

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

LYNK LABS, INC.,
Patent Owner.

IPR2022-00100
Patent 10,750,583 B2

Before JON B. TORNQUIST, ARTHUR M. PESLAK, and
SCOTT RAEVSKY, *Administrative Patent Judges*.

RAEVSKY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Samsung Electronics Co., Ltd. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 8–10 and 15–18 of U.S. Patent No. 10,750,583 B2 (Ex. 1001, “the ’583 patent”). Lynk Labs, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”). Based on these submissions, we instituted an *inter partes* review of claims 8–10 and 15–18 (Paper 10, “Institution Decision” or “Dec.”). Subsequent filings include a Patent Owner Response (Paper 16, “PO Resp.”), a Petitioner Reply (Paper 20, “Reply”), and a Patent Owner Sur-reply (Paper 23, “Sur-reply”). We held an oral hearing on March 22, 2023, a transcript of which has been entered into the record. Paper 29 (“Tr.”).

We have jurisdiction over this proceeding under 35 U.S.C. § 6(b). After considering the evidence and arguments of the parties, we determine that Petitioner has proven by a preponderance of the evidence that claims 8–10 and 15–18 are unpatentable.

II. BACKGROUND

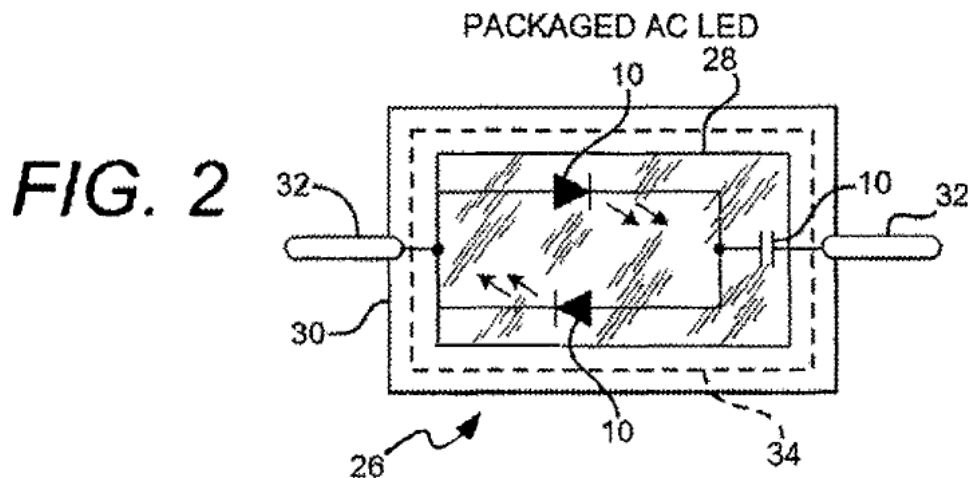
A. Related Matters

The parties identify the following related district court litigation: *Samsung Electronics Co. v. Lynk Labs, Inc.*, No. 1:21-cv-02665 (N.D. Ill.). Pet. 1; Paper 4, 1. Petitioner has also filed another petition requesting *inter partes* review of the ’583 patent, IPR2021-00101. Several other *inter partes* reviews are also pending on patents related to the ’583 patent. See, e.g., Pet. 1–3.

B. The '583 patent

The '583 patent describes light-emitting diodes (LEDs) driven by alternating current (AC). Ex. 1001, code (57). For example, a lighting device as disclosed is capable of operating during both the positive and negative phase of an AC power supply. *Id.*

Figure 2, reproduced below, depicts light emitting device 26:



Id. at 14:1–2. Device 26 in Figure 2 includes light emitting device 10 mounted on insulating substrate 28, which may be ceramic or sapphire, and which is integrated into LED package 30. *Id.* at 14:3–8. Device 26 includes power connection leads 32 and lens 34, which may be made of a plastic, polymer or other material used for light dispersion. *Id.* at 14:8–11. Lens 34 may be coated or doped with a phosphor or nano-particle that would produce a change in the color or quality of light emitted from device 10 through lens 34. *Id.* at 14:11–14.

C. Challenged Claims

Claim 8 is illustrative of the challenged claims:

8. A lighting device comprising:

- a data communication circuit having at least one antenna;
- an LED circuit array having at least two independently controlled LED circuits, each LED circuit having at least one LED;
- an LED circuit driver capable of independently providing power to one or more of the at least two independently controlled LED circuits in the LED circuit array;
- wherein the data communication circuit, the LED circuit array, and the driver are integrated into the lighting device;
- wherein the lighting device can transmit data signals to or receive the data signals from at least one portable telecommunications device; and
- wherein the portable telecommunications device comprises a circuit that can detect a human touch via capacitive sensing, wherein the circuit of the portable telecommunications device is configured to detect the human touch via capacitive sensing, and wherein the portable telecommunications device further comprises at least one LED that provides light based upon detection of the human touch.

Ex. 1001, 27:48–28:11.

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 4):

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
8–10, 15, 18	103	Piepgras, ² Michael, ³ Butler ⁴
16	103	Piepgras, Michael, Butler, Schultz ⁵
17	103	Piepgras, Michael, Butler, Naskali ⁶

Petitioner relies on the declaration of Dr. R. Jacob Baker (Ex. 1002), and Patent Owner relies on the declaration of Dr. Peter W. Shackle (Ex. 2001).

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013. The ‘583 patent claims priority as a continuation-in-part to an application filed in 2015 as well as priority to applications reaching back to 2004. Ex. 1001, code (60). Petitioner applies the pre-AIA version of § 103. Pet. 4–5. Patent Owner does not dispute that the pre-AIA statute applies. We therefore also apply the pre-AIA version of § 103.

² U.S. Publication No. 2003/0137258 A1 to Piepgras, published July 24, 2003 (Ex. 1030).

³ U.S. Patent No. 4,656,398 to Michael, issued April 7, 1987 (Ex. 1008).

⁴ U.S. Publication No. 2003/0035075 A1 to Butler, issued February 20, 2003 (Ex. 1016).

⁵ U.S. Publication No. 2005/0116235 A1 to Schultz, issued June 2, 2005 (Ex. 1032).

⁶ U.S. Patent No. 7,180,265 B2 to Naskali, issued February 20, 2007 (Ex. 1010).

III. ANALYSIS

A. *Principles of Law*

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable as obvious if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition’s challenges.

B. *Level of Ordinary Skill in the Art*

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham*, 383 U.S. at 13, 17. Petitioner asserts that

[a] person of ordinary skill in the art [“POSITA”] . . . would have had at least a bachelor’s degree in electrical engineering, computer engineering, computer science, physics, or the equivalent, and two or more years of experience with LED devices and/or related circuit design, or a related field. . . . More education can supplement practical experience and vice versa.

Pet. 5–6 (citing Ex. 1002 ¶¶ 20–21).

Patent Owner asserts that

a person of ordinary skill in the art (“POSITA”) is someone who, at the time of the invention in February 2004, had at least a bachelor’s degree in electrical engineering, computer engineering, computer science, physics, or the equivalent, and two or more years of experience with LED devices and related LED circuit design. Lack of work experience could have been remedied by additional education, and vice versa.

PO Resp. 7 (citing Ex. 2001 ¶¶ 30–32, 35). Patent Owner asserts that Petitioner’s definition is similar, although overbroad in several respects. *Id.* at 8.

Petitioner contends that there is “no meaningful dispute over [the definition of] a POSITA.” Reply 1. We agree. However, we adopt Patent Owner’s definition of the level of skill because we are persuaded that it is more consistent with the problems and solutions in the ’583 patent. In particular, Patent Owner’s definition requires experience with LED devices, whereas Petitioner’s definition makes LED experience optional (“experience with LED devices and/or related circuit design”). We note that the outcome of this decision would not have changed had we adopted Petitioner’s definition.

C. Claim Construction

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as

understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2021).

The parties propose no constructions. Pet. 7; PO Resp 8–9; Reply 1. At institution, we discussed the meaning of the term “array.” Dec. 16 n.12. Patent Owner traverses this construction and submits that “no special construction for ‘LED array’ is needed,” as it does not dispute any limitation reciting an “LED circuit array.” See PO Resp. 9. We agree. Based on our review of the record, no terms need to be construed. See *Realtime Data, LLC v. Iancu*, 912 F.3d 1368 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Asserted Obviousness over Piepgras, Michael, and Butler (Ground 1)

Petitioner contends that claims 8–10, 15, and 18 would have been obvious over Piepgras, Michael, and Butler. Pet. 8–56.

1. Overview of Piepgras

Piepgras describes multi-colored lighting systems using LEDs. Ex. 1030 ¶¶ 31–32. The disclosed systems use high-brightness, processor-controlled LEDs in combination with diffuse materials to produce color-changing effects. *Id.* ¶ 32. Figure 1 of Piepgras, reproduced below, depicts an example lighting system:

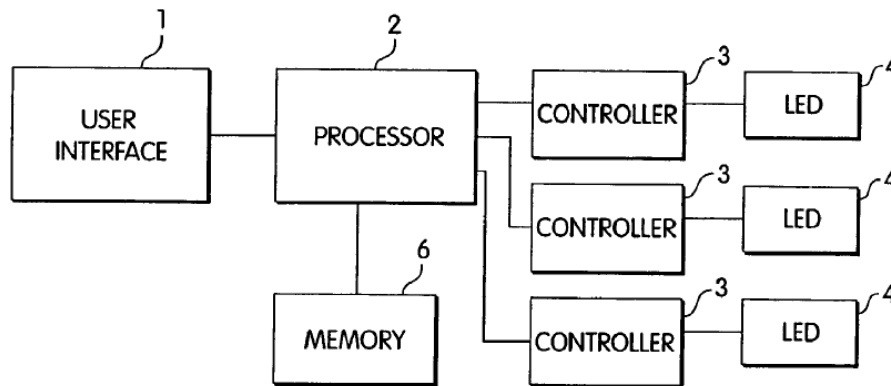


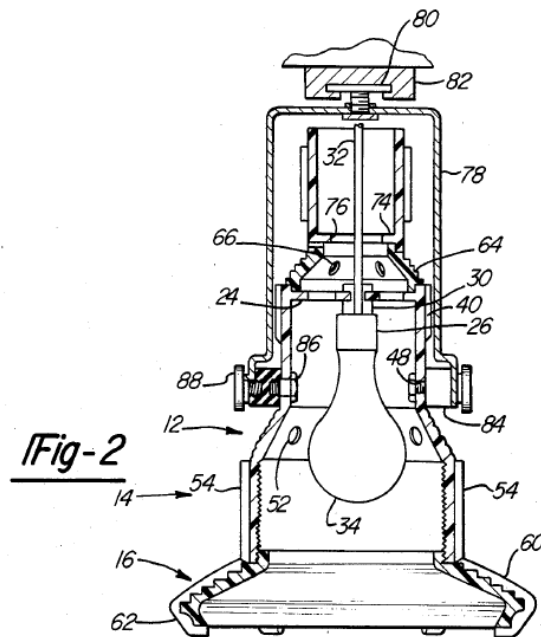
Fig. 1

Id. ¶ 88. Figure 1 depicts user interface 1, processor 2, controllers 3, memory 6, and LEDs 4. *Id.* In general, processor 2 executes a program stored in memory 6 to generate signals that control stimulation of LEDs 4. *Id.* The signals may be converted by the controllers 3 into a form suitable for driving the LEDs 4. *Id.*

2. Overview of Michael

Michael describes a lighting assembly including a plurality of housing sections, a series of rib groups arranged circumferentially on the exterior of the housing sections, and a remote-control assembly for selectively energizing tri-color diodes embedded in the ribs. Ex. 1008, code (57). The rib groups can be selectively and independently caused to glow in various colors depending on the aspect of the electrical energy delivered to each particular rib group. *Id.*

Figure 2, below, depicts a vertical cross-sectional view of the lighting assembly:



Id. at 2:24–25, 54–57. The lighting assembly shown in Figure 2 depicts bulb 34, which can be remotely controlled via keyboard or other means. *Id.* at 3:18, 56–63, Fig. 3.

3. Overview of Butler

Butler describes a system and method for accessing interactive content by providing touch screen capability on interactive television systems and remote control devices. Ex. 1016, code (57). Figure 1A illustrates an example interactive television system:

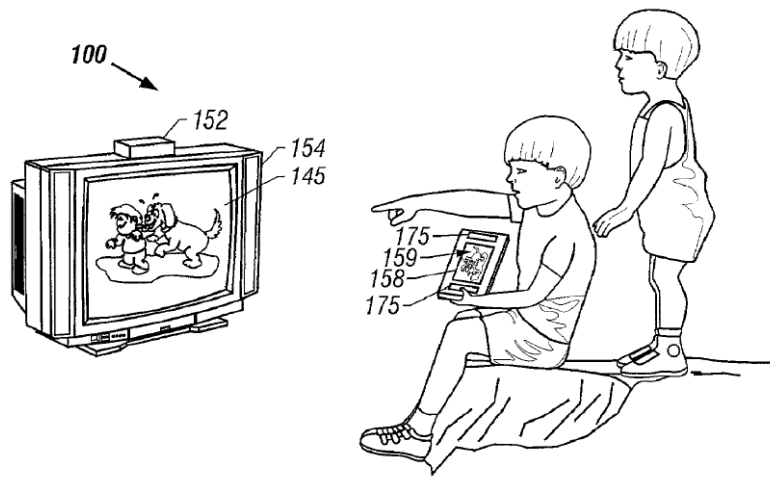


FIG. 1A

Id. ¶ 8. Figure 1A depicts television monitor 154 with touch screen overlay 145. *Id.* ¶ 28. An optional remote control 158 with a corresponding touch screen overlay 159 is also shown. *Id.* Remote control 158 can display content in addition to, or different from, the content displayed by television monitor 154. *Id.*

4. Independent Claim 8

a. Undisputed Limitations

Petitioner contends that Piepgras discloses the preamble, “A lighting device comprising,” because Piepgras discloses “a lighting system or device 500.” Pet. 8 (citing Ex. 1002 ¶¶ 58–71, 85–93; Ex. 1030 ¶ 88).⁷ Petitioner next contends that Piepgras in view of Michael discloses or suggests the limitation, “a data communication circuit having at least one antenna,” as Piepgras discloses a spotlight having a transceiver, which a POSITA would understand includes a data communication circuit and an antenna. *Id.* at 14–

⁷ We need not determine whether the preamble is limiting because we determine that Piepgras discloses it.

15 (citing, e.g., Ex. 1030 ¶ 110; Ex. 1002 ¶ 94). This limitation also would have been obvious in view of Michael, Petitioner argues, because Michael discloses LED-based lighting and an antenna that enables remote control of the LED-based lighting. *Id.* at 15–17 (citing, e.g., Ex. 1008, Fig. 15; Ex. 1002 ¶ 98). Petitioner argues that one of ordinary skill in the art would have incorporated Michael’s antenna in Piepgras because, for example, it would have been “beneficial and predictable to implement an antenna—a fundamental component (known decades before the alleged invention of the ’400 patent) of a wireless communication system—in *Piepgras*’ lighting device, which includes a transceiver for RF communication (as discussed above).” *Id.* at 19. Patent Owner does not dispute that a POSITA would have combined Michael with Piepgras. *See generally* PO Resp.

Petitioner contends that Piepgras in view of the state of the art teaches or suggests “an LED circuit array having at least two independently controlled LED circuits, each LED circuit having at least one LED.” Pet. 21–26. First, Petitioner contends that a POSITA would have understood that Piepgras discloses LED circuits because Piepgras’s LEDs receive current, voltage, and power. *Id.* at 22 (citing Ex. 1030 ¶¶ 88, 90; Ex. 1002 ¶ 106). Second, Petitioner contends that Piepgras describes “controlling the LEDs 4 independently . . . through separate controllers.” *Id.* at 23 (citing Ex. 1030 ¶ 90; Ex. 1002 ¶ 107). And third, Petitioner contends that a POSITA would have known that Piepgras’s LED circuits would have been arranged as an LED circuit array, or alternatively, that it would have been obvious in view of the state of the art to configure Piepgras’s device 500 to implement an

LED circuit array as claimed. *Id.* at 24–26 (citing, e.g., Ex. 1002 ¶¶ 109–112; Exs. 1037, 1038, 1050).

Further, Petitioner contends that Piepgras discloses or suggests the claimed “an LED circuit driver capable of independently providing power to one or more of the at least two independently controlled LED circuits in the LED circuit array” because Piepgras describes a controller 3 that “regulates the current, voltage and/or power through the LED” and which “drive[s] several LEDs 4” together with a processor. *Id.* at 26–27 (citing, e.g., Ex. 1030 ¶ 90; Ex. 1002 ¶ 140) (emphasis omitted). Petitioner also contends that the Piepgras-Michael combination discloses or suggests “wherein the data communication circuit, the LED circuit array, and the driver are integrated into the lighting device” because a POSITA would have understood that these components are integrated into Piepgras’s spotlight 100. *Id.* at 29–30 (citing, e.g., Ex. 1002 ¶ 118).

Finally, Petitioner asserts that Piepgras discloses or suggests the following limitation: “wherein the lighting device can transmit data signals to or receive the data signals from at least one portable telecommunications device.” *Id.* at 31–35 (citing, e.g., Ex. 1002 ¶¶ 120–125). According to Petitioner, Piepgras discloses a spotlight 100 that includes a remote user interface 102. *Id.* at 31 (citing Ex. 1030 ¶ 110, Fig. 6). Petitioner contends that remote user interface 102 “may transmit **control information** to the spotlight 100 using . . . transceivers in the spotlight 100 and the remote user interface 102.” *Id.* at 31–32 (quoting Ex. 1030 ¶ 110). Petitioner further asserts that this “transceiver” would be understood by a POSITA “to include

functionality of a transmitter and a receiver.” *Id.* at 33 (citing Ex. 1002 ¶ 122).

Patent Owner does not dispute that Piepgras and Michael disclose these limitations.⁸ We agree that the combination of Piepgras, Michael, and Butler discloses them.

b. [g]⁹ wherein the portable telecommunications device comprises a circuit that can detect a human touch via capacitive sensing, wherein the circuit of the portable telecommunications device is configured to detect the human touch via capacitive sensing, and

Petitioner contends that the combination of Piepgras, Michael, and Butler discloses or suggests limitation 8(g). Pet. 36–42. Petitioner asserts that the Piepgras-Michael system teaches or suggests a portable remote user interface (as explained above) but does not explicitly disclose a circuit that can detect a human touch via capacitive sensing. *Id.* at 36. For these aspects of limitation 8(g), Petitioner asserts that Butler discloses a handheld remote device used for controlling another device (e.g., a television), which includes a capacitive touch screen. *Id.* at 37–38 (citing, e.g., Ex. 1016, code (57), ¶¶ 5, 20; Ex. 1002 ¶ 128). Petitioner further asserts that a POSITA would have understood that Butler’s portable remote control necessarily comprises

⁸ Patent Owner does not renew its pre-institution arguments that neither Piepgras nor Michael teaches “an LED circuit array” or a “lighting device [that] can transmit and receive the data signals.” See Prelim. Resp. 19–21, 23–26 (alteration in original); see generally PO Resp. Patent Owner has thus waived these arguments. See Paper 11, 9 (Scheduling Order, cautioning “that any arguments not raised in the response may be deemed waived”).

⁹ We follow the Petition’s outline numbering by referring to limitations 8(g) and 8(h). See Pet. 36, 42.

a circuit that can detect human touch via capacitive sensing. *Id.* at 40 (citing, *e.g.*, Ex. 1002 ¶ 134).

Petitioner further contends that one of ordinary skill in the art would have combined Butler with Piepgras. *Id.* at 37–42. For instance, Petitioner highlights the similarities between Butler’s handheld remote for controlling another device (a TV) and Piepgras’s handheld remote for controlling a lighting device (such as a PDA). *Id.* at 37 (citing Ex. 1030 ¶ 177; Ex. 1016, code (57), ¶¶ 5, 20; Ex. 1002 ¶ 128). Additionally, Petitioner quotes Butler to illustrate how “[t]ouch access enables specific embodiments to be especially suitable for children or adults with impaired motor abilities.” *Id.* at 39 (quoting Ex. 1016 ¶ 21 (“[A] touch screen is much easier than using a mouse or a device with small buttons, such as a standard remote control, for a disabled person.”) (citing Ex. 1002 ¶ 132)). Petitioner further argues that Butler’s touch screen “would have beneficially added versatility in how a user could remotely control the lighting system via well-known user friendly touch sensing technologies.” *Id.* at 41 (citing Ex. 1002 ¶ 135). There would have been a reasonable expectation of success, Petitioner argues, because the combination “would have been straightforward to implement, as it would have involved the use of known components and technologies and techniques . . . that would have predictably led to a remote user interface . . . with convenient user touch input features.” *Id.* at 42 (citing Ex. 1002 ¶ 136; *KSR*, 550 U.S. at 416).

In its Response, Patent Owner does not dispute that the combination of Piepgras, Michael, and Butler discloses this limitation.¹⁰ PO Resp. 20–43. Rather, Patent Owner advances two main arguments: (1) that Petitioner’s rationale to combine Butler and Piepgras does not “withstand scrutiny”; and (2) that a series of design factors would have “strongly mitigate[d]” against Petitioner’s proposed combination. *Id.* at 27, 33. We address each in turn.

*(1) Whether Petitioner’s rationale to combine
“withstands scrutiny”*

Patent Owner first contends that “Petitioner’s rationales for why a POSITA would replace or modify the remote user interface 102 of Piepgras with the touch screen display from the remote control device 158 of Butler do not withstand scrutiny.” PO Resp. 27 (emphasis omitted). This “scrutiny” argument includes a host of reasons why Petitioner’s combination of Piepgras and Butler is improper.

Patent Owner asserts that Petitioner does not explain what “versatility” Butler’s touch screen 158 would bring. *Id.* Further, Patent Owner contends that Petitioner and its expert fail to identify any deficiencies or drawbacks of Piepgras’s two-button remote control 102 that rationalize replacing it with a touch screen device having a display. *Id.* at 28–30 (citing Ex. 2003, 67:2–68:5, 71:14–22, 73:15–19, 78:9–21). Patent Owner also

¹⁰ Patent Owner appears at first to argue that the combination “fails to teach” limitation 8(g), but Patent Owner does not explain this assertion. PO Resp. 20. The remainder of Patent Owner’s argument addresses only whether one of ordinary skill in the art would have combined Butler with Piepgras. See *id.* at 21–43.

disputes Petitioner's assertion that modifying Piepgras's remote control with a touch screen would help those with impaired motor or vision abilities because a POSITA would appreciate that controlling spotlight 100 with a touch screen "would be **more** difficult, not less" for such individuals than using Piepgras's two-button remote. *Id.* at 32 (citing Ex. 2001 ¶ 86).

Patent Owner further argues that "[t]he primary purpose of the touch screen remote control 158 of Butler is to select content to be presented to the viewer," and Piepgras has "no content to select in controlling the spotlight 100," so a POSITA would not have incorporated Butler's touch screen into Piepgras to achieve the claimed invention. *Id.* at 32. Along those lines, Patent Owner asserts that "[a] POSITA would not consider images presented on the remote control for the spotlight 100 of Piepgras to be helpful because the user will be **looking at the spotlight itself** to determine whether the light has been turned off." *Id.* at 32–33 (citing Ex. 2001 ¶ 88).

In the Reply, Petitioner asserts that the Petition does not rely solely on remote user interface 102 as the claimed "portable telecommunications device," but also explains that "user interfaces for **any of the devices . . .** may be implemented as a software driven graphical user interface, a **personal digital assistant (PDA), a mobile remote control interface**, etc." Reply 2–3 (citing Pet. 32, 35). Petitioner also argues that it did not advocate a bodily incorporation of Butler's touch screen into Piepgras's remote user interface, but rather argues that Butler's guidance plus a POSITA's knowledge of touch detection mechanisms would have led a POSITA to modify Piepgras's portable remote device with a touch screen display. *Id.* at 3–4.

Petitioner further contends that versatility and assisting impaired persons were not its sole rationales, but also that “a POSITA would have recognized that touch screens facilitate convenient user input for a variety of users *besides the ones described in Butler*.” *Id.* at 4–5 (citing Pet. 39–40). As for Patent Owner’s charge that Petitioner failed to identify any deficiencies or drawbacks of Piepgras’s two-button remote, Petitioner asserts that this criticism “mistakes the obviousness inquiry,” yet regardless, Dr. Baker did point out potential disadvantages with such remote controls. *Id.* at 5–6 (citing Ex. 1002 ¶¶ 135 (Dr. Baker explaining such components were not ‘user friendly’ for all), 132 (pointing out Butler’s advantages over remotes with small buttons and/or small text)); Ex. 1030 ¶ 99 (Piepgras pointing out disadvantage where with a large number of parameter values, “individually selecting each parameter value may be unduly cumbersome”).

Petitioner also contends that Piepgras discloses a variety of user interfaces, including those with “more than a million selectable parameters,” so “providing a display that allows a user to select parameters via a touch screen [as modified by Butler] would have mitigated concerns over a simple push button remote.” Reply 7–8 (citing Ex. 1030 ¶¶ 102, 177, 99). Petitioner next challenges Patent Owner’s assertion that using a touch screen would be more difficult for impaired persons as unfounded and based on conclusory expert testimony. *Id.* at 8 (citing Ex. 2001 ¶ 86). In contrast, Petitioner argues that Butler supports Dr. Baker’s opinions since Butler “expressly explains that a touch screen display provides ‘improved techniques’ over conventional approaches that were disadvantageous to certain users.” *Id.* at 8 n.3 (citing Ex. 1016 ¶¶ 5–6). Petitioner also

disagrees that a POSITA would not want a display on a remote control simply because a user could already see how the spotlight changes, because “Piepgras specifically contemplates a user interface in the form of, *e.g.*, a PDA, which was known to conventionally include a touch-control display,” and because Butler motivates using a touch screen. *Id.* at 10–11 (citing, *e.g.*, Ex. 1002 ¶¶ 48–50; Ex. 1016 ¶¶ 22, 29, 30, 58–63, 67).

In the Sur-reply, Patent Owner argues that its expert provided evidence “that the proposed Piepgras-Butler touch screen remote control would be harder, not easier, for users to operate.” Sur-reply 5 (citing Ex. 2001 ¶ 86). Patent Owner also asserts that Petitioner’s “versatility” and “user-friendly” rationales are conclusory and unexplained. *Id.* at 6–7. A two-button remote would have been easier to use than a touch screen, Patent Owner argues. *Id.* at 7 (citing Ex. 2001 ¶ 86). Patent Owner further contends that the Reply newly argues, but fails to identify, how the proposed modified system would provide an “enhanced display and user input features to control the modified lighting device.” *Id.* at 8 (citing Reply 10–11). In addition, Patent Owner argues that Petitioner fails to rebut the contention that its expert identified no drawbacks of Piepgras’s two-button remote or any operation that it is unable to perform. *Id.* at 8–10. Patent Owner also contends that Butler’s supposed advantages were in reference to a standard television remote with numerous buttons, which would not apply to Piepgras’s two-button remote. *Id.* at 10.

After reviewing the arguments and evidence from both parties, we find Petitioner’s arguments more persuasive. For instance, we find

persuasive Butler’s express teaching that a touch screen would have provided benefits for disabled persons:

Touch access enables specific embodiments to be especially suitable for children or adults with impaired motor abilities because children instinctively touch something they want and using a touch screen is much easier than using a mouse or a device with small buttons, such as a standard remote control, for a disabled person. . . . People with impaired vision capabilities may use a touch screen to enlarge an area or have the text read to them by the interactive system.

Ex. 1016 ¶ 21; Ex. 1002 ¶ 132. For at least some users with impairments, therefore, we are persuaded that a POSITA would have seen a benefit at the time of the invention from implementing a touch screen, like the one disclosed by Butler, in a remote control like the one Piepgras discloses. We also credit Dr. Baker’s testimony that “a person of ordinary skill in the art would have recognized that touch screens facilitate convenient user input for a variety of users besides the ones described in Butler, because touch screens were well known in the art.” Ex. 1002 ¶ 133 (citing Ex. 1006 ¶¶ 24, 30). As Piepgras already discloses using a PDA as an option for a remote control’s user interface, we find credible Dr. Baker’s testimony that a POSITA would have found Butler’s touch screen device disclosures to provide relevant guidance for using a touch screen as the remote user interface of Piepgras. *Id.* ¶ 128. Dr. Baker also persuasively testifies that a touch screen “would have beneficially added versatility in how a user could remotely control the lighting system” of Piepgras. *Id.* ¶ 135.

Patent Owner’s arguments to the contrary are unavailing. Patent Owner’s contention that Petitioner does not explain the versatility Butler’s

device would bring falls flat because Petitioner explains that Piepgras discloses user interfaces with “more than a million selectable parameters,” so a touch screen as disclosed in Butler would have provided a display that allows a user to select those parameters. PO Resp. 27; Reply 7–8 (citing Ex. 1030 ¶ 99); Ex. 1002 ¶ 135. We find that a touch screen would have provided greater versatility for controlling these numerous parameters than Piepgras’s two-button remote control. *See* Ex. 1002 ¶ 135; Ex. 1030 ¶ 99. We also find that a touch screen would have provided versatility in general, regardless of the number of parameters controlled by the remote, because Butler teaches that a touch screen can provide additional options over physical buttons. *See, e.g.,* Ex. 1016 ¶ 21 (describing a touch screen as “easier than using . . . a device with small buttons” because, for example, users “may use a touch screen to enlarge an area or have the text read to them”).

We also find unpersuasive Patent Owner’s contention that Petitioner fails to identify any deficiencies or drawbacks of Piepgras’s two-button remote control because the law does not require Petitioner to identify problems with a reference in order to establish obviousness. *See* PO Resp. 28–30; *In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) (“The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain.”). What the Petition must demonstrate is that there was some reason why one of ordinary skill in the art would have sought to combine the elements of the prior art in the manner proposed. *KSR*, 550 U.S. at 418. The Petition provides multiple,

persuasive reasons (discussed above) as to why one of ordinary skill in the art would have sought to use a touch screen, as disclosed in Butler, to permit user control of a remote control, as disclosed in Piepgras.

Further, Patent Owner's assertion that Butler's touch screen would not help those with impaired motor or vision abilities goes against the weight of the evidence. PO Resp. 32. Patent Owner cites its expert for this assertion, but Dr. Shackle only offers unsupported testimony that "controlling the spotlight 100 with a remote control using a touch screen display would be **more** difficult, not less difficult, for a person with underdeveloped motor skills or impaired visual abilities." *Id.* (citing Ex. 2001 ¶ 86). Dr. Shackle's conclusory testimony is outweighed by Butler's explicit disclosure that touch screen access is "especially suitable for children or adults with impaired motor abilities." Ex. 1016 ¶ 21. Not only that, but Patent Owner undermines its own expert's testimony by acknowledging that a touch screen display *would* have advantages as a user interface for those with physical impairments. PO Resp. 30–31 ("A POSITA would understand that Butler's touch screen remote control 158 may be helpful for a child with underdeveloped motor abilities to operate a remote control to select items from an electronic program guide (EPG) on an interactive television."). Patent Owner attempts to distinguish Butler's disability disclosure by arguing that selecting content from a television is a far cry from operating a spotlight using two buttons, but this attempt is unavailing because as we noted above, Piepgras also discloses "more than a million selectable parameters" that would benefit from using Butler's touch screen. PO Resp. 31; Ex. 1030 ¶ 99; Ex. 1002 ¶ 135.

In addition, we disagree with Patent Owner that Piepgras has “no content to select in controlling the spotlight 100,” so a POSITA would not have incorporated Butler’s touch screen. PO Resp. 32. Patent Owner’s argument relies on an improper bodily incorporation theory because Petitioner is not proposing using Butler’s touch screen to select content in Piepgras, but rather to control the spotlight 100. Reply 8–9. “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)). Petitioner has established that a touch screen may be useful to control a remote, for example, for disabled persons, or to increase versatility, as explained above.

Finally, Patent Owner’s argument that a POSITA would not consider images on a remote because they would be looking at the spotlight instead is unavailing. PO Resp. 32–33. First, it presupposes that a user would *never* look at a remote control but *only* operate it tactilely. This assumption is not credible and is belied by Butler’s teaching that some individuals “may have lost some of the requisite motor skills to work with a remote control.” Ex. 1016 ¶ 5. Second, Patent Owner’s supposition relies on conclusory expert testimony, which is entitled to little weight. *Id.* at 33 (citing Ex. 2001 ¶ 88 (verbatim copy of Patent Owner’s arguments)). And third, we agree with Petitioner that “Piepgras specifically contemplates a user interface in the form of, *e.g.*, a PDA, which was known to conventionally include a touch-

control display,” and that Butler motivates using a touch screen. Reply 10–11.¹¹

(2) Whether design factors mitigate against the combination

Patent Owner next argues against the combination because of several design factors that would allegedly “unduly complicate the form factor and functionality” of the Piepgras remote when combining with Butler’s touch screen. PO Resp. 33. These factors include: (1) power consumption; (2) battery life; (3) ergonomics (ease of use); (4) reliability/complexity; (5) durability/fragility; (6) operating lifetime before replacement (lifespan); (7) cost; and (8) weight. *Id.* (citing Ex. 2001 ¶ 89).

For example, Patent Owner contends that a touch screen would consume more power than Piepgras’s remote control 102 and therefore reduce battery life faster. *Id.* at 34–36 (citing Ex. 2001 ¶¶ 91–93; Ex. 2003, 80:7–14, 109:6–24, 124:14–20 (asserting that Dr. Baker agrees that a touch screen would require more power)). Patent Owner further asserts that introducing a touch screen to the Piepgras remote control would reduce ergonomics because it cannot be held and operated with only one hand, decrease reliability due to the capacitive sensing, and diminish durability because the touch screen is susceptible to screen cracks. *Id.* at 36–41 (citing

¹¹ The Sur-reply also newly argues that Butler’s supposed advantages were in reference to a standard television remote with numerous buttons, which would not apply to Piepgras’s two-button remote. Sur-reply 10. This argument is improper as late, as it could have been raised in the Response. It is also mere attorney argument, unsupported by evidence, which we find unpersuasive.

Ex. 2001 ¶¶ 94–100). Relatedly, Patent Owner asserts that this one-hand operation would not be possible when using Butler’s remote with handles in combination with Piepgras’ lighting system. *Id.* at 36–38 (citing Ex. 2001 ¶¶ 94–96).

Further, Patent Owner argues that a touch screen remote control is less durable than the Piepgras remote, including due to being prone to screen cracks. *Id.* at 40–41 (citing 2001 ¶¶ 99–100). Due to this reduced durability, the expected lifespan of a touch screen remote would be shorter than Piepgras’s two-button remote, Patent Owner contends. *Id.* at 41 (citing Ex. 2001 ¶ 101). Patent Owner also contends that a touch screen remote would be more expensive to manufacture and would weigh more than Piepgras’s two-button remote. *Id.* at 42–43 (citing 2001 ¶¶ 102–104).

Petitioner responds that Patent Owner’s positions are premised on a mistaken belief that the combination requires a bodily incorporation, for example, because Patent Owner argues that Butler’s handles must be included in Piepgras’s remote. Reply 12 (citing PO Resp. 35–36). Further, Petitioner asserts that Patent Owner’s “assessment of its selected design factors is conclusory and incorrect” and that “these factors are simply *tradeoffs* or factors that would have been balanced against others while enhancing features/functionality.” *Id.* at 13 (citing Ex. 1096, 66:6–67:19). Petitioner notes that Dr. Shackle agrees that “such factors could work against each other and are not design imperatives.” *Id.* at 12 (citing Ex. 1096, 66:6–67:19). Further, Petitioner argues against each design factor, contending (for example) that LEDs (in LED touch screens) were power efficient, that Patent Owner’s battery life argument is conjecture, that Patent

Owner’s ergonomics point is based on improper bodily incorporation, that reliability is a tradeoff and complexity is subjective, that the potential for device breakage would not cause a POSITA to “have just given up” on the combination, and that there is no evidence of increased cost and weight due to the combination. *Id.* at 14–18 (citing Ex. 1002 ¶ 50; Ex. 2003, *passim*).

The Sur-reply argues that Petitioner’s tradeoffs argument is conclusory, that Dr. Baker did not address any of the design considerations raised by Patent Owner in his original declaration, and that the various disadvantages Patent Owner identifies would in fact occur, as explained by Patent Owner’s expert. Sur-reply 11–19 (citing, e.g., Ex. 2001 ¶¶ 91–101). Patent Owner also contends that certain references raised by the Reply are extraneous and should not be considered. *Id.* at 17–19 (citing Reply 9; Exs. 1097, 1098, 1099). We do not address this last argument because we find it unnecessary to consider the new references raised in the Reply to resolve the question of obviousness over Piegras, Michael, and Butler.

Reviewing the parties’ arguments, we are guided by the following principles. “A given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Allied Erecting v. Genesis Attachments*, 825 F.3d 1373, 1381 (Fed. Cir. 2016). Further, “[t]he fact that the motivating benefit comes at the expense of another benefit . . . should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.” *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000). Further, “our case law does not require that a particular

combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.” *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004).

We have two general concerns with Patent Owner’s arguments. First, Patent Owner’s assertions are speculative. Although Patent Owner presents testimony that a POSITA designing a remote control for controlling spotlight 100 of Piepgras would consider a variety of design factors (enumerated above), Patent Owner does not quantify, for example, how much power consumption would increase (and battery life decrease),¹² does not quantify vague qualities of increased “complexity,” “reliability,” and “durability,” does not quantify how much costs or weight might increase or how much lifespan would decrease, and does not persuasively explain how a touch screen display would be less ergonomic. Patent Owner also improperly relies on a bodily incorporation of Butler’s device into Piepgras’s device to support at least some of these speculative assertions. *See, e.g.*, PO Resp. 36 (criticizing the combination’s ergonomics by referring to how “Butler requires handles”); Reply 16 (proposed combination does

¹² Patent Owner asserts that Dr. Baker agreed that the combination “would *considerably* increase the power consumption.” PO Resp. 35 (citing Ex. 2003, 109:6–24, 124:14–20) (emphasis added). Not so. Dr. Baker merely testified, “I think that perhaps . . . Butler will take more power than [remote control] 102 in Piepgras,” and agreed that a touch screen “would use more power in controlling spotlight 100 than the remote user interface 102.” Ex. 2003, 109:6–24, 124:14–20. Thus, Dr. Baker at most agreed that power would increase but did not admit that the combination would “considerably” increase power, as Patent Owner avers.

require a particular form factor, including Butler's two-handle remote). Such speculative arguments are therefore unpersuasive.

Secondly, even if Patent Owner were correct that there are some disadvantages to adding Butler's touch screen to Piepgras' remote, we agree with Petitioner that there are tradeoffs or advantages in the proposed combination that would have led one of ordinary skill in the art to make it. Reply 13. Even Patent Owner's own expert, Dr. Shackle, testified that "sometimes some of these factors, one trades off against another" and that "there might be a bunch of different detailed circumstances in which one factor might outweigh another." Ex. 1096, 66:6–67:19. As discussed above, Petitioner put forth compelling advantages of adding Butler's touch screen to Piepgras, including increasing versatility by the ability to easily access additional capabilities and allowing options for mobility- or visually-impaired individuals. *E.g.*, Ex. 1002 ¶¶ 131–37; Ex. 1016 ¶¶ 5, 20–21. At the end of the day, Patent Owner does not argue that Piepgras teaches away from combining with Butler or that the combination would have rendered Piepgras inoperable. Patent Owner merely argues that Piepgras would be worse with Butler and disagrees that Butler provides any benefits.

Weighing the benefits of the combination, both lost and gained, we determine that the advantages explained by Butler and Dr. Baker would have outweighed the speculative disadvantages described by Patent Owner and Dr. Shackle. *See Winner Int'l Royalty*, 202 F.3d at 1349 n.8; Ex. 1002 ¶¶ 71 (citing Ex. 1016 ¶ 21), 126–37. Dr. Baker testifies that the advantages of having a touch screen display are numerous, such as providing convenient user input, assisting people with impaired motor abilities, improving

versatility for visually impaired persons, and allowing for more options to control the lighting device. Ex. 1002 ¶¶ 71, 126–37. Weighing these advantages against the potential (but speculative) disadvantages identified by Patent Owner, such as increased power consumption and battery usage, increased complexity, increased weight and cost, decreased reliability and lifespan, and worse ergonomics, we find that one of ordinary skill in the art would have viewed the advantages as outweighing these disadvantages and would have made the combination. Ultimately, we agree with Petitioner that there is no evidence to suggest that “modifying *Piepgras*’ systems to provide a LED-based touch screen remote control would have been uniquely challenging or difficult for a POSITA.” Reply 13 (citing *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007)).

Thus, we determine that Petitioner has shown that one of ordinary skill in the art would have combined Piepgras and Butler in the manner proposed.

- c. *[h] and wherein the portable telecommunications device further comprises at least one LED that provides light based upon detection of the human touch.*

Petitioner contends that the Piepgras-Michael-Butler combination discloses or suggests this limitation. Pet. 42–45 (citing Ex. 1002 ¶¶ 138–43). Petitioner argues that although the combination does not expressly disclose that the portable telecommunications device comprises at least one LED that provides light based upon detection of the human touch, it would have been obvious in view of the state of the art to configure the modified

device with these features. *Id.* at 43 (citing Ex. 1002 ¶ 138). This is true, Petitioner contends, because it was well known to implement a touch screen as an LED touch screen, and a POSITA would have used an LED touch display in the combination. *Id.* at 43–45 (citing, e.g., Ex. 1007 ¶¶ 80, 48 (Swartz), Ex. 1009 ¶¶ 13, 14, Fig. 2A (Hack); Ex. 1022 (Gillespie), Fig. 2, ¶¶ 37–39; Ex. 1002 ¶¶ 139–41). It also would have been obvious to use an LED touch screen, Petitioner contends, because, among other reasons, it would have been a mere combination of known components and technologies, according to known methods, to produce predictable results. *Id.* at 45 (citing *KSR*, 550 U.S. at 416).

Patent Owner disputes that the combination renders obvious this limitation. PO. Resp. 43–51 (citing Ex. 2001 ¶¶ 105–16). First, Patent Owner argues that “Butler does not teach that the touch screen display 159 on Butler’s remote control 158 provides light upon the detection of human touch, or even that it is an LED display.” *Id.* at 43. Next, Patent Owner contends that “the Petition relies on three additional and inappropriate extraneous references to try to fill the gap” where “Petitioner’s three-way combination of Piepgras, Michael, and Butler fail to meet limitation 8(h).” *Id.* at 44. Patent Owner views Petitioner’s argument to be improper because “none of these three references is part of Petitioner’s Ground 1” and because Petitioner cannot rely on “an expert [to] supply missing limitations based on the state of the art or common knowledge” without the limitation being “unusually simple and straightforward.” *Id.* at 44–45 (citing *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016)).

Patent Owner further argues that Swartz is directed to a different field—a wearable wrist device with barcode scanner and touch screen—than the '583 patent and the Piepgras, Michael, and Butler references. *Id.* at 46 (citing Ex. 1007, Fig. 17). Patent Owner asserts that a POSITA would not refer to Swartz's wrist device for application to the LED spotlight of Piepgras (or to Michael's and Butler's devices). *Id.* at 48–49. Similarly, Patent Owner contends that a POSITA would not refer to Hack's communication device in connection with the devices of Swartz, Piepgras, Michael, or Butler. *Id.* at 50. Patent Owner further asserts that Petitioner provides no rationale for why a POSITA would apply teachings from Swartz or Hack to the Piepgras, Michael, and Butler combination. *Id.* at 49–50.

Additionally, Patent Owner contends that “Swartz or Hack do not disclose or suggest limitation 8(h),” specifically the “operation of ‘provid[ing] light based upon detection of the human touch.’” *Id.* at 50–51 (citing Ex. 1002 ¶ 141; Ex. 2001 ¶ 115). No evidence is provided that the wrist unit 210 of Swartz or Hack's portable device would illuminate upon the detection of human touch, Patent Owner argues. *Id.* at 49–50. Finally, Patent Owner contends that Gillespie “fails to cure the deficiencies of the other references,” as it is “only cited for disclosing a touch responsive display in a portable communications device that may include OLEDs.” *Id.* at 51 (citing Ex. 2001 ¶ 116).

In its Reply, Petitioner responds that Patent Owner's *Arendi* arguments are misplaced, as the obviousness analysis requires an assessment of the background knowledge of a POSITA. Reply 19 (citing *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020)). “There

is no gap filling here,” Petitioner argues, “since the Piepgras-Michael-Butler combination discloses a touch screen for a remote control that is used to receive input from a user and display information to the user” and because Swartz, Hack, and Gillespie merely corroborate that the basic computing concept of LED touch screens was known. *Id.* at 20 (citing Pet. 43; Ex. 1002 ¶¶ 139–40). Petitioner further states that the Swartz, Hack, and Gillespie references were not “relied on as ‘part of Petitioner’s Ground 1’ (POR, 44), but rather as noted, were cited as evidence confirming conventional features.” *Id.* at 20 (citing Ex. 1002, ¶¶ 139 n.12, 142 n.13).

Petitioner also argues that although Patent Owner attempts to frame Swartz as only relevant to bar code scanning, Patent Owner in fact acknowledges that Swartz discloses “a flat panel display including an LED display, OLED display or LCD display,” which is consistent with Dr. Baker’s opinions. *Id.* at 20–21 (citing PO Resp. 48; Ex. 1002 ¶¶ 139–40). Along these lines, Petitioner also explains that “Swartz discloses a portable device consistent with (and not divergent from), e.g., Piepgras’ teachings that also include use of a portable telecommunication device (remote control).” *Id.* at 21 (citing Ex. 1007 ¶¶ 2, 12). Petitioner further clarifies, “[t]here is no modification of implementing Swartz’s device into the modified Piepgras system as PO suggests, but rather as explained, Swartz demonstrate/corroborates Dr. Baker’s opinions concerning a POSITA’s knowledge of LED based touch screen[s] on portable devices.” *Id.* at 21 (citing Ex. 1002 ¶¶ 139–40).

Additionally, Petitioner asserts that both Hack’s and Gillespie’s teachings corroborate Dr. Baker’s testimony that touch screen displays can

respond to human touch. *Id.* at 23–24 (citing, e.g., Ex. 1009 ¶¶ 13–15, 87, 89, 96; Ex. 1022 ¶¶ 56–57, 99). Petitioner further points out that Patent Owner does not dispute that Gillespie discloses an LED display that illuminates in response to human touch. *Id.* at 22 n.8.

In its Sur-reply, Patent Owner reiterates that Petitioner has not demonstrated that the prior art references teach either an LED display or a display that provides light based upon detection of human touch. Sur-reply 20–21. Additionally, Patent Owner reasserts that Petitioner is improperly using Swartz, Hack, and Gillespie to fill the missing limitation. *Id.* at 21–26. Further, Patent Owner asserts that Swartz’s device does not include an LED display. *Id.* at 22–23; *see also id.* at 23 n.6 (arguing that Swartz’s portable tool belt, and not the wearable wrist device, includes an LED display). Patent Owner also argues that Dr. Baker’s testimony on this limitation “is conclusory and not tied to supporting evidence,” and also that it fails to establish inherency. *Id.* at 26.

Turning to our analysis, we find Petitioner more persuasive. Petitioner argues, and we agree, that the Piepgras-Michael-Butler combination discloses that the portable telecommunications device can detect a human touch. Pet. 43. Further, Dr. Baker testifies, and we agree, that a POSITA would have understood that the modified device “would use an LED touch display and thus when touched, the LED(s) of the display would change (e.g., turning on and/or changing interface content).” Ex. 1002 ¶ 141. We credit this testimony by Dr. Baker because it is well-supported by evidence. *See, e.g.,* Exs. 1009 (Hack), 1022 (Gillespie); Pet.

43 (citing same).¹³ Patent Owner does not offer any contrary evidence that would undermine Dr. Baker’s persuasive testimony that a POSITA would have understood that the modified device would use an LED touch display and that when touched, the LED(s) of the display would change (and thus provide light). See Ex. 2001 ¶¶ 105–16 (attacking the sufficiency of Petitioner’s evidence but not disputing Dr. Baker’s core assertion regarding the understanding of a POSITA).

It is somewhat ironic that Patent Owner asserts that Dr. Baker’s testimony is “conclusory and not tied to supporting evidence.” Sur-reply 26 (citing Ex. 1002 ¶ 141). In reality, Petitioner supplies ample supporting evidence (e.g., Hack and Gillespie), but Patent Owner denies that we can consider it. See, e.g., Pet. 43 (citing, e.g., Exs. 1009, 1022); PO Resp. 44. Petitioner’s reliance on evidence to show the understanding of a skilled artisan is appropriate because “the obviousness ‘analysis *requires* an assessment of the . . . background knowledge possessed by a person having ordinary skill in the art.’” *Koninklijke Philips*, 948 F.3d at 1337. Petitioner does not rely upon references such as Hack and Gillespie to supply a missing claim limitation.¹⁴ Rather, Petitioner relies on Butler’s disclosure of a touch screen for this limitation and points to Hack and Gillespie to show that prior art touch screens often included LED displays and that one of ordinary skill in the art would have understood that a touch screen would have provided

¹³ As we explain below, we need not rely on Swartz.

¹⁴ For this reason, Petitioner need not have included Swartz, Hack, or Gillespie in its ground listing, and Petitioner need not show a motivation to combine Swartz, Hack, or Gillespie with Piepgras, Michael, and Butler.

light based upon detection of human touch. Reply 20; *see also* Pet. 43. *Arendi* is therefore inapposite because Petitioner’s detailed explanations and supporting evidence are the opposite of relying on “common sense” as a “wholesale substitute for reasoned analysis and evidentiary support.” *See* 832 F.3d at 1362.

We also disagree with Patent Owner that Petitioner’s evidence of the understanding of a skilled artisan is unpersuasive. Dr. Baker persuasively explains that an LED display that illuminates upon detection of touch is part of the conventional operation of an LED-based touch screen. Ex. 1002 ¶ 141. Patent Owner’s expert does not disagree, instead only alleging lack of evidence. Ex. 2001 ¶ 115. But Petitioner argues, and we agree, that “Dr. Baker’s opinions based on his experience and review of the art is evidence.” Reply 23 (citing Ex. 1002 ¶¶ 3–23, 52, 139–40).

Petitioner also persuasively explains that Dr. Baker’s testimony is corroborated by the evidence. *Id.* For example, Hack describes an LED display and explains that a “touch responsive screen also enables the display system 106 to detect and process user entered touch commands.” *Id.* (citing Ex. 1009 ¶¶ 13–15, 89); *see also* Pet. 43 (citing Ex. 1009 ¶¶ 13–14 (touch-responsive, OLED display), Abstract (“hand-held, portable communications device”)). Hack further explains that “[t]his information can be used, for example, to activate switches displayed on the screen 110, or to highlight specific points on the display 106.” Reply 23 (citing Ex. 1019 ¶ 89). These teachings of Hack show that a POSITA would have understood that touching a touch screen (such as in Butler) would have caused the screen to display information, such as highlighting, which would have caused at least one

LED to provide light based upon detection of the human touch. Dr. Baker's testimony to this effect is therefore corroborated. *See, e.g.*, Ex. 1002 ¶¶ 138–43. Dr. Shackle's contrary assertion that "[n]o evidence is provided that Hack's portable device has a display that illuminates upon the detection of touch" is unexplained and not credible. Ex. 2001 ¶ 115, *cited in* PO Resp. 51.

Petitioner also persuasively explains how Gillespie's LED touch screen teachings also corroborate Dr. Baker's testimony. Reply 23 (citing Ex. 1022 ¶¶ 56 (describing how a user touches icon 422 on the touch screen to launch a calculator application on the touch screen), 99 ("The user taps on button 1206 to close the calculator and restore the touch screen to its previous image.")); Pet. 43–44 (citing Ex. 1022 ¶¶ 37–39 (describing Gillespie's organic light emitting diode (OLED) display with touch sensor)). For example, Gillespie's touch screen allows a user to tap on a button to "restore the touch screen to its previous image," which we find a POSITA would have understood would have caused at least one LED to provide light based upon detection of the human touch. *See* Ex. 1022 ¶ 99. Patent Owner does not dispute this, only arguing that Petitioner fails to articulate a reason for combining Gillespie with Piepgras, Michael, and Butler. Sur-reply 25–26. As we explain above, however, Petitioner relies on Gillespie as evidence of the background knowledge of the skilled artisan and thus need not articulate a rationale to combine Gillespie with Piepgras, Michael, and Butler.¹⁵

¹⁵ The parties also extensively dispute the applicability of Swartz. PO Resp. 46–50; Reply 20–21; Sur-reply 21–24. However, because we find that Hack

Thus, we determine that Petitioner demonstrates by a preponderance of the evidence that this limitation was suggested by the combination of Piepgras, Butler, and Michael.

d. Summary as to Claim 8

Based on the record before us, we find that Petitioner has shown by a preponderance of the evidence that the combination of Piepgras, Michael, and Butler would have rendered claim 8 obvious.

5. Dependent Claims 9, 10, 15, and 18

Petitioner contends that dependent claims 9, 10, 15, and 18 would have been obvious over the combination of Piepgras, Michael, and Butler. Pet. 46–56. Petitioner provides a detailed analysis explaining where the combination of Piepgras, Michael, and Butler discloses the additional limitations in these dependent claims, which Patent Owner does not contest. Based on our review of the full record, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Piepgras, Michael, and Butler would have rendered obvious claims 9, 10, 15, and 18.

E. Asserted Obviousness over Piepgras, Michael, Butler, and Schultz (Ground 2)

Petitioner contends that claim 16, which depends on independent claim 8, would have been obvious over Piepgras, Michael, Butler, and Schultz. Pet. 56–59. Petitioner provides a detailed analysis explaining where the combination of Piepgras, Michael, Butler, and Schultz discloses

and Gillespie corroborate Dr. Baker’s testimony, we need not address Petitioner’s further reliance on Swartz.

the additional limitations in this dependent claim, which Patent Owner does not contest. *Id.*; PO Resp. 51.

However, Patent Owner raises a procedural challenge under 35 U.S.C. § 311(b). PO Resp. 17–20. This statute provides that “[a] petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.” 35 U.S.C. § 311(b) (emphasis added). Patent Owner contends that Schultz is not available as prior art under 35 U.S.C. § 311(b) because it is not a patent or printed publication and can only be prior art under 35 U.S.C. § 102(e). PO Resp. 17. Patent Owner argues that documents are “printed publications” as of the date they become available to the public, and Schultz became public on its publication date of June 2, 2005, after the February 25, 2004 priority date of the ’583 patent. *Id.* at 19.

Petitioner responds that the AIA framework permits the use of § 102(e) prior art in IPR proceedings, unlike formerly available covered business method review (CBM) proceedings, which restricted challenges to § 102(a) prior art. Reply 25. We agree. The statute governing the formerly available CBM proceeding explicitly limits challenges based on “prior art that is described by section 102(a).” AIA § 18(a)(1)(C). In contrast, § 311(b) more broadly permits challenges “on the basis of prior art consisting of patents or printed publications.” The broader language in § 311(b) implies that unlike CBMs, IPRs are not limited to challenges solely under § 102(a) prior art. The parties cite to no Federal Circuit decisions that squarely address this issue. However, the Federal Circuit has applied

§ 102(e) patent application publication prior art in appeals from IPR proceedings. *See, e.g., Purdue Pharma L.P. v. Iancu*, 767 F. App'x 918, 920–21, 926 (Fed. Cir. 2019) (nonprecedential) (determining that a § 102(e) patent application publication was available as prior art in an IPR). The Board has also long permitted challenges based on patent application publications under § 102(e). *See, e.g., Idle Free Sys., Inc. v. Bergstrom, Inc.*, IPR2012-00027, Paper 14 at 27 (PTAB Jan. 31, 2013) (instituting trial over § 102(e) ground based on a patent application publication). We therefore find Patent Owner's § 311(b) argument unpersuasive.

Based on our review of the full record, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Piepgras, Michael, Butler, and Schultz would have rendered obvious claim 16.

F. Asserted Obviousness over Piepgras, Michael, Butler, and Naskali (Ground 3)

Petitioner contends that claim 17, which depends on independent claim 8, would have been obvious over Piepgras, Michael, Butler, and Naskali. Pet. 59–65. Petitioner provides a detailed analysis explaining where the combination of Piepgras, Michael, Butler, and Naskali discloses the additional limitations in this dependent claim, which Patent Owner does not contest. *Id.*; PO Resp. 52. Based on our review of the full record, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Piepgras, Michael, Butler, and Naskali would have rendered obvious claim 17.

IV. CONCLUSION¹⁶

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
8–10, 15, 18	103	Piepgras, Michael, Butler	8–10, 15, 18	
16	103	Piepgras, Michael, Butler, Schultz	16	
17	103	Piepgras, Michael, Butler, Naskali	17	
Overall Outcome			8–10, 15–18	

¹⁶ 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).

V. ORDER

It is, therefore,

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 8–10 and 15–18 of the '583 patent are unpatentable; and

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

IPR2022-00100
Patent 10,750,583 B2

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