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device can meet both requirements. Sur-reply 9–13. Both parties’ explanations, however, rely on an offset with respect to a planar surface that does not follow the surface of the device itself, which contradicts the claim language in the ways discussed above.

In this proceeding, Petitioner “has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). For the reasons discussed here, we determine that Petitioner has not made that showing in this proceeding because the claim construction that is the basis for its unpatentability arguments is unsupported by the record.

To resolve the issues in this case, we need not further construe “mounting surface” or any other terms.

C. Anticipation by Kim

Petitioner asserts that Kim discloses the surface-mountable device recited in claims 1–3 and 11. Pet. 38–53. Petitioner asserts that, in Kim’s annotated Figures 1 and 3, below, the recited “packaged body” is highlighted in yellow. *Id.* at 41, 43–44.

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“molded so as to seal the bottom lead frame, the semiconductor chip, and the conductive wire groups.” Ex. 1004 ¶ 8.

In annotated Figures 1 and 3, above, a red line identifies the recited “mounting surface” under Petitioner’s construction. Pet. 41. Petitioner asserts that this mounting surface has recesses that are “the depressions or indentations in molded resin package body 37, occupied by ‘internal leads 32, which first extend obliquely upward . . . then extend horizontally,’ and also occupied by the grooves 38 under the internal leads) at ‘side edges of [that] body.’” *Id.* at 41–42 (citing Ex. 1004 ¶ 8, Fig. 1). According to Petitioner’s alternative construction, “If the ‘recesses’ are the depressions or indentations in the device as a whole, then, in Kim, the ‘recesses’ would define ‘grooves 38’ below the internal leads 32.” *Id.* at 42 n.5 (citing Shealy Decl. ¶ 42).

For the reasons discussed in the *Claim Construction* Section, we disagree that the recited mounting surface can be a plane and still satisfy all the claim limitations. *Supra* § II.B. In particular, we agree with Patent Owner that Petitioner’s planar mounting surface does not include “recesses” at the side edges of the body as the claim requires. PO Resp. 15. Rather, the planar surface identified by Petitioner sits below the recesses in Kim’s device—i.e., “the depressions or indentations in molded resin package body 37” or the device as a whole. Pet. 41–42; Ex. 1004, Figs. 1, 3.

Petitioner argues that, even under Dr. Baker’s analysis, Kim discloses the claimed mounting surface. Pet. Reply 10–11 (citing Ex. 1027). Dr. Baker’s analysis, however, is not consistent with the written description or the claims. *Supra* § II.B. In its challenge, Petitioner compares Kim’s device to the embodiment shown in Figure 4A of the ’040 patent. *See* Pet. 38–53. As discussed in the *Claim Construction* Section, however,

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we see little support for the argument that Figure 4A falls within the scope of the challenged claim. *Supra* § II.B. Contrary to the claim’s requirement that the device itself comprise a mounting surface with “recesses and electrical contacts [that] are sized to provide *offsets between said mounting surface and said electrical contacts*,” both Kim’s device and the Figure 4A embodiment show recesses between *the device and a flat surface on which the device is mounted*. Compare Ex. 1004, Figs. 1, 3, with Ex. 1001, Fig. 4A, 5:11–14.

Thus, Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable as anticipated by Kim.

Claims 2, 3, and 11 also require a “mounting surface” because those claims depend from claim 1. Thus, Petitioner has not shown that claims 2, 3, and 11 are unpatentable as anticipated by Kim for the same reasons as claim 1.

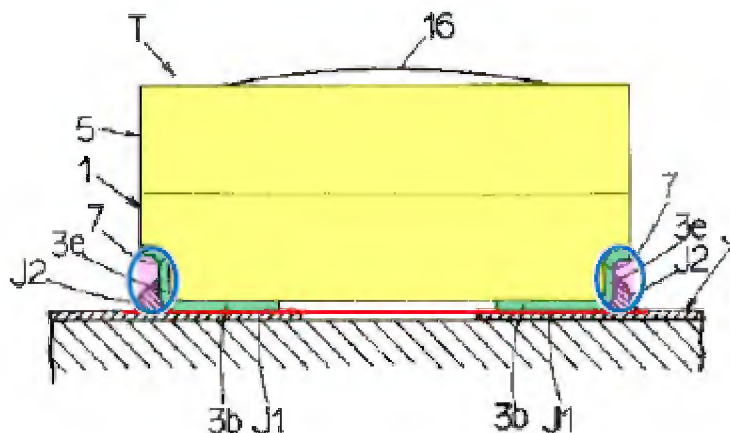
D. Obviousness over Kim and Shirahata

Petitioner asserts that claim 8 is unpatentable as obvious over Kim and Shirahata. Pet. 54–59. Claim 8 depends from claim 1. Ex. 1001, 12:3–5. This ground relies on Kim for the limitations of claim 1, including the recited “mounting surface.” Pet. 54–59. Petitioner has not shown that Kim teaches the mounting surface in claim 1. *Supra* § II.C. Thus, Petitioner has not shown by a preponderance of the evidence that claim 8 is unpatentable as obvious over Kim and Shirahata.

E. Anticipation by Adachi

Petitioner asserts that claims 1–4 and 8 are unpatentable as anticipated by Adachi. Pet. 59–71. Adachi’s Figure 11 is shown below with Petitioner’s annotations. *Id.* at 64.

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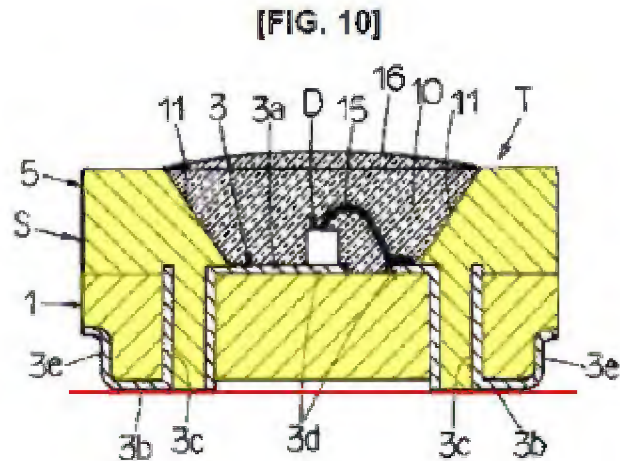


Adachi’s Figure 11 shows a side view illustrating a chip-type light emitting electronic component mounted on a mounting board with Petitioner’s annotations. *Id.*

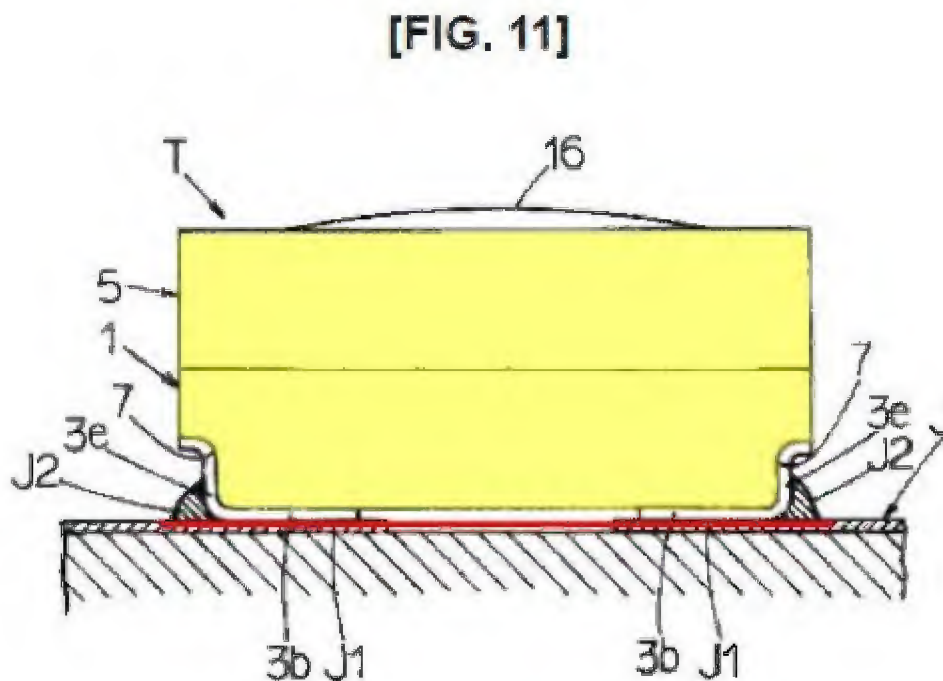
The annotated figure, above, shows Petitioner’s identification of the body (yellow), the recesses (blue), and the mounting surface (red), as asserted in this challenge. *Id.* According to Petitioner, “These recesses—the areas defined thereby circled in blue—are depressions or indentations in the yellow packaged body in Adachi’s Figure 11 (. . . (‘cutaway portions 7’)), occupied by the ‘terminal parts 3e’ . . . (green), as well as the spaces beneath (pink).” *Id.* at 63. According to Petitioner’s alternative construction, “If the claimed ‘recesses’ are the depressions or indentations in the device as a whole, then in Adachi, the ‘recesses’ would define just the pink-shaded regions.” *Id.* at 63 n.12.

Like the ground based on Kim, however, Petitioner identifies the mounting surface as the red line in the annotated drawing above: “The packaged body is yellow, and its mounting surface, which is essentially co-planar with the planar bottom of lead electrode parts 3b, secondary molding 5, and primary molding 1, is identified in red in Adachi’s Figures 10 and 11” *Id.* at 61 (citing Shealy Decl. ¶ 229). Adachi’s Figures 10 and 11 are shown below with Petitioner’s annotations. *Id.* at 62.

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Annotated Figure 10, above, shows a cross-sectional view of Adachi's device. *Id.*



Annotated Figure 11, above, shows a side view of Adachi's device. *Id.*

For the reasons discussed in the *Claim Construction* Section, we disagree that the recited mounting surface can be a plane and still satisfy all the claim limitations. *Supra* § II.B. In particular, we agree with Patent Owner that Petitioner has not shown that the planar mounting surface

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identified in Adachi includes “recesses” at the side edges of the body as required by the claim. PO Resp. 23 (citing Baker Decl. ¶ 74). The planar surface identified by Petitioner sits below the recesses. *See* Ex. 1005, Figs. 10, 11; Pet. 62.

Petitioner argues that, even under Dr. Baker’s analysis, Adachi discloses the claimed mounting surface. Pet. Reply 18–19. Dr. Baker’s analysis, however, is not consistent with the written description or the claims. *Supra* § II.B. In its challenge, Petitioner compares Adachi’s device to the embodiment shown in Figure 4A of the patent. *See* Pet. 59–71. As discussed in the *Claim Construction* Section, we see little support for the argument that Figure 4A falls within the scope of the challenged claim. *Supra* § II.B. Contrary to the claim’s requirement that the device itself comprise a mounting surface with “recesses and electrical contacts [that] are sized to provide *offsets between said mounting surface and said electrical contacts*,” both Adachi’s device and the Figure 4A embodiment show recesses *between the device and a flat surface on which the device is mounted*. Compare Ex. 1005, Figs 10, 11, with Ex. 1001, Fig. 4A, 5:11–14.

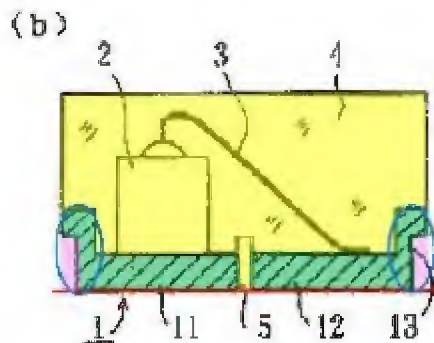
Thus, Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable as anticipated by Adachi.

Claims 2–4 and 8 also require a “mounting surface” according to claim 1 because those claims depend from claim 1. Thus, Petitioner has not shown that claims 2–4 and 8 are unpatentable as anticipated by Adachi for the same reasons as claim 1.

F. Anticipation by Nagayama

Petitioner also asserts that claims 1–4 and 8 are unpatentable as anticipated by Nagayama. Pet. 71–82. Nagayama’s Figure 1(b) is shown below with Petitioner’s annotations. *Id.* at 76.

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Nagayama’s Figure 1(b), above, is a cross-sectional view of a semiconductor package with Petitioner’s annotations. *Id.*

As annotated by Petitioner, Figure 1(b) shows the body (yellow), the electrical contacts (green), the mounting surface (red), and the offsets (pink).

Id. Petitioner asserts that Nagayama’s “recesses are depressions or indentations in the yellow packaged body, at side edges thereof; and the areas defined by the recesses are circled in blue in Figure 1(b).” *Id.* at 75.

According to Petitioner’s alternative construction, “If the ‘recesses’ are the depressions or indentations in the device as a whole, then, in Nagayama, the ‘recesses’ would define just the pink-shaded regions.” *Id.* at 76 n.17.

For the reasons discussed in the *Claim Construction* Section, we disagree that the recited mounting surface can be a plane and still satisfy all the limitations of claim 1. *Supra* § II.B. In particular, we agree with Patent Owner that Petitioner has not shown that the planar mounting surface identified in Nagayama includes “recesses” at the side edges of the body as required by the claim. PO Resp. 31 (citing Baker Decl. ¶ 92). The planar surface identified by Petitioner sits below the recesses. *See* Ex. 1006, Fig. 1(b); Pet. 75–76.

Petitioner argues that, even under Dr. Baker’s analysis, Nagayama discloses the claimed mounting surface. Pet. Reply 26 (citing Ex. 1028). Dr. Baker’s analysis, however, is not consistent with the written description

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or the claims. *Supra* § II.B. In its challenge, Petitioner compares Nagayama’s device to the embodiment shown in Figure 4A of the patent. *See* Pet. 71–82. As discussed in the *Claim Construction* Section, we see little support for the argument that Figure 4A falls within the scope of the challenged claim. *Supra* § II.B. Contrary to the claim’s requirement that the device itself comprise a mounting surface with “recesses and electrical contacts [that] are sized to provide *offsets between said mounting surface and said electrical contacts*,” both Nagayama’s device and the Figure 4A embodiment show recesses *between the device and a flat surface on which the device is mounted*. Compare Ex. 1006, Fig. 1(b), with Ex. 1001, Fig. 4A, 5:11–14.

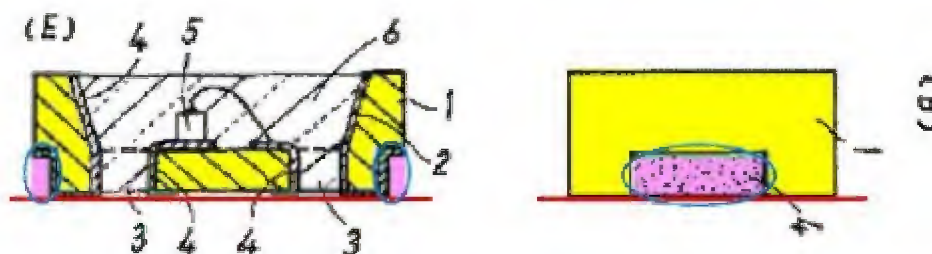
Thus, Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable as anticipated by Nagayama.

Claims 2–4 and 8 also require a “mounting surface” according to claim 1 because those claims depend from claim 1. Thus, Petitioner has not shown that claims 2–4 and 8 are unpatentable as anticipated by Nagayama for the same reasons as claim 1.

G. *Anticipation by Okazaki*

Petitioner also asserts that claims 1–4, 8, and 11 are unpatentable as anticipated by Okazaki. Pet. 83–95. Okazaki’s Figures 5E and 5B are shown below with Petitioner’s annotations. *Id.* at 87.

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Okazaki’s Figures 5E and 5B, above, are a cross-sectional view and a side view, respectively, of a light-emitting device with Petitioner’s annotations. *Id.*

The annotated figures show the body (yellow), the electrical contacts (green), the mounting surface (red), and the offsets (pink). *Id.* at 86–87, 90. Petitioner asserts that Okazaki’s “recesses at side edges of the body are the depressions or indentations in the yellow packaged body, and the areas defined thereby are identified by blue circles” in the figures shown above, and the recesses “are occupied by portions of metal plating 4 (green), as well as the pink spaces beneath.” *Id.* at 86 (citing Shealy Decl. ¶¶ 280–82). According to Petitioner’s alternative construction, “If the claimed ‘recesses’ are the depressions or indentations in the device as a whole, then, in Okazaki, the ‘recesses’ would define just the pink regions.” *Id.* at 87 n.22 (citing Shealy Decl. ¶ 282).

For the reasons discussed in the *Claim Construction* Section, we disagree that the recited mounting surface can be a plane and still satisfy all the claim limitations. *Supra* § II.B. In particular, we agree with Patent Owner that Petitioner has not shown that the planar mounting surface identified in Okazaki includes “recesses” at the side edges of the body as required by the claim. PO Resp. 36 (citing Baker Decl. ¶ 105). The planar surface identified by Petitioner sits below the recesses. *See* Ex. 1007, Figs. 5E and 5B; Pet. 86–87, 90.

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Petitioner argues that, even under Dr. Baker’s analysis, Okazaki discloses the claimed mounting surface. Pet. Reply 31–32. Dr. Baker’s analysis is not consistent with the written description or the claims. *Supra* § II.B. In its challenge, Petitioner compares Okazaki’s device to the embodiment shown in Figure 4A of the patent. Pet. 83–95. As discussed in the *Claim Construction* Section, we see little support for the argument that Figure 4A falls within the scope of the challenged claim. *Supra* § II.B. Contrary to the claim’s requirement that the device itself comprise a mounting surface with “recesses and electrical contacts [that] are sized to provide *offsets between said mounting surface and said electrical contacts*,” both Okazaki’s device and the Figure 4A embodiment show recesses *between the device and a flat surface on which the device is mounted*. Compare Ex. 1007, Figs. 5E, 5B, with Ex. 1001, Fig. 4A, 5:11–14.

Thus, Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable as anticipated by Okazaki.

Claims 2–4, 8, and 11 also require a “mounting surface” according to claim 1 because those claims depend from claim 1. Thus, Petitioner has not shown that claims 2–4, 8, and 11 are unpatentable as anticipated by Okazaki for the same reasons as claim 1.

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III. CONCLUSION

Petitioner has not met its burden to show that claims 1–4, 8, and 11 are unpatentable.

Claims	35 U.S.C. §	Reference(s)	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 11	102(b)	Kim		1–3, 11
8	103(a)	Kim, Shirahata		8
1–4, 8	102(b)	Adachi		1–4, 8
1–4, 8	102(b)	Nagayama		1–4, 8
1–4, 8, 11	102(b)	Okazaki		1–4, 8, 11
Overall Outcome				1–4, 8, 11

IV. ORDER

It is

ORDERED that Petitioner has not shown that claims 1–4, 8, and 11 of U.S. Patent No. 6,879,040 B2 are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this 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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