

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

POWER2B, INC.,
Patent Owner.

IPR2021-01239
Patent 8,624,850 B2

Before KEVIN F. TURNER, SHEILA F. McSHANE, and
JOHN D. HAMANN, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision on Remand
Determining All Challenged Claims Unpatentable
35 U.S.C. §§ 144, 318

I. INTRODUCTION

This is a Final Written Decision on Remand from the United States Court of Appeals for the Federal Circuit, which affirmed-in-part, reversed-in-part, and vacated-in-part, and remanded our original Final Written Decision (Paper 41 (“Final Dec.”)) in this *inter partes* review. Paper 59 (“Appeal Dec.”).¹

We have jurisdiction under 35 U.S.C. § 6, and we issue this remand decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we find by a preponderance of the evidence that claims 17, 18, 21, 22, 26, and 30 (the “remanded claims”) are unpatentable.

A. Procedural History

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”) filed a Petition requesting *inter partes* review of claims 15–18, 21, 22, 26, 30, 31, and 41 (“the challenged claims”) of U.S. Patent No. 8,624,850 B2 (Ex. 1001, “the ’850 patent”). Paper 1 (“Pet.”). Power2B, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 8. With our authorization, Petitioner filed a Preliminary Reply (Paper 10) relating to claim construction and discretionary denial under § 325(d), and Patent Owner filed a Preliminary Sur-reply in response to the Preliminary Reply (Paper 11).

We instituted *inter partes* review of all of the challenged claims of the ’850 patent on all of the grounds raised in the Petition. Paper 12 (“Dec. on Inst.”), 45. Patent Owner filed a Response to the Petition. Paper 17 (“PO

¹ The Federal Circuit issued a revised Opinion (Paper 59) on September 4, 2025, correcting the listing of claims on remand, and replacing its Opinion issued on March 31, 2025 (Paper 46). The mandate for the revised Opinion issued on October 14, 2025. Paper 58.

Resp.”). Petitioner filed a Reply to Patent Owner’s Response. Paper 21 (“Pet. Reply”). Patent Owner filed a Sur-reply to Petitioner’s Reply. Paper 26 (“PO Sur-reply”). An oral hearing was held on October 14, 2022. A transcript of the oral hearing is included in the record. Paper 40.

In addition, Patent Owner filed a Motion to Exclude certain of Petitioner’s evidence (Paper 28) and Petitioner filed an Opposition (Paper 34). We denied this motion. *See* Paper 41, 47–50.

The Board issued a Final Written Decision finding that Petitioner (i) showed that claims 31 and 41 were unpatentable, and (ii) did not show that claims 15–18, 21, 22, 26, and 30 were unpatentable. Final Dec. 25–47.

The Federal Circuit issued an Opinion concluding that the Board’s construction of “detector assembly” was erroneous, and reversed the Board’s decision that claims 15 and 16 were not unpatentable. Appeal Dec. 7–10, 21. The Federal Circuit concluded that these claims were unpatentable based on its construction and the Board’s findings. *Id.* at 7–10. In addition, the Federal Circuit vacated the Board’s decisions as to claims 17, 18, 21, 22, 26, and 30, and remanded for the Board to evaluate Petitioner’s obviousness contentions for these claims under the correct construction of “detector assembly.”² *Id.* at 10.

In addition, the Federal Circuit concluded that the Board properly construed “at least” or “within” “a predetermined degree of propinquity.” *Id.* at 15–20. And the Federal Circuit affirmed the Board’s decision that claims 31 and 41 were unpatentable, finding that substantial evidence supported the Board’s factual findings for these claims. *Id.* at 18–20.

² The Federal Circuit also construed “at an edge” and “at least one edge” to guide the Board’s analysis on remand. Appeal Dec. 10–11.

With our authorization, the parties filed additional briefing limited to addressing the effect of the Federal Circuit’s claim construction on the application of the prior art of record to the claims. Petitioner filed an opening brief on remand (Paper 51, “Pet. Remand”) and a response brief on remand (Paper 54, “Pet. Resp. Remand”). Patent Owner filed an opening brief on remand (Paper 50, “PO Remand”) and a response brief on remand (Paper 52, “PO Resp. Remand”).

In addition, with our authorization pursuant to its request, Patent Owner filed an opening brief to address the *Interactive Comm’s Int’l v. Blackhawk Network, Inc.*, IPR2024-00465, Paper 40 (October 9, 2025) decision’s applicability, if any, to this proceeding. Paper 55 (“Open Br.”). Petitioner filed a response brief to the opening brief. Paper 56 (Resp. Br.)

B. Real Parties-in-Interest

The parties identify themselves as the real parties-in-interest. Paper 29, 1; Paper 44, 2.

C. Related Matters

The parties identify *Power2B, Inc. v. Samsung Electronics Co.*, Case No. 6:20- cv-01183-ADA (W.D. Tex.) as a matter that may affect, or be affected by, a decision in this proceeding. Paper 29, 1; Paper 44, 2. In addition, Petitioner filed petitions for *inter partes* review of additional patents that also are owned by Patent Owner: (i) U.S. Patent No. 10,156,931 B2 (IPR2021-01190); (ii) U.S. Patent No. 8,610,675 B2 (IPR2021-01220); (iii) U.S. Patent No. 9,317,170 B2 (IPR2021-01257); (iv) U.S. Patent No. 9,569,093 B2 (IPR2021-01266); (v) U.S. Patent No. 7,952,570 B2 (IPR2022-00300); (vi) U.S. Patent No. 10,664,070 B2 (IPR2022-00315); (vii) U.S. Patent No. 9,946,369 B2 (IPR2022-00325); (viii) U.S. Patent No.

8,816,994 B2 (IPR2022-00334 and IPR2022-01378); and (ix) U.S. Patent No. 8,547,364 B2 (IPR2022-00404).

D. The Challenged Patent

The '850 patent “relates to displays, information input devices[,] and user interface functionalities.” Ex. 1001, 1:32–33. More specifically, the '850 patent “seeks to provide an integrated display and input device, [with] improved user interfaces and user interface functionalities.” *Id.* at 1:51–53. Figure 23B, shown below, illustrates an embodiment of the '850 patent. *Id.* at 9:1–4.

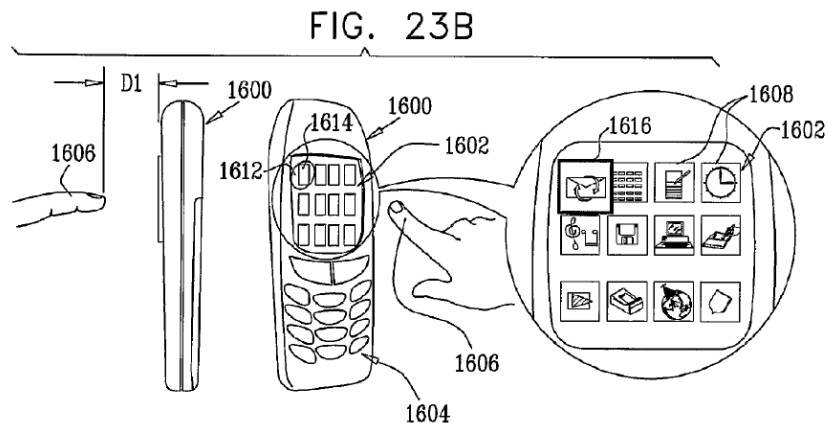


Figure 23B, above, is an “illustration[] of desktop user interface functionality of a mobile device constructed and operative in accordance with a preferred embodiment of the” '850 patent. *Id.* As illustrated, “the integrated display and input device is a mobile computer and/or communicator 1600,” and “includes a display screen 1602 having touch responsive input functionality and/or proximity responsive input functionality.” *Id.* at 50:10–29. The “display screen 1602 typically displays an array of application launch icons 1608.” *Id.* at 50:41–43. In addition, “keyboard 1604 may be provided as part of the integrated display and input device.” *Id.* at 50:33–36.

Figure 23B “shows finger 1606 located at a first distance D1 from display screen 1602, such that the propinquity responsive input functionality senses finger 1606 in propinquity to display screen 1602 which defines an impingement area 1612 of light reflected from finger 1606 that is generally centered on a first application launch icon 1614.” *Id.* at 50:44–50. The ’850 patent discloses that “[t]he functionality of the mobile device 1600 causes icon 1614 to appear in an enlarged or otherwise visually sensibly emphasized form, as indicated by reference numeral 1616.” *Id.* at 50:50–53.

To enable propinquity functionality, the ’850 patent discloses various embodiments, such as illustrated in Figure 4, shown below. *Id.* at 15:1–5.

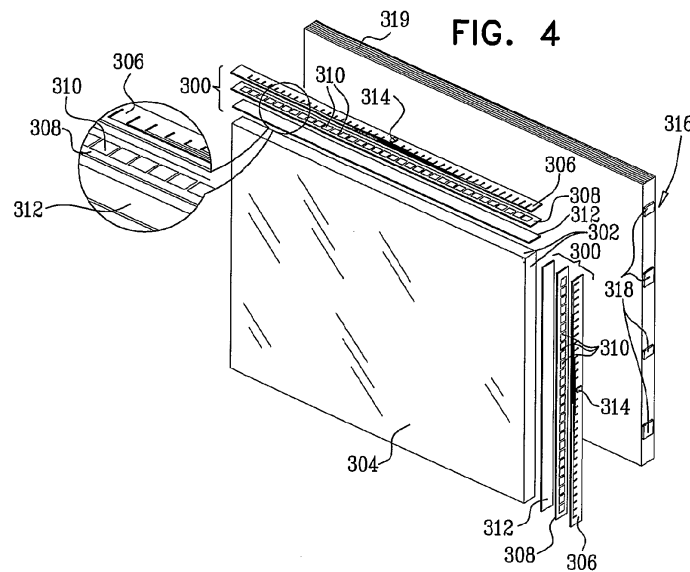


Figure 4, above, “is a simplified illustration of a portion of an input device” “employing detector elements arranged along edges of a display element,” in accordance with an embodiment of the ’850 patent. *Id.* As illustrated, Figure 4 shows “at least one detector assembly 300 is arranged along at least one edge 302 of a viewing plane defining plate 304 to sense light impinging on plate 304 and propagating within the plate 304 to the edges 302 thereof.”

Id. at 15:5–9. “Preferably, detector assemblies 300 are provided along at least two mutually perpendicular edges 302, as shown, though detector assemblies 300 may be provided along all or most of edges 302” or “may be provided along only one edge 302 of plate 304.” *Id.* at 15:11–16. As illustrated, “the detector assembly 300 comprises a support substrate 306 onto which is mounted a linear arrangement 308 of detector elements 310.” *Id.* at 15:17–20. “Interposed between linear arrangement 308 and edge 302 is a cover layer 312,” which may provide “physical protection, light intensity limitation, and field-of-view limitation.” *Id.* at 15:20–24. The support substrate 306 may be mounted onto a display housing or onto an edge 302 of plate 304. *Id.* at 15:27–30. “A processor 314 for processing the outputs of the detector elements 310 may also be mounted on the support substrate 306.” *Id.* at 15:35–37.

E. The Remanded Claims

The challenged claims on remand are claims 17, 18, 21, 22, 26, and 30, which depend directly and indirectly from independent claim 15. Claim 15 reads as follows:

- 15. An integrated display and input device, comprising:
 - a pixel array configured to provide a visually sensible output;
 - at least one sensor configured to sense at least a position of at least one object with respect to the pixel array when the at least one object has at least a predetermined degree of propinquity to the pixel array;
 - circuitry configured to receive an output from the at least one sensor and to provide a non-imagewise input that is representative of the position of the at least one object relative to the pixel array; and
 - wherein the at least one sensor includes a detector assembly arranged at least one edge of a viewing plane defining plate.

Ex. 1001, 66:65–67:11.

F. Grounds of Unpatentability on Remand

The following grounds of unpatentability from the Petition challenge the remanded claims:

Claim(s) Challenged	35 U.S.C. §³	Reference(s)/Basis
17, 18, 21, 22, 30	103(a)	Reime ⁴
17, 18, 21, 22, 26, 30	103(a)	Reime, Hinckley ⁵

Pet. 3–4, 20–53. Petitioner submits the Declaration of Benjamin B. Bederson (Ex. 1002) and the Reply Declaration of Benjamin B. Bederson (Ex. 1035) in support of its arguments. Patent Owner submits the Declaration of Darran R. Cairns, Ph.D. (Ex. 2056) in support of its arguments.

II. LEVEL OF ORDINARY SKILL IN THE ART

In our Final Written Decision, we adopted the following definition for one having ordinary skill in the art at the time of the invention of the ’850 patent: one who “would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and . . . years of experience in the research, design, development, and/or testing of touch and/or proximity sensors, human-machine interaction and

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’850 patent issued from an application filed before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability.

⁴ US 2003/0034439 A1, published Feb. 20, 2003 (Ex. 1010, “Reime”).

⁵ US 2002/0021278 A1, published Feb. 21, 2002 (Ex. 1011, “Hinckley”). Petitioner lists the combination of Reime and Hinckley as a separate asserted ground for claim 26. We combine these two asserted grounds into one as they rely on the same combination.

interfaces, and related firmware and software, or the equivalent, with additional education substituting for experience and vice versa.” Final Dec. 8–9.

This definition for one having ordinary skill was not the subject of appeal, and we maintain it for purposes of this Final Written Decision on Remand. Moreover, it is consistent with the ’850 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

III. CLAIM CONSTRUCTION

Because the Petition was filed after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b); 83 Fed. Reg. 51,340, 51,340–41, 51,343 (Oct. 11, 2018). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13.

The parties disputed how to construe “a detector assembly.” PO Resp. 17–29; Pet. Reply 8–15; PO Sur-reply 6–11. We construed this term in the Final Written Decision. Final Dec. 10–24. In particular, we concluded that (i) “detector assembly” means “two or more detector elements that detect electromagnetic radiation,” and (ii) a detector assembly is not required to be physically separate from (i.e., not interspersed with) a pixel array. *Id.* at 20, 22.

The Federal Circuit found the first part of our construction erroneous. Appeal Dec. 7–10. In particular, the Federal Circuit concluded that “[t]he

claims only require an ‘assembly’ that includes at least one ‘detector’ element.” *Id.* at 8.

In addition, to guide the Board’s analysis on remand, the Federal Circuit construed “the terms ‘at an edge’ and ‘at least one edge’ [to] require a detector assembly to be arranged along one or more edges of a viewing plane defining plate.” *Id.* at 10–11. In other words, the Federal Circuit “clarif[ied] that arranging a detector assembly ‘at,’ ‘along,’ or ‘about’ ‘at least one edge’ or ‘an edge’ does not limit the detector assembly to being arranged entirely on ‘one edge.’” *Id.* at 12.

IV. PRINCIPLES OF LAW

“In an [*inter partes* review], the 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) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner except in limited circumstances not present here. *See Dynamic Drinkware*, 800 F.3d at 1378 (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under 35 U.S.C. § 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 of the invention to a person having ordinary skill in the art. *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 ordinary skill in the art; and (4) objective evidence

of non-obviousness, if present.⁶ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a claim for obviousness, we also must “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

V. ALLEGED OBVIOUSNESS OVER REIME

Petitioner argues that Reime renders obvious claims 17, 18, 21, 22, and 30. Pet. 3, 20–36, 45–46. For the reasons that follow, we determine that Petitioner shows by a preponderance of the evidence that Reime renders these claims obvious.

A. Summary of Reime

Reime relates to a touch sensitive device in an electronic device or a wireless telecommunication terminal. Ex. 1010 ¶ 2. Figure 2A, reproduced below, shows touch pad device 1.

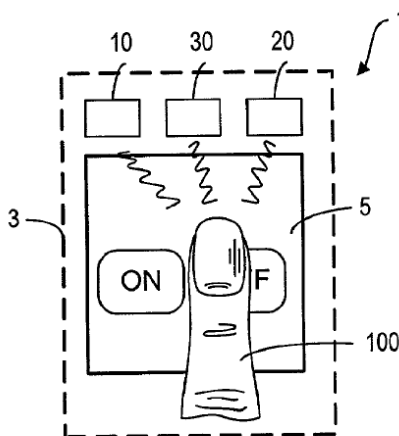


FIG. 2A

⁶ Patent Owner does not present arguments or evidence of such objective evidence of non-obviousness. *See generally* PO Resp.

Figure 2A is a diagrammatic representation showing touch pad device 1 having optical sensor components 10, 20, and 30 placed near the top side of touch pad area 5. *Id.* ¶¶ 29, 76. As shown in Figure 2A, touch pad device 1 can be used to select the “ON” function or “OFF” function depending on the location of the “touching” point on touch pad area 5. *Id.* ¶ 75. When user’s finger 100’ touches or approaches the pad area 5, the changes in the output signal of the receiver 30 show which function is selected. *Id.*

B. Challenged Claim 17

Claim 17 depends from independent claim 15. As we discuss above, the Federal Circuit already has concluded that claim 15 is obvious in view of Reime. Appeal Dec. 9–10. Claim 17 further recites “wherein the detector assembly comprises: a support substrate, and an arrangement of detector elements.” Ex. 1001, 67:15–18. We agree with Petitioner and find that Reime teaches these further limitations. Pet. 34–35; Pet. Remand 2–4; Pet. Resp. Remand 1–3.

First, as we found in the Final Written Decision, Reime’s receivers 30 and 32 are two detector elements that detect electromagnetic radiation (i.e., light), and Reime’s receivers 30 and 32, collectively, comprise a detector assembly. Final Dec. 27–28 (citations omitted). Moreover, Reime’s two receivers 30 and 32 comprise a detector assembly having multiple detector elements (e.g., two receivers) to teach “an arrangement of detector elements.” Ex. 1010 ¶¶ 73, 86, Figs. 9A–9C; Ex. 2060,⁷ 127:17–18; Pet. 32–33; Pet. Reply 20; Pet. Remand 3.

In addition, as we found in the Final Written Decision, Reime teaches that each of receivers 30 and 32 are centered on opposite edges of the plate.

⁷ Deposition Transcript of Dr. Benjamin Bederson (Apr. 7, 2022).

Final Dec. 30–31; Ex. 1010, Figs. 9C–9F; *see also* Appeal Dec. 9–10 (citing Ex. 1010, Fig. 6A, ¶ 82) (affirming that Reime teaches having one light receiver (e.g., 30 or 32) on each side of a four-sided touch pad). In further support, we agree with Petitioner and find that Reime teaches that receivers 30 and 32 “are mounted in the peripheral area surrounding the LCD 92.” Pet. 32–33; Ex. 1010 ¶ 86; *see also id.* at Figs. 9A–9C (showing that the receivers are positioned at the edge of the LCD screen); *infra* annotated Fig. 9E (showing receivers 30 and 32 along edges of the LCD).

Accordingly, we find Reime’s detector assembly that comprises receivers 30 and 32 is arranged along two edges (one edge for each receiver) of the LCD, which meets the Federal Circuit’s construction for being arranged at at least one edge. *See supra* Section III (concluding “at least one edge” means “arranged along one *or more* edges”) (emphasis added).

In addition, we agree with Petitioner and find that Reime teaches that LCD 92 is “mounted on a printed circuit board (PCB) or a printed wire board (PWB) 90,” i.e., a support substrate. Pet. 34–35; Ex. 1010 ¶ 86; Pet. Remand 3. Petitioner provides an annotated combination of Reime’s Figs. 8B and 9E, shown below, in support of its arguments. Pet. Remand 3.

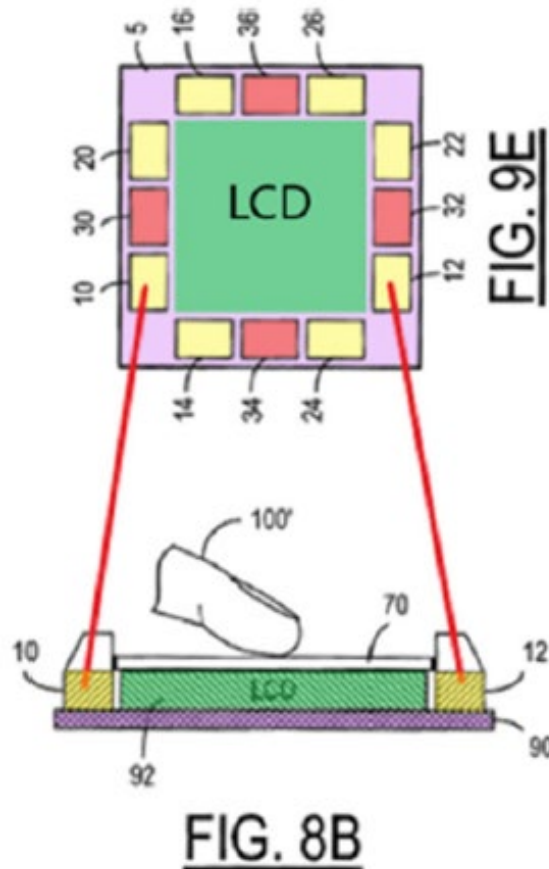


Figure 8B “is a cross-sectional side view showing a touch pad device having an LCD and a thin cover on top of the LCD for touching.” Ex. 1010 ¶ 49. Figure 9E “is a diagrammatic representation showing a touch pad device having four groups of optical sensor components placed within the touch pad area.” *Id.* ¶ 56. In making this combination of figures, Petitioner rotates Figure 9E ninety degrees counterclockwise and places it higher up on the page above Figure 8B. Pet. Remand 3. Petitioner then annotates the combined figures by drawing a red line connecting elements 10 on Figure 8B and Figure 9E, and drawing a second red line connecting elements 12 on each of these figures. *Id.* In addition, Petitioner colors in (i) green LCD 92 in both figures, (ii) purple PCB 90 in Figure 8B and the PCB portion of touchpad 5 in Figure 9E, (iii) yellow the emitters, and (iv) red the receivers (e.g., 30 and 32). *Id.*

We agree with Petitioner and find that Reime teaches that portions of the PCB 90 (i.e., the support substrate) extend beyond the LCD to be ***along one or more edges*** of the LCD—it is along all 4 edges, as shown in Figure 9E. Pet. 34–35; Pet. Remand 3–4; Ex. 1010, Figs. 8B, 9E. Moreover, Reime teaches that receivers 30 and 32 “are mounted in the peripheral area surrounding the LCD 92” on PCB 90. Ex. 1010 ¶ 86, Figs. 8B, 9E. Thus, Reime teaches that detector elements (e.g., receivers 30 and 32) are arranged on the PCB 90 substrate, arranged along two edges. *Id.*

We find unavailing Patent Owner’s argument that one of ordinary skill in the art “would not have considered Reime’s ‘optical sensors’ in isolation as a ‘detector assembly’ structure,” and “[i]nstead, if anything, [one of ordinary skill in the art] would have understood that Reime’s alleged ‘assembly’ would have included the light guide component.” PO Resp. 48 (citing Ex. 2056 ¶ 104); *see also id.* 54 (citing Ex. 2056 ¶ 117) (same argument). As we concluded in the Final Written Decision, a detector assembly need not be a distinct and physically separate hardware structure. Final Dec. 20–24. Hence, we disagree with Patent Owner that Reime’s light guides need be included in the claimed detector assembly. PO Resp. 47–48. Moreover, the Federal Circuit determined that Reime’s receiver discloses the claimed detector assembly in claim 15, which is contrary to requiring Reime’s lightguide to be part of an assembly, as Patent Owner argues.

We also find unavailing Patent Owner’s argument that for the remanded claims, “[t]he straightforward claim language is consistent with the undisputed plain meaning of an ‘assembly,’ which assembles multiple

components together in a single complete structure.” PO Remand 1 & n.2.⁸ However, we already decided to the contrary in the Final Written Decision, as this issue was in dispute. Final Dec. 20–24. For example, Patent Owner argued that detector assembly “requires a distinct structure ‘having an array of two or more detector elements that detect electromagnetic radiation.’” PO Resp. 17; Final Dec. 20. And Patent Owner acknowledged that this issue was in dispute, stating that Petitioner “argue[d] the structure does not require a distinct component.” PO Sur-reply 7; *see also* Final Dec. 21–22 (citing Pet. Reply 9) (“Petitioner argues that the plain and ordinary meaning of detector assembly does not require a physically separate hardware structure,” and that “[s]uch a requirement is found nowhere in the claims, according to Petitioner.”).

We addressed these arguments in the context of the ’850 patent’s differing embodiments (i.e., whether a detector assembly was or was not interspersed with the pixel array). Final Dec. 21–22. We agreed with Petitioner and “conclude[d] that the claims do not require a detector assembly to be physically separate from (i.e., not interspersed with) a pixel array.” *Id.* at 22. In particular, we concluded that “the ’850 patent illustrates that detector elements can be located, *inter alia*, along and behind an edge while being interspersed in a pixel array.” *Id.* at 23 (citing Ex. 1001, Fig. 18F (showing detector elements 1324 along and behind an edge of plate

⁸ Patent Owner provides links to what purports to be a recording of Oral Arguments at the Federal Circuit and to a Webster’s dictionary definition. PO Remand 1 n.2. Such links constitute new evidence, which is not allowed pursuant to our authorization for additional briefing. *See* Ex. 3003, 2 (“The briefs shall not contain new declarations or other exhibits/evidence”). Thus, we do not consider this new evidence.

1328)). We now show below Figure 18F, as annotated by Petitioner to further illustrate this conclusion.

FIG. 18F

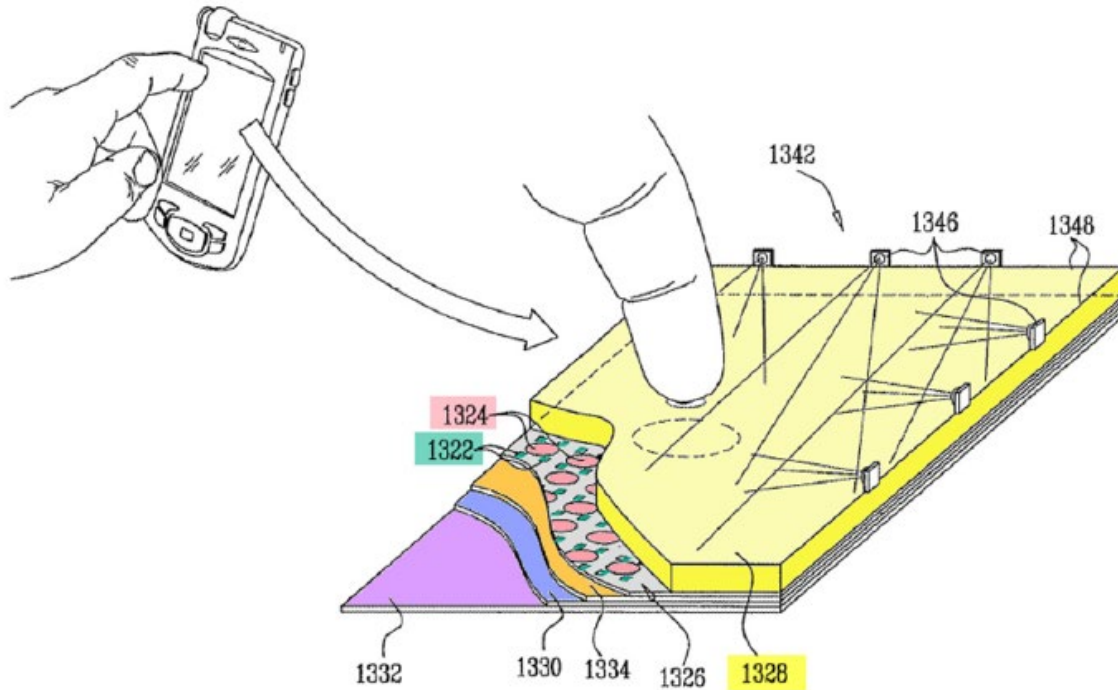


Figure 18F is a simplified illustration of an embodiment “of an illumination subassembly forming part of an integrated display and input device constructed and operative in accordance with a preferred embodiment of the” ’850 patent. Ex. 1001, 8:53–58. Petitioner annotates the figure by coloring in (i) purple reflector 1332, (ii) blue light diffusing layer 1330, (iii) orange collimating layer 1334, (iv) green light detector elements 1322 (detector assembly), (v) pink light emitters 1324 (pixel array), and (vi) yellow viewing plane defining plate 1328. Pet. Reply 13 (annotating Ex. 1001, Fig. 18F). As illustrated, detector elements 1322 are interspersed with the pixel array, rather than being together in a single complete structure. Moreover, Patent Owner does not explain if or how a single complete structure substantively differs from a distinct structure.

We also find unavailing Patent Owner’s argument that the prosecution history of the ’850 patent confirms that the claimed detector assembly hardware distinguishes over the prior art. PO Remand 5–7; PO Resp. Remand 3–4. We already addressed such an argument in the Final Written Decision, finding it unavailing. *See* Final Dec. 23–24. Again, Patent Owner overreads the Examiner’s statement that the prior art does not teach “the at least one sensor comprises a detector assembly arranged at least one edge of a viewing plane defining plate. Ex. 1004, 835. The Examiner did not expressly state the reasons why the art failed to teach the allowed claim. *Id.*

We also find unavailing Patent Owner’s arguments that Petitioner “never attempted to (1) identify a specific set of sensor components,” or “(2) distinguish between Reime’s emitters and receivers.” PO Remand 7; PO Resp. Remand 1 (making same argument). And we disagree that “the Board misunderstood [Petitioner]’s sole argument required all of Reime’s optical sensor components to satisfy the claimed ‘detector assembly.’” PO Remand 9. Rather, we focused on what Petitioner argued. Final Dec. 27–28. In particular, Petitioner argued “Reime’s optical components are the recited detector assembly,” and that “Reime includes ‘emitters’ and ‘receivers’, or ‘optical sensor components 10, 12, 20, 22, 30 and 32,’ to detect a nearby object.” Pet. Reply 20 (citing Ex. 1010 ¶¶ 73, 86; Ex. 1002 ¶¶ 87–88; Ex. 1035 ¶¶ 41–42; Ex. 2060, 125:11–15, 127:17–18). The cited Dr. Bederson’s deposition testimony, however, makes clear that Petitioner argued that of the optical components Reime’s receivers (e.g., 30 and 32) comprise the detector assembly. *Id.* (citing Ex. 2060, 125:11–15, 127:17–21). For example, to the question “[A]re [emitter] elements 10 and 12 in Figure 8B part of the detector assembly?,” Dr. Bederson responded “I’m

pointing to elements 30 and 32, each as being parts of a detector assembly. I am not pointing to elements 10 and 12. I was merely pointing to those as context to show that elements 30 and 32 are at the edge of the LCD.”

Ex. 2060, 127:9–21. Moreover, the Federal Circuit affirmed our finding that Petitioner showed that Reime’s receiver is a detector element in concluding that Reime taught a detector assembly. Appeal Dec. 9–10.

Nor do we agree with Patent Owner that “[t]he Board incorrectly stated the Reply ‘focuses on detectors 30 and 32’ and inserted a new improper argument that Reime’s ‘detectors 30 and 32’ collectively form ‘a detector assembly.’” PO Remand 9. As we discuss above, Petitioner’s reliance on Dr. Bederson’s deposition testimony makes clear that Petitioner argued that Reime’s receivers (e.g., 30 and 32) comprise the detector assembly. *See* Pet. Reply 20. And this is not a new argument. In the Petition, Petitioner quotes Reime that “all of the optical sensor components are placed outside the touch pad area” and that the “optical sensor components 10, 12, 20, 22, 30 and 32 are mounted in the peripheral area surrounding the LCD” in arguing that “arranged at least one edge” is taught for claim 15, which first recites the claimed “detector assembly.” *See* Pet. 32–33 (quoting Ex. 1010 ¶¶ 86–87). Petitioner, however, also quotes there Reime’s teaching of “a touch pad device having four transceivers placing inside the four edges of the touch pad area.” *Id.* at 33 (citing Ex. 1010 ¶ 69). This evidences that Petitioner’s arguments focused on Reime’s receivers for the detector assembly.⁹

⁹ In the Final Written Decision, we disagreed with Petitioner’s arguments as they related to the emitters and their placement could not serve to teach the detector assembly. Final Dec. 27. We focused on Petitioner’s arguments as they related to Reime’s receivers.

We also find unavailing Patent Owner’s argument that Dr. Bederson provided deposition testimony that “clarified Reime’s detectors 30 and 32 are not ‘collectively’ part of the same detector assembly because they are instead each part of different respective assemblies on different edges.” PO Remand 9–10 (citing Ex. 2060, 130:7–13). Patent Owner adds that “[i]n view of the unequivocal clarifying testimony, [Petitioner] could not and did not argue Reime’s ‘detectors 30 and 32’ collectively form ‘a detector assembly.’” *Id.* But Dr. Bederson clarified this testimony and also testified that “if you had a single assembly with detectors 30 and 32 as part of a single assembly, then that would be one assembly, and that assembly as a whole would have an arrangement of multiple detector elements, and that entire detector assembly would be arranged at at least one edge.” Ex. 2060, 137:16–21, 138:10–139:3, 139:11–14; *see also infra* Section VII (providing a more fulsome discussion of his testimony).

We also find unavailing Patent Owner’s argument that Petitioner “does not point to any disclosure that teaches Reime’s individual detector component could comprise multiple detector elements.” PO Remand 11 (citing Ex. 2060, 139:7–10) (“I am not aware of a specific disclosure in Reime that shows that the detector 30 consists of multiple individual detectors.”). This argument is inapposite. As we discuss above, Petitioner relies on multiple receivers (i.e., 30 and 32) here.

We also find unavailing Patent Owner’s argument that “Reime teaches its optical sensor components are separate individual components and do not form the claimed ‘a detector assembly.’” PO Remand 12. In particular, Patent Owner argues that “Reime intentionally positions only one receiver on each side of the display,” and that “[t]o activate/disable each individual receiver, Reime physically wires each

receiver to separately receive an enabling signal from an ‘enabling module 420’ and separately output a respective ‘output signal 130’ (e.g., Fig. 14).” *Id.* (citing Ex. 1010 ¶¶ 79–80, 86, 106, Figs. 2A–2D, 3A–3B, 4A–4B, 5A–5H, 6A–6B, 7, 8D, 9C–9E, 14). “At best, Reime’s individual receivers are each part of different respective assemblies on different edges,” according to Patent Owner. *Id.* at 13. These arguments are premised on Patent Owner’s argument that a detector assembly requires a single complete structure, which as we discuss above, is incorrect. Moreover, the claim language relates to sensing a position of an object, rather than how a detector assembly is wired and its signaling. Ex. 1001, 66:65–67:11, 67:15–18. Thus, these arguments are misplaced. *See In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (stating “the name of the game is the claim”).

We also find unavailing Patent Owner’s argument that “Reime positions a separately wired and individually operated single receiver on different edges of the display, which teaches away from assembling multiple receivers together into ‘a detector assembly’ hardware structure.” PO Remand 13. “A reference does not teach away . . . if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.” *Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 738 (Fed. Cir. 2013) (citation omitted). Patent Owner identifies no such criticism of Reime’s configurations. And again, the claims do not require a single complete structure, as Patent Owner alleges.

We also find unavailing Patent Owner’s argument that “when asked if Reime’s alleged ‘detector assembly’ could be limited to a subset of receivers, [Dr. Bederson] stated he didn’t consider that ‘hypothetical,’ and ‘that’s not an analysis that I have done and I don’t feel comfortable

. . . forming a definitive opinion about that modification.” PO Resp. Remand 4 (citing Ex. 2060, 127:22–128:3, 128:7–12, 128:22–129¹⁰). This argument mischaracterizes the deposition testimony. The question that Dr. Bederson was responding to was “[i]f Figure 8B was modified to include reference numbers 30 and 32 in place of reference numbers 10 and 12 respectively, would those be considered part of the detector assembly?” Ex. 2060, 127:22–128:1. Thus, Dr. Bederson testified that he did not analyze replacing Figure 8B’s emitters 10 and 12 with receivers 30 and 32, rather than what Patent Owner incorrectly argues. *See* Ex. 2060, 127:22–129:2.

We also find unavailing Patent Owner’s argument that “Reime’s PWB 90 underlies Reime’s entire device” and thus, “Reime’s PCB/PWB substrate is not and cannot be arranged at an ‘edge’ of LCD.” PO Resp. 53 (citing Ex. 1010, Fig. 7; Ex. 1002 ¶¶ 92–94; Ex. 2056 ¶ 116). First, Petitioner relies on the portions of PCB 90 that extend beyond LCD 92, and those portions are along multiple edges of the LCD. Second, the ’850 patent broadly views what it means to be “at an edge,” by including being behind, about, or along an edge within its scope. Ex. 1001, 42:61–67; Final Dec. 23. As Reime teaches, the portions of PCB 90 on which the receivers (e.g., 30 and 32) are arranged extend beyond the LCD and are along the edges. *E.g.*, Ex. 1010 ¶ 86, Fig. 9E. Moreover, the Federal Circuit affirmed that Reime’s receiver—which is on a portion of PCB 90—is along an edge, and thus the PCB 90 portion upon which it sits also is along an edge. Appeal Dec. 9–10.

¹⁰ Patent Owner cites “128:22–129,” which we understand should be “128:17–129:2” from the context of the argument.

In sum, we find that Petitioner shows by a preponderance of the evidence that Reime teaches “wherein the detector assembly comprises: a support substrate, and an arrangement of detector elements,” rendering claim 17 obvious.

C. Challenged Claims 18

Claim 18 depends from claim 17, and further recites “wherein the arrangement of detector elements comprises one of: a plurality of discrete single-element detectors; an integrally formed multi-element detector array, and a plurality of discrete multi-element detectors.” Ex. 1001, 67:20–25. We agree with Petitioner and find that Reime teaches claim 18’s limitations. Pet. 35–36; Pet. Remand 4–5.

In particular, we agree with Petitioner and find that Reime teaches that the arrangement has a plurality of discrete detector elements. Pet. 35. More specifically, Reime teaches “a touch pad device” with “four receivers separately placed near the four edges of the touch pad area.” Pet. 35; Ex. 1010 ¶ 46, Fig. 6B. In addition, we find persuasive Dr. Bederson’s testimony that one of ordinary skill in the art “would have understood that each one of the plurality of discrete detectors in Reime must be either a single-element detector or a multi-element detector.” Ex. 1002 ¶ 98.

After reviewing Petitioner’s arguments and evidence, which are not addressed separately by Patent Owner, we determine that Petitioner shows by a preponderance of the evidence that Reime teaches claim 18.

D. Challenged Claim 21

Claim 21 depends from claim 17, and further recites “wherein at least one detector in the arrangement is configured to detect electromagnetic radiation at a baseline level and to sense a position of the object with respect to the pixel array and wherein the circuitry is further configured to provide the non-imagewise input according to location of at least one detector in the arrangement for which at least one of the amount of radiation detected and the change in the amount of radiation detected exceed a first predetermined threshold.” Ex. 1001, 67:34–42. We agree with Petitioner and find that Reime teaches these limitations. Pet. 25, 34–35, 37–40; Pet. Reply 22–23, 25; Pet. Remand 5–10; Pet. Resp. Remand 4–5. We address the limitations in two parts.

1. Wherein at Least One Detector

We agree with Petitioner and find that Reime teaches “wherein at least one detector in the arrangement is configured to detect electromagnetic radiation at a baseline level and to sense a position of the object with respect to the pixel array.” In particular, we agree with Petitioner and find that Reime teaches using the same receivers (e.g., receiver 30) that sense the location of an object also to detect an ambient light level. Ex. 1010 ¶ 88; Pet. 37. More specifically, Reime teaches that “as ambient light varies much slower than the frequency of the pulsed frequency, the variation in the output signal of the receiver due to the variation in ambient light is most likely a shift in the *base line* of the output signal.” Ex. 1010 ¶ 88 (emphasis added); Pet. 37. Figure 10C, shown below as annotated by Petitioner, illustrates this ambient light baseline.

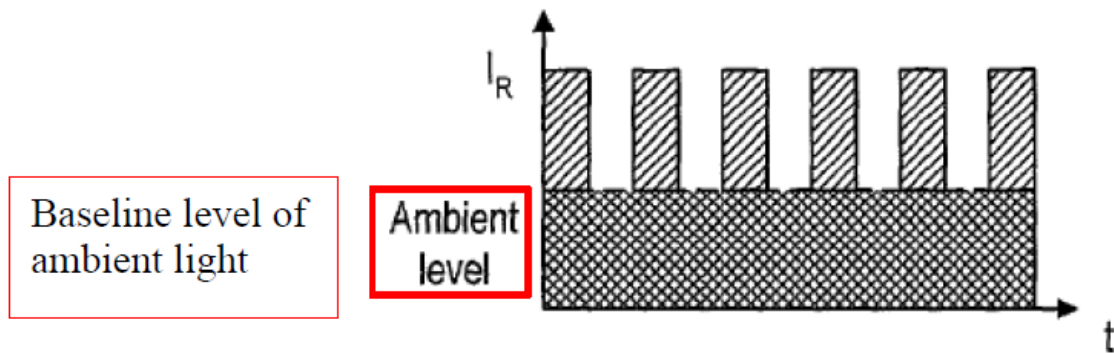


FIG. 10C

Figure 10C “is a diagrammatic representation showing the output signal of a receiver attributable to a light emitter operated in a pulsed mode and ambient light.” Ex. 1010 ¶ 60. Petitioner annotates the figure by drawing a red box around the Ambient level label on the figure and adding the label “Baseline level of ambient light.” Pet. 38. We agree with Petitioner and find that Reime’s Figure 10C shows the receiver’s output signal of the baseline level of ambient light. Pet. 37. And we find persuasive Dr. Bederson’s testimony that supports this finding as it is consistent with Reime’s teachings.

Ex. 1002 ¶ 104 (citing Ex. 1010 ¶ 88, Fig. 10C); Pet. 37.

In addition, we agree with Petitioner and find that Reime teaches that at least one receiver (e.g., receiver 30) is configured to sense a position of an object with respect to the pixel array. Pet. 38; PO Remand 6. In particular, we agree and find that Reime teaches “filtering out ambient light and using pulsed mode for the emitters to address problems that ambient light causes to ‘the detection and sensing of the presence of the touching object.’” Pet. 38 (quoting Ex. 1010 ¶ 88). And we agree that Reime teaches that by removing the output variation of the receivers due to ambient light, “the variation in the pulsed output signal of the receiver is mainly the result of the

reflection or absorption of the approaching object over the touch pad device.” *Id.* Reime also teaches that enabling and disabling its emitters and receivers in cycles “can be used to determine the two-dimensional coordinates of the touching point with respect to the touch pad area 5.” Ex. 1010 ¶ 80; Pet. 38. We also agree with Petitioner that Reime teaches that touch pad area 5 contains the LCD display pixels. Ex. 1010 ¶ 86; Pet. 38. Moreover, Reime’s teaching of receiver 30 causing a change in the output signal 130 based on the presence of an object teaches that receiver 30 is operative to sense a position. Ex. 1010 ¶ 73; PO Remand 6; *see also* Appeal Dec. 18–19 (in the context of a related patent, determining that “[t]he Board’s finding that Reime teaches detecting the position of an object . . . is also supported by substantial evidence”).

In sum, we find that Reime teaches “wherein at least one detector in the arrangement is configured to detect electromagnetic radiation at a baseline level and to sense a position of the object with respect to the pixel array.”

2. *Wherein the Circuitry*

We agree with Petitioner and find that Reime teaches “wherein the circuitry is further configure[d] to provide the non-imagewise input according to location of at least one detector in the arrangement for which at least one of the amount of radiation detected and the change in the amount of radiation detected exceed a first predetermined threshold.” In particular, we agree with Petitioner and find that “Reime’s F[ig]. 14 includes circuitry such as a microprocessor 460 and signal processor 450 configured to provide the non-imagewise input according to the location of at least one detector in the arrangement.” Pet. 39 (citing Ex. 1010 ¶ 106). More specifically, Reime teaches that “[a] microprocessor or ASIC 460 is connected to the

components 400 to control the measurement on the touch pad device and make use of the measurement results therefrom.” Ex. 1010 ¶ 106; Pet. 31. And Reime explains that “[t]he output signal 130 from the receiver 30 and the output signal 132 from the receiver 32 are conveyed to a signal-processing module 450.” Ex. 1010 ¶ 106; Pet. 31. We also agree with Petitioner and find that Reime teaches that “the signal processing module 450 sends measurement information 452 to the microprocessor 460,” and that measurement information signals are not images, but instead are representations of the detected signal value, such as I_R shown in Figure 10B. Ex. 1010 ¶ 106, Fig. 10B; Pet. 31–32, 39.

In addition, we agree with Petitioner and find that Reime teaches that in pulsed mode the “output I_R of the receiver attributable to the output intensity I_E of the pulsed emitter is a series of pulses.” Ex. 1010 ¶ 88, Fig. 10B; Pet. 39. We also agree that Reime teaches using a high pass filter in addressing detection difficulties. Ex. 1010 ¶¶ 88–89; Pet. 38–40. In particular, we agree with Petitioner and find that Reime teaches for an embodiment that “after being filtered by a high-pass filter, the output signal of the receiver 30 is substantially zero” when the touching object is not present. Ex. 1010 ¶ 89, Figs. 10D–10E; Pet. 39. When the object is present, Reime teaches that after the high-pass filtering, “the variation in the pulsed output signal of the receiver is mainly the result of the reflection or absorption of the approaching object over the touch pad device.” Ex. 1010 ¶ 88; Pet. 39. In other words, as Dr. Bederson testifies, “when the object is not present, the ‘output signal of the receiver is substantially zero’ and that any greater output is used to determine a position.” Ex. 1035 ¶ 48 (citing Ex. 1002 ¶ 108 (citing Ex. 1010 ¶ 88)); Pet. Reply 23. In addition, we find persuasive Dr. Bederson’s testimony that one of ordinary skill in the art

would have considered the substantially zero level after high-pass filtering to be the claimed predetermined threshold. Ex. 1002 ¶ 108; Ex. 1035 ¶¶ 46–47; Pet. 39; Pet. Reply 22–23, 25; Pet. Remand 8. This testimony is consistent with Reime’s teachings and Dr. Bederson’s testimony that we discuss above.

In addition, we agree with Petitioner and find that “Reime’s detectors provide sensed radiation measurements from their location to ‘track the position of the object’ with the series of measurements.” Pet. Remand 7–8 (citing Pet. 25, 37–40 (citing Ex. 1010 ¶¶ 73–74, 80 (“It is understood that one series of eight measurement cycles can be used to determine the-two dimensional coordinates of the touching point with respect to the touch pad area 5.”))). We also agree that “[t]he input provided by the circuitry thus corresponds to the sensor’s location because it is based on the output from each of the detectors in the detector assembly.” *Id.*; see also Pet. 34–35; Ex. 1010, Figs. 2A–D, 3A–B, 4A–B, 5A–H, 6A–B, 7, 8A–D, 9A–F, 12A–C, 13A–D (showing different example arrangements for the detectors). For these reasons, we find unavailing Patent Owner’s arguments that “Petitioner and Dr. Bederson do not explain at all how Reime’s alleged ‘circuitry’ provides any signals according to the *location of a detector in the arrangement*,” and that “Reime only teaches determining the position of an object based on its ‘emitters,’ not receivers.” PO Resp. 55–56 (citing Ex. 1010 ¶ 73).

We also find unavailing Patent Owner’s argument that one of ordinary skill in the art would have understood that “Reime teaches away from providing ‘the non-imagewise input according to location of at least one detector in the arrangement.’” *Id.* at 56 (citing Ex. 2056 ¶ 121). Patent Owner does not provide a basis for this teaching away argument. Nor does

Patent Owner identify any specific teaching in Reime that supports its argument that Reime teach away from the claimed invention — a reference teaches away if it criticizes, discredits, or otherwise discourages modifying the reference to arrive at the claimed invention. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). And we afford the cited Dr. Cairns’s testimony little to no weight as it is conclusory. *See* Ex. 2056 ¶ 121.

We also find unavailing Patent Owner’s argument that Petitioner “relies on Reime’s ‘high-pass’ time-based frequency filter, which detects ‘how often’ a signal occurs, while the claims require detecting ‘how much’ or the ‘amount.’” PO Remand 14 (citing Pet. 39–40; Pet. Reply 22–23, 25); PO Resp. 55 (citing Ex. 2056 ¶ 119) (making same argument that frequency relates to time, and not quantity or amount); PO Resp. Remand 5 (same argument). Applying a high pass filter, is only the first part of Reime’s teachings that Petitioner cites. As we discuss above, Petitioner first argues that Reime teaches using a high pass filter to address detection difficulties (e.g., filtering out ambient light), and that after high-pass filtering the output signal of the receiver is substantially zero (i.e., the claimed threshold). But, as we discuss above, Petitioner argues that Reime secondly teaches that after the filtering, the output signal of the receiver remains substantially zero when the touching object is not present, and varies when the object is present, due to the approaching object. Thus, Reime also teaches the receiver detects an amount, and change thereof, of radiation that exceeds the threshold, as we discuss above. For the same reasons, we find inapposite Patent Owner’s argument that “[t]ime-based frequency filters are agnostic to the signal ‘amount’ and output any signal that occurs at the specified time interval regardless of magnitude.” PO Remand 14 (citing Ex. 2056 ¶ 119;

PO Resp. 55–56; PO Sur-reply 14–17, 22). Again, this argument only addresses the first part (i.e., the filtering) of Reime’s cited teachings.

3. *Summary*

In sum, we find that Petitioner shows by a preponderance of the evidence that Reime renders claim 21 obvious.

E. Challenged Claim 22

Claim 22 depends from claim 21, and further recites “wherein the change in the amount of radiation detected results from at least one detector in the arrangement detecting reflected light from the object in addition to detecting the radiation at the baseline level.” Ex. 1001, 67:43–47. We agree with Petitioner and find that Reime teaches these further limitations. Pet. 44–45; Pet. Remand 10–11; Pet. Resp. Remand 4–5.

In particular, we agree with Petitioner and find that Reime teaches that the change in the amount of radiation detected results from at least one detector in the arrangement detecting reflected light from the object in addition to detecting the radiation at the baseline level. Pet. 44. More specifically, we agree with Petitioner and find that Reime teaches that “as ambient light varies much slower than the frequency of the pulsed frequency, the variation in the output signal of the receiver due to the variation in ambient light is most likely a shift in the *base line* of the output signal,” as shown in Figure 10C. *Id.*; Ex. 1010 ¶ 88 (emphasis added), Fig. 10C. Thus, the detected signal is in addition to detecting the radiation at the baseline level. We also agree with Petitioner and find that Reime teaches that the detected signal includes the reflection from an approaching finger that “causes the increase in the received light amount by the receiver.” Pet. Remand 11; Ex. 1010 ¶ 86, Fig. 8D (showing light 203 reflected off finger to receiver 30).

Patent Owner relies on the same arguments made for claim 21. PO Remand 14. We find these arguments unavailing for the reasons we discuss above for claim 21. *See supra* Section V.D.

In sum, we find that Petitioner shows by a preponderance of the evidence that Reime renders claim 22 obvious.

F. Challenged Claim 30

Claim 30 depends from independent claim 15. As we discuss above, the Federal Circuit already has concluded that claim 15 is obvious in view of Reime. Appeal Dec. 9–10. Claim 30 further recites “wherein the at least one sensor comprises a plurality of generally forward-facing detectors arranged about at least one edge of the pixel array.” Ex. 1001, 68:47–50. We agree with Petitioner and find that Reime teaches these further limitations. Pet. 45–46; Pet. Remand 11–12; Pet. Resp. Remand 3–4.

In particular, we agree with Petitioner and find that as shown in Reime’s Figure 9E, Reime’s sensors are generally forward-facing to receive light reflected from a nearby object in front of the display. Pet. Remand 11–12; Pet. 45–46; Ex. 1010, Fig. 9E (showing receivers facing forward), ¶ 73. We also agree with the Petitioner that the Federal Circuit affirmed our finding that Reime teaches “*four receivers* separately placed *near the four edges*.” Pet. Resp. Remand 3–4; Appeal Dec. 9–10; *see also* Ex. 1010 ¶ 46. Thus, Reime teaches multiple detectors, each arranged about at least one edge of the pixel array.

Patent Owner relies on its arguments made for claim 17, and for those reasons, argues that “Reime also does not disclose a single ‘one sensor’ structure that incorporates multiple detector elements.” PO Remand 13–14. In particular, “Reime’s individual optical sensor components are separate and are not part of the same ‘one sensor,’” according to Patent Owner. *Id.* at

14. We find these arguments unavailing for the reasons we discuss above for claim 17. *See supra* Section V.B.

In sum, we find that Petitioner shows by a preponderance of the evidence that Reime renders claim 30 obvious.

VI. ALLEGED OBVIOUSNESS OVER REIME AND HINCKLEY

Petitioner argues that the combination of Reime and Hinckley renders obvious claims 17, 18, 21, 22, 26, and 30—which depend directly or indirectly from independent claim 15. Pet. 3, 20–36, 45–46, 51–53. For the reasons that follow, we determine that Petitioner shows by a preponderance of the evidence that the combination of Reime and Hinckley renders these claims obvious.

A. *Summary of Hinckley*

Hinckley relates to relates to computing and mobile devices with displays. Ex. 1011 ¶ 2. Hinckley describes mobile device 200 including, among other things, two touch sensors 254 and 256, forward/back tilt sensor 258, left/right tilt sensor 260, and proximity sensor 262 consisting of infrared transmitter 264 and infrared receiver 266. *Id.* ¶ 29. Figure 7, reproduced below, shows a response curve for proximity sensor 262.

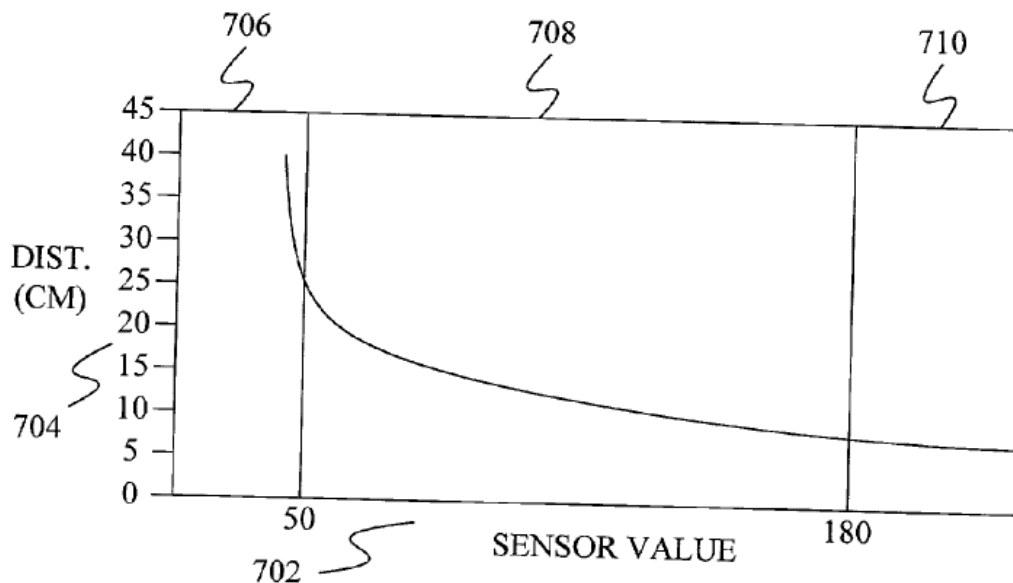


FIG. 7

Figure 7 “is a graph of distance between a user and a mobile device as a function of proximity sensor levels.” *Id.* ¶ 17. As shown in Figure 7, the sensor value is shown along horizontal axis 702 and the actual distance to the object is shown along vertical axis 704. *Id.* ¶ 44. The graph shown in Figure 7 is divided into three ranges. *Id.* Range 706 extends from a distance of approximately 27 centimeters to infinity and indicates that no objects are within range of mobile device 200. *Id.* Range 708 extends from approximately 7 centimeters to 27 centimeters and indicates that at least one object is within range of mobile device 200. *Id.* Readings in third range 710, which extends from 7 centimeters to 0 centimeters, are considered to be close to mobile device 200. *Id.*

B. Challenged Claims 17, 18, and 30

Petitioner argues that the combination of Reime and Hinckley renders obvious claims 17, 18, and 30, which depend from independent claim 15. Pet. 3, 20–36, 45–46. The Federal Circuit affirmed that independent claim

15 is rendered obvious by Reime. Appeal Dec. 9–10. For these dependent claims, Petitioner does not separately rely on Hinckley’s teachings.

As we discuss above, we find that Reime teaches the limitations of claims 17, 18, and 30, and Patent Owner does not provide separate arguments for these dependent claims for this ground. *See supra* Sections V.B–C, F; PO Resp. 52–54; PO Sur-reply 11–22; PO Remand 3–14; PO Resp. Remand 1–4. And as we discuss below, one of ordinary skill in the art would have been motivated to combine Reime and Hinckley’s teachings. *See infra* Section VI.C.1 (finding motivation to combine Reime and Hinckley’s teachings).

Accordingly, we find that Petitioner shows by a preponderance of the evidence that the combination of Reime and Hinckley¹¹ renders claims 17, 18, and 30 obvious.

C. Challenged Claims 21, 22, and 26

1. Claim 21

As we discuss above, we find that Reime teaches claim 21’s limitations. For the reasons that follow, we agree with Petitioner that Reime combined with Hinckley also teaches the latter portion of claim 21, i.e., “wherein the circuitry is further configured to provide the non-imagewise input according to location of at least one detector in the arrangement for which at least one of the amount of radiation detected and the change in the amount of radiation detected exceed a first predetermined threshold.” Pet. 39–44; Pet. Reply 22–25; Pet. Remand 9–10; Pet. Resp. Remand 4–5.

¹¹ We do not address whether Hinckley also teaches limitations of claim 15 because the Federal Circuit affirmed that Reime teaches claim 15, and the combination of Reime and Hinckley thus also would teach claim 15. Appeal Dec. 9–10.

In particular, we agree with Petitioner and find that Hinckley teaches “a proximity sensor 262 consisting of an infrared transmitter 264 and an infrared receiver 266.” Pet. 40; Ex. 1011 ¶ 29. Petitioner annotates Hinckley’s Figure 7, reproduced below, to support its arguments.

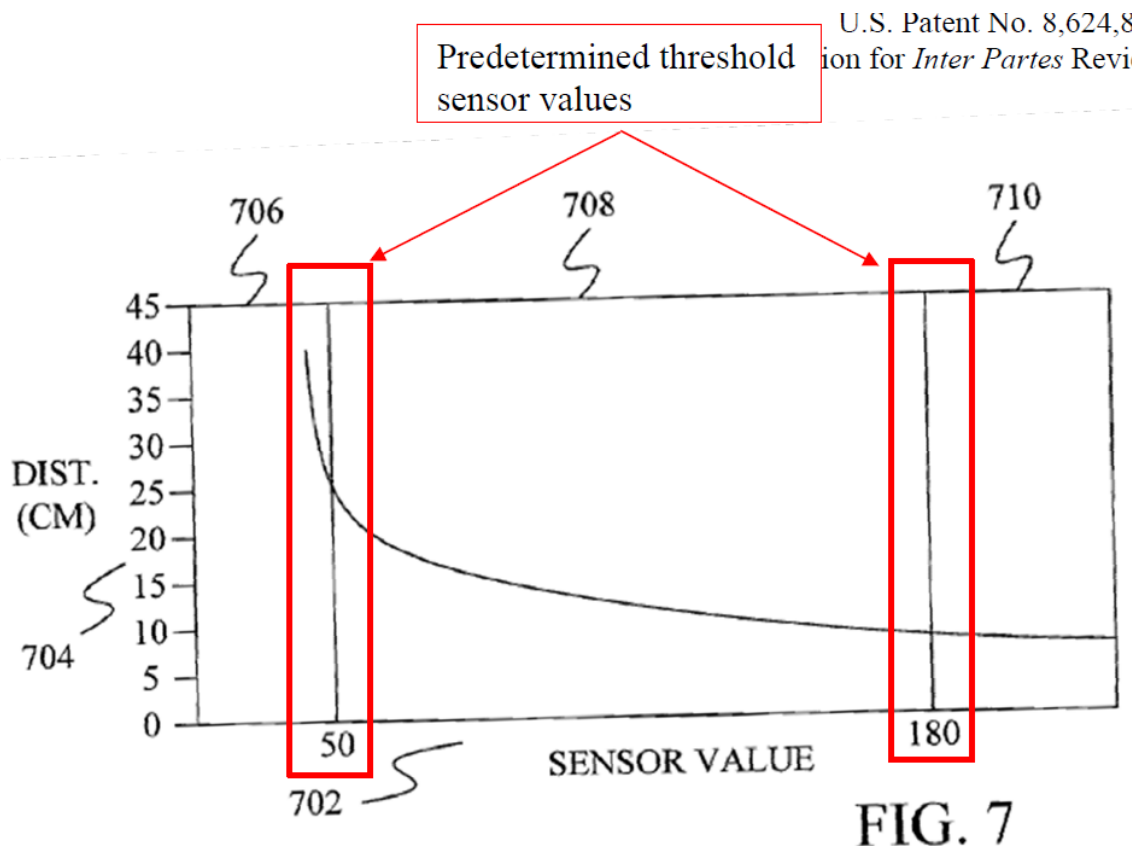


Figure 7 “is a graph of distance between a user and a mobile device as a function of proximity sensor levels.” Ex. 1011 ¶ 17. Petitioner annotates this figure by drawing red boxes around each of vertical lines 50 and 180, and labels these as “[p]redetermined threshold sensor values.” Pet. 42. We agree with Petitioner and find that Hinckley teaches that Figure 7 “shows a response curve for one embodiment of the proximity sensor.” Ex. 1011 ¶ 44; Pet. 40. “[T]he sensor value is shown along horizontal axis 702 and the actual distance to the object is shown along vertical axis 704.” Ex. 1011

¶ 44. “The graph of [Figure] 7 is divided into three ranges”: (i) “[r]ange 706 extends from a distance of approximately 27 centimeters to infinity and indicates that no objects are within range of mobile device 200”; (ii) [r]ange 708 extends from approximately 7 centimeters to 27 centimeters and indicates that at least one object is within range of mobile device 200”; and (iii) “[r]eadings in third range 710, which extends from 7 centimeters to 0 centimeters, are considered to be close to mobile device 200.” *Id.*; *see also id.* (providing equation for the response curve of Figure 7 relating distance and sensor value). Based on these teachings, we agree with Petitioner that Hinckley teaches that “the position of the object relative to the sensor is determined by comparing the output value to thresholds, such as [sensor values] 50 and 180, which are predetermined.” Pet. 40–41 (citing Ex. 1002 ¶ 110). We find persuasive Dr. Bederson’s cited testimony in this regard as it is consistent with these teachings from Hinckley. *Compare* Ex. 1011, Fig. 7, ¶ 44, *with* Ex. 1002 ¶ 110.

In addition, we find persuasive Petitioner’s argument that Reime teaches that it “is not necessary for the object 100’ to physically touch or press the area 5 at a touching point,” and thus, one of ordinary skill in the art would have chosen “a first predetermined threshold, such as [sensor value] 180 or higher, to determine whether the object was close enough for a touch in Reime, because Hinckley teaches outputs values above that threshold are ‘close.’” Pet. 41 (quoting Ex. 1010 ¶ 74; citing Ex. 1011 ¶ 44); Ex. 1010 ¶ 74 (Reime teaching its use of the phrase “touching the surface” includes both “‘making contact with the surface’ or ‘being adjacent to the surface.’”). We also find persuasive Dr. Bederson’s testimony that one of ordinary skill in the art would have chosen the exact threshold in accordance with the “the sensitivity and the optical response of the light receivers.” Ex. 1002 ¶ 110

(quoting Ex. 1010 ¶ 111). This testimony is consistent with Reime's teachings that "the sensitivity and the optical response of the light receivers . . . may vary from one application to another." Ex. 1010 ¶ 111.

In addition, we find persuasive Petitioner's argument that one of ordinary skill in the art would have found it obvious to compare the output signal in Reime, such as output signal 130 or I_R , to a predetermined threshold as taught by Hinckley. Pet. 40 (citing Ex. 1002 ¶¶ 109–114). In particular, we find persuasive Dr. Bederson's testimony that one of ordinary skill in the art "would have been motivated to include a predetermined threshold to control the 'sensitivity' and more accurately judge the 'optical response' of the device and measure the detected signal against a known-in-advance benchmark" to "ensure more consistent responses in the varying applications envisioned by Reime." Ex. 1002 ¶ 111 (citing Ex. 1010 ¶ 111); Pet. 42. As Petitioner argues, Hinckley describes using proximity measurements based on sensor output for a number of such applications. Pet. 21; Ex. 1011 ¶¶ 106–108.

We also are persuaded by Dr. Bederson's testimony that one of ordinary skill in the art would have been motivated to modify Reime to include Hinckley's features and benefits. Ex. 1002 ¶ 64; Pet. 20. As testified to by Dr. Bederson, these benefits include "controlling device idle state and power consumption based on the presence and motion and of an object." Ex. 1002 ¶ 64 (citing Ex. 1011 ¶¶ 106–108). Hinckley teaches the benefit of preventing a mobile device from entering an idle mode, which would be unwanted, if the user is gesturing toward the device. *Id.* ¶¶ 106–107. Hinckley also teaches that a device can be put in a full power mode when a touching objecting is on or near a touch pad area, for power

efficiency reasons. Ex. 1011 ¶¶ 104–105; Pet. 43. We find persuasive Dr. Bederson’s testimony that one of ordinary skill in the art would have been motivated to implement in Reime’s devices this additional power efficiency feature based on the predetermined thresholds of Hinckley. Ex. 1002 ¶ 113; *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023) (“‘[U]niversal’ motivations known in a particular field to improve technology provide ‘a motivation to combine prior art references *even absent any hint of suggestion* in the references themselves.’”). This rationale of power efficiency also is expressly taught by Hinckley. See Ex. 1011 ¶¶ 106–107, Fig. 7.

In addition, we agree with Petitioner and find that one of ordinary skill in the art would have had a reasonable expectation of success in combining the teachings of Reime and Hinckley. Pet. 21, 43–44. As Petitioner argues, Reime teaches comparing the filtered signal to a predetermined threshold (substantially zero) for determining whether the object is present. Ex. 1010 ¶¶ 88–89. We find persuasive Dr. Bederson’s testimony that one of ordinary skill in the art “would have seen no impediment to comparing the signal to a different predetermined threshold to determine a range rather than simple presence, because such a comparison is a simple arithmetic operation.” Ex. 1002 ¶ 114. Comparing a signal to a different threshold value still is a comparison of values. We also agree with Petitioner and find that both Reime and Hinckley address detection problems in similar ways, such as by using sensors, to detect the positions of an object in contact with or with a degree of propinquity to a display device. Pet. 59; Ex. 1010 ¶ 106 (teaching using measurements results from receivers); Ex. 1011 ¶ 29 (teaching proximity sensor); Ex. 1002 ¶ 65.

Accordingly, we find that Petitioner provides “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Kahn*, 441 F.3d at 988.

We find unavailing Patent Owner’s arguments that “Hinckley discloses a proximity sensor having a single emitter, and Dr. Bederson does not address or discuss how Hinckley’s ‘[peripheral interface controller (PIC)] microprocessor’ (e.g., the alleged ‘circuitry’) teaches any of the claimed operations to provide the object’s position (‘non-imagewise signal’) according to a ‘location of at least one detector in the arrangement.’” PO Resp. 57 (citing Ex. 1002 ¶¶ 110–111). For this portion of claim 21, Petitioner relies on Hinckley’s teachings regarding thresholds, as we discuss above, and not Hinckley’s PIC microprocessor.¹² Thus, Patent Owner’s arguments about Hinckley’s PIC microprocessor and the claimed arrangement are misplaced. *See Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed. Cir. 2019) (quoting *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986)) (Obviousness cannot be overcome “by attacking references individually where the [ground] is based upon the teachings of a combination of references.”).

We also find unavailing Patent Owner’s arguments that “Dr. Bederson generalizes Hinckley’s arbitrary horizontal lines or rudimentary range ‘estimates’ to the claimed ‘predetermined threshold,’” and that “Hinckley does not mention any ‘predetermined threshold’ but instead teaches

¹² That Petitioner alternatively argues that Hinckley also teaches parts of claim 15 is of no moment. Pet. 21–33. Rather, the Federal Circuit affirmed that claim 15 was obvious over Reime. Appeal Dec. 9–10. Thus, we focus on Petitioner’s showing as to Hinckley for dependent claim 21, rather than what Petitioner argues as to Hinckley for claim 15.

‘estimated’ ranges corresponding to (1) no object is near, (2) the object is near, and (3) the object is in-range.” PO Resp. 57 (citing Ex. 1002 ¶ 89; Ex. 1011 ¶¶ 44–45, 55). We focus on what Hinckley teaches and its functionality, rather than what Hinckley calls the teachings. *See In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (a reference does not have to satisfy an *ipsissimis verbis* test to disclose a claimed element). And we agree with Petitioner and find that Hinckley teaches predetermined thresholds. *See* Ex. 1011, Fig. 7, ¶ 44. In particular, Hinckley teaches selecting sensor values 50 and 180 (i.e., predetermined thresholds) that relate to distance to the object to describe its location (e.g., close). *Id.* Hinckley selects these particular sensor values to divide the distance into ranges. *Id.* That the sensor values are used as endpoints in Hinckley’s ranges does not negate that the sensor values are predetermined thresholds. For these reasons, we also disagree with Patent Owner that “absent hindsight, [one of ordinary skill in the art] would not look to generalize Hinckley’s proximity range ‘estimates’ to perform the claimed operations or achieve the ‘first predetermined threshold.’” PO Resp. 58 (citing Ex. 2056 ¶ 126). And we find unavailing Patent Owner’s argument that “Hinckley, at best, teaches its proximity sensor, which includes a single detector, outputs a sensor value all-the-time, not based on any predetermined threshold.” *Id.* (citing Ex. 1011 ¶¶ 44–47, 55; Ex. 2056 ¶ 127). This argument ignores Hinckley’s teachings regarding selected sensor values 50 and 180, and how they are used, which we discuss above.

We also find unavailing Patent Owner’s argument that “Hinckley’s hardware is incompatible with Reime’s measurement cycles because Hinckley’s proximity sensor operates in a constant listening mode and outputs detected light signals over an entire operational range.” PO Resp. 58

(citing Ex. 2056 ¶ 128); *see also* PO Remand 14–15 (making similar arguments regarding Hinckley’s sensors). This argument incorrectly describes how Petitioner combines the cited teachings for this combination. Petitioner does not bodily incorporate Hinckley’s proximity sensor into Reime. Instead, Petitioner applies Hinckley’s teachings of having predetermined thresholds to Reime’s hardware, as we discuss above, and Petitioner is not “compelled to adopt every single aspect of [Hinckley’s] teaching without the exercise of independent judgment.” *Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed. Cir. 1984); *In re Mouttet*, 686 F.3d 1322, 1331 (Fed. Cir. 2012) (“A reference may be read for all that it teaches, including uses beyond its primary purpose.”); Pet. 40–44; *see also* PO Sur-reply 19–20 (making arguments related to Hinckley’s hardware). For the same reason, we find unavailing Patent Owner’s arguments that “Hinkley teaches a single proximity sensor, not the claimed pixel array.” PO Sur-reply 18 (citing Ex. 1011 ¶¶ 44–45, 51–52, 55, Fig. 7; Ex. 2056 ¶¶ 82–86).

Likewise, we find unavailing Patent Owner’s argument that “modifying Reime to detect objects at Hinckley’s proximity sensing ranges washes the receivers with light, rendering Reime’s waveguide inoperable.” *Id.*; PO Remand 15 (making same argument); PO Resp. Remand 5. The cited testimony this argument relies on is based on employing Hinckley’s hardware (e.g., IR transmitter and proximity sensor), rather than Petitioner’s combination of having Reime’s hardware add Hinckley’s teachings of having predetermined thresholds. Ex. 2056 ¶¶ 82–86. Moreover, Dr. Cairns’s testimony that “modifying Reime’s waveguide to try to detect a specified proximity or z-distance of an object would require washing its waveguide (and receivers) with light, which would render the receivers

inoperable” is unsupported, and entitled to little to no weight. Ex. 2056 ¶ 83 (citing Ex. 1010 ¶ 110). To the extent that this testimony suggests that Reime does not teach detecting an object’s presence at a distance, the testimony is contrary to Reime’s teachings that it is not necessary for the object to physically touch a surface for the sensors to detect its presence. *Compare* Ex. 2056 ¶ 83, *with* Ex. 1010 ¶ 74.

We also find unavailing Patent Owner’s argument that there is “significant and undue experimentation required to implement proximity/ambient light sensing techniques with Reime’s touch pad/waveguide.” PO Sur-reply 20 (citing Ex. 2056 ¶¶ 85–86, 97; Exs. 2061,¹³ 2062,¹⁴ 2063¹⁵; Ex. 1037,¹⁶ 164:24–165:2). Like above, this argument relies on declaration testimony regarding Hinckley’s hardware, despite Petitioner’s combination adding Hinckley’s teachings of having thresholds. Ex. 2056 ¶¶ 85–86, 97. And Patent Owner does not explain sufficiently how the cited portion of Dr. Cairns’s deposition testimony supports its argument as to the combination’s teachings. Moreover, Patent Owner cites Exhibits 2061–2063 without identifying any relevant portions or

¹³ *LED Backlighting for LCDs Requires Unique Drivers*, Electronic Design Publication, Tomi Koskela, Applications Engineer, National Semiconductor, May 12, 2008, <https://www.electronicdesign.com/markets/lighting/article/21190412/led-backlighting-for-lcds-requires-unique-drivers>.

¹⁴ *Gesturing at Your TV Isn’t Ready for Prime Time*, MIT Technology Review, Erica Naone, November 8, 2010, <https://www.technologyreview.com/2010/11/08/199103/gesturing-at-your-tv-isnt-ready-for-prime-time/>.

¹⁵ *Hardware Design Guide to Smartphone Ambient-Light Sensing*, Electronic Design Publication, Steven Li, Application Manager (ams), May 3, 2016, <https://www.electronicdesign.com/technologies/android/article/21801487/hardware-design-guide-to-smartphone-ambientlightsensing>.

¹⁶ Deposition Transcript of Darran R. Cairns, Ph.D. (July 14, 2022).

explaining how they support Patent Owner’s argument as to Reime. PO Sur-reply 20 (citing Exs. 2061–2063).

In sum, we find that Petitioner shows by a preponderance of the evidence that the combination of Reime and Hinckley renders claim 21 obvious.

2. *Claim 22*

Petitioner argues that the combination of Reime and Hinckley renders obvious claim 22, which depends from claim 21. Pet. 44–45. For claim 22, Petitioner does not separately rely on Hinckley’s teachings. *See id.* And Patent Owner does not provide separate arguments for claim 22. *See* PO Remand 14–15; PO Resp. Remand 5.

We have reviewed Petitioner’s showing for claim 22, and we find that Petitioner shows by a preponderance of the evidence that the combination of Reime and Hinckley renders claim 22 obvious.

3. *Claim 26*

Claim 26 depends from claim 21 and further recites “wherein the at least one detector in the arrangement is configured to detect radiation at the baseline level, sense the position of the object with respect to the pixel array and wherein the circuitry is further configured to provide the non-imagewise input according to a location of at least one detector in the arrangement at which the amount of radiation detected is below a second predetermined threshold.” Ex. 1001, 68:1–8. We agree with Petitioner and find that the combination of Reime and Hinckley teaches claim 26. Pet. 37–44, 51–53.

In particular, we agree with Petitioner that claim 26 adds a “second predetermined threshold” to claim 21, and adds that the “radiation detected is below” that second threshold. Pet. 51–52. We also agree that one of ordinary skill in the art “would have found it obvious to compare the output

signal in Reime, such as output signal 130 or I_R , to first and second predetermined thresholds to detect the location of touches” in light of the combined teachings. *Id.* at 52.

More specifically, Hinckley teaches having two predetermined thresholds (e.g., sensor values 50 and 180), as we discuss above. *See* Fig. 7, ¶ 44; *supra* Section VI.C.1. As Petitioner argues, Hinckley teaches that if the sensor value exceeds value 180 (a first predetermined threshold), then the object is considered close. Ex. 1011 ¶ 44. If the sensor value is below value 50 (second predetermined threshold), the object is considered out of range. *Id.*; *see also id.* ¶ 55 (teaching that the first and second thresholds result in different “context variables”, i.e., “Close,” “InRange,” and “OutOfRange”). We also agree with Petitioner and find that Hinckley teaches “limiting the duty cycle of the proximity sensor 262 until an object is determined to be in range, . . . and activating the audio receiver when the device is close to the user.” Pet. 52–53 (citing Ex. 1011 ¶¶ 46, 62). Thus, Hinckley teaches using two predetermined thresholds to provide for more functionality than a single threshold value.

In addition, we agree with Petitioner and find that one of ordinary skill in the art would have been motivated to combine Reime and Hinckley’s teachings so as to render claim 26 obvious and would have had a reasonable expectation of success for the reasons we discuss above for claim 21. *See id.* at 53; *supra* Section VI.C.1.

Patent Owner repeats arguments for claim 26 that it also made for claim 21. PO Resp. 59–61; PO Remand 5. As we discuss above, we find these arguments unavailing. *See supra* Section VI.C.1. For example, we disagree with Patent Owner that Hinckley does not teach any thresholds. *Id.* We also find unavailing for the reasons we discuss above Patent Owner’s

arguments that Hinckley does not teach using its proximity sensor to “detect the locations of touches,” and that Reime and Hinckley’s hardware are incompatible. PO Resp. 60–61 (citing Ex. 2056 ¶¶ 131–132, 134); *supra* Section VI.C.1. And for the reasons above, we find unavailing Patent Owner’s argument that “the time-based concepts of Reime’s frequency-based filter” and Hinckley’s alleged “thresholds” are “concepts [that] simply do not relate.” PO Resp. 60 (citing Ex. 2056 ¶ 133); *supra* Section V.D.2.

In sum, we find that Petitioner shows by a preponderance of the evidence that the combination of Reime and Hinckley renders claim 26 obvious.

VII. INTERACTIVE COMMC’NS INT’L V. BLACKHAWK NETWORK

Patent Owner argues that the Director’s decision in *Interactive Commc’ns Int’l v. Blackhawk Network, Inc.*, IPR2024-00465, Paper 40 (PTAB Oct. 9, 2025) (Director Review) applies here. More specifically, Patent Owner argues that like the expert in *Interactive Commc’ns*, Petitioner’s expert here provides contradictory expert testimony regarding “material hardware modifications.” Open Br. 1–2. And we thus should find Petitioner’s expert not credible and that “the Petition was deficient at the onset,” according to Patent Owner. *Id.* (citing *Interactive Commc’ns*, Paper 40 at 3–4).

We now step through Patent Owner’s arguments that Petitioner’s expert provides contradictory testimony, and we find these arguments unavailing. First, Patent Owner argues that Petitioner’s “expert initially referenced all of Reime’s ‘optical sensor components’ without specifying which component(s) he was relying on.” *Id.* at 1 (citing Ex. 1002 ¶¶ 86–88, 92–94). Then, during his deposition, the “expert directly contradicted his

initial testimony by stating: (1) he was ‘not’ relying on Reime’s emitters 10 and 12 . . . , [and] (2) he was apparently only relying on Reime’s receivers 30 and 32,” according to Patent Owner. *Id.* at 2 (citing Ex. 2060, 126:22–127:5, 127:17–18). At most, these arguments on their face allege that Dr. Bederson clarified during his deposition what he was relying on, rather than created a contradiction. Moreover, looking at the cited declaration testimony, Dr. Bederson did not state that the detector assembly includes emitters. Ex. 1002 ¶¶ 86–88, 92–94. Rather, he stated that the emitters and the detectors are located at the edges of the screen. *Id.* ¶¶ 87–88, 94. But notably, he stated that “Reime discloses that the detector assembly comprises a support substrate and an arrangement of detector elements”—he did not include emitters in this statement. Ex. 1002 ¶ 94. Thus, the declaration testimony does not contradict the deposition testimony. *Compare* Ex. 1002 ¶¶ 86–88, 92–94, *with* Ex. 2060, 126:22–127:5, 127:17–18); *see also supra* Section V.B (addressing similar argument).

Second, Patent Owner argues that Dr. Bederson contradicted his declaration testimony by testifying in his deposition that “he considered *each* of Reime’s individual receivers to be part of a ‘*different*’ respective detector assembly.” Open Br. 2 (citing Ex. 2060, 130:7–13). Patent Owner, however, ignores that during his deposition that Dr. Bederson clarified this testimony and also testified that “if you had a single assembly with detectors 30 and 32 as part of a single assembly, then that would be one assembly, and that assembly as a whole would have an arrangement of multiple detector elements, and that entire detector assembly would be arranged at at least one edge.” Ex. 2060, 137:16–21. In fact, Patent Owner’s question that followed was: “It is getting a little confused here. Your testimony was that the components 30 and 32 were detector assemblies. Now your testimony, as I

understand it, is that 30 and 32 could be part of the same detector assembly; is that correct?” *Id.* at 138:10–14. Dr. Bederson’s response began as: “I’ve been -- I think I’ve been explaining all along that Reime is full of disclosures of different configurations, and I’ve been walking through several of them. I started off with simpler ones, but I think these are all examples of disclosures of Reime that were disclosed.” *Id.* at 138:16–22. And Dr. Bederson completed his response¹⁷ as: “And another example would be to use detectors 30 and 32 on a single substrate that together would be a single detector assembly arranged along, in this case, I guess, two edges of the interactive surface element.” *Id.* at 139:11–14. Thus, Dr. Bederson’s deposition testimony does not contradict his declaration testimony that “Reime discloses that the detector assembly comprises a support substrate and an arrangement of detector elements”—we surmise that this is the relevant portion of the cited declaration testimony, as Patent Owner does not specifically identify a portion thereof. Ex. 1002 ¶ 94.

Third, Patent Owner argues that Dr. Bederson contradicted his declaration testimony by testifying in his deposition that “Reime does *not* disclose its individual receiver could comprise multiple detector elements.” Open Br. 2 (citing Ex. 2060, 139:7–10). During his deposition, Dr. Bederson testified that “I am not aware of a specific disclosure in Reime that shows that the detector 30 consists of multiple individual detectors, but that would clearly be obvious to a person of skill in the art.” Ex. 2060, 139:7–10. Patent Owner does not identify what in the cited declaration testimony that this deposition testimony allegedly contradicts, and we cannot

¹⁷ We omit a question interjected during Dr. Bederson’s response, as well as the portion of his response that was to that interjected question. *See* Ex. 2060, 139:4–10.

discern it. *See* Open Br. 2 (citing Ex. 1002 ¶¶ 86–88, 92–94). Moreover, this deposition testimony is consistent with his declaration testimony that one of ordinary skill in the art “would have understood that each one of the plurality of discrete detectors in Reime must be either a single-element detector or a multi-element detector.” *Compare* Ex. 2060, 139:7–10, with Ex. 1002 ¶¶ 98–101.

Lastly, we find unavailing Patent Owner’s argument that Dr. Bederson testified during his deposition that “he didn’t perform any analysis regarding a ‘hypothetical’ modification to combine Reime’s receivers together to form the claimed detector assembly.” Open Br. 2 (citing Ex. 2060, 127:22–128:3, 128:7–12, 128:17–129:2). As we discuss above, this argument mischaracterizes the deposition testimony. *See supra* Section V.B. Again, Dr. Bederson testified that he did not analyze replacing Figure 8B’s emitters 10 and 12 with receivers 30 and 32, rather than not analyzing whether Reime’s receivers together formed the claimed detector assembly, as Patent Owner incorrectly alleges. *See* Ex. 2060, 127:22–129:2.

In sum, we find that *Interactive Commc’ns* does not apply to the circumstances of this proceeding.

VIII. CONCLUSION¹⁸

Based on the full record, we determine that Petitioner shows by a preponderance of the evidence that (i) claims 17, 18, 21, 22, and 30 are unpatentable over Reime and (ii) claims 17, 18, 21, 22, 26, and 30 are unpatentable over the combination of Reime and Hinckley.

Claim(s)	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
17, 18, 21, 22, 30	103(a)	Reime	17, 18, 21, 22, 30	
17, 18, 21, 22, 26, 30	103(a)	Reime, Hinckley	17, 18, 21, 22, 26, 30	
Overall Outcome			17, 18, 21, 22, 26, 30	

IX. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), Petitioner has shown by a preponderance of the evidence that 17, 18, 21, 22, 26, and 30 of the '850 patent are unpatentable; and

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

¹⁸ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

IPR2021-01239
Patent 8,624,850 B2

For PETITIONER:

Ben Haber
Nicholas Whilt
Ryan Yagura
William Fink
Kyla Butler
O'MELVENY & MYERS LLP
ryagura@omm.com
bhaber@omm.com
nwhilt@omm.com
tfink@omm.com
kbutler@omm.com

For PATENT OWNER:

Stephen McBride
James Carmichael
CARMICHAEL IP, PLLC
stevemcbride@carmichaelip.com
jim@carmichaelip.com

James Murphy
Jason Wietjes
Adam Daniels
POLSINELLI PC
jpmurphy@polsinelli.com
jwietjes@polsinelli.com
adaniels@polsinelli.com