

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

DDC TECHNOLOGY, LLC,
Patent Owner.

IPR2023-00711
Patent 11,093,001 B1

Before SHEILA F. McSHANE, MICHAEL T. CYGAN, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
Dismissing Petitioner's Motion to Exclude
35 U.S.C. § 318(a)

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I. INTRODUCTION

A. Background

Google LLC. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–30 (the “challenged claims”) of U.S. Patent No. 11,093,001 B1 (Ex. 1001, “the ’001 patent”), along with the Declaration of Kurtis P. Keller (Ex. 1002). DDC Technology, LLC (“Patent Owner”) filed a Preliminary Response (Paper 13), along with the Declaration of Patrick Buckley (Ex. 2023). With leave, Petitioner also filed Petitioner’s Reply to Patent Owner’s Preliminary Response (Paper 15), and Patent Owner also filed a Sur-reply in Support of Its Preliminary Response (Paper 20).

On November 8, 2023, the Board instituted an *inter partes* review of the challenged claims pursuant to 35 U.S.C. § 314. Paper 31 (“Dec.”)¹.

After institution, Patent Owner filed a Patent Owner Response (Paper 47, “PO Resp.”), along with the second Declaration of Patrick Buckley (Ex. 2054) and the Declaration of Bob Mackey, Ph.D. (Ex. 2050). Petitioner filed a Reply (Paper 52, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 57, “PO Sur-reply”). Petitioner filed a Motion to Exclude (Paper 66), with Patent Owner filing an Opposition (Paper 68), and Petitioner filing a Reply to the Opposition (Paper 70). The parties then presented oral arguments at a hearing on August 7, 2024, and a transcript of it has been entered into the record (Paper 74, “Tr.”).

For the reasons set forth in this Final Written Decision pursuant to 35 U.S.C. § 318(a), we determine that Petitioner has demonstrated, by a

¹ A public version of the Institution Decision is filed as Paper 37.

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preponderance of the evidence, that claims 1–26, 29, and 30 of the '001 patent are unpatentable and Petitioner has not demonstrated, by a preponderance of the evidence, that claims 27 and 28 of the '001 patent are unpatentable.

B. Real Party-in-Interest

Petitioner Google LLC identifies itself as the sole real party-in-interest. Pet. 2. Petitioner states that “Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc.” and “XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.” *Id.* at 2, n.1. Patent Owner DDC Technology, LLC identifies itself as the sole real party-in-interest. Paper 3 (Patent Owner Mandatory Notices), 2.

C. Related Matters

The parties indicate that the '001 patent has been asserted in several district court lawsuits including:

- *DDC Technology LLC v. Landsberg Orora*, No. 3:23-cv-01160 (N.D. Cal.);
- *DDC Technology, LLC v. Emerge Technologies, Inc.*, No. 3:22-cv-01263 (N.D. Tex.); and
- *DDC Technology, LLC v. Unofficial Cardboard, Inc.*, No. 1:21-cv-05596 (N.D. Ill.).

See Pet. 4; Paper 3, 3–4.

Patents related to the '001 patent were previously the subject of three other Board proceedings, namely, IPR2018-00494, PGR2018-00019, and PGR2018-00020. *See* Pet. 3; Paper 3, 3. MerchSource, LLC was the petitioner in these proceedings, and each proceeding was terminated. *See id.*

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Petitioner additionally challenged or challenges patents related to the '001 patent in four proceedings: IPR2023-00707, IPR2023-00708, IPR2023-00709, and IPR2023-00710.

D. The '001 Patent

The '001 patent is titled “Virtual Reality Viewer and Input Mechanism” and issued on August 17, 2021 from an application filed on March 26, 2021. Ex. 1001, codes (22), (45), (54). The application for the '001 patent is a continuation of several applications. *Id.* at code (63). The '001 patent also claims priority to Provisional Application No. 62/161,857, filed on May 14, 2015, and Provisional Application No. 62/025,376, filed on July 16, 2014. *Id.* at code (60).

According to the Specification, many virtual reality (VR) viewers at the time of the invention were configured to use a smartphone as the display device instead of having a dedicated display. Ex. 1001, 1:51–53. A challenge identified with such a viewer is that “the touch sensitive display is concealed within the viewer housing, thereby making it difficult for a user to interact with the touch sensitive display of the device.” *Id.* at 2:6–9. The '001 patent therefore is directed to “a virtual reality viewer including an input mechanism that can be used with mobile electronic device having a touchscreen contained within the viewer.” *Id.* at 2:36–39.

Figure 1 of the '001 patent, reproduced below, shows an exemplary viewer “having a conventional construction without an input mechanism.” Ex. 1001, 3:45–48.

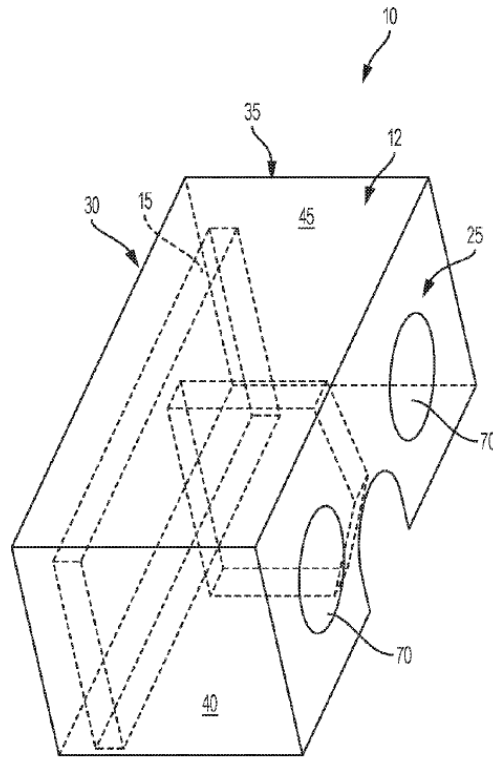
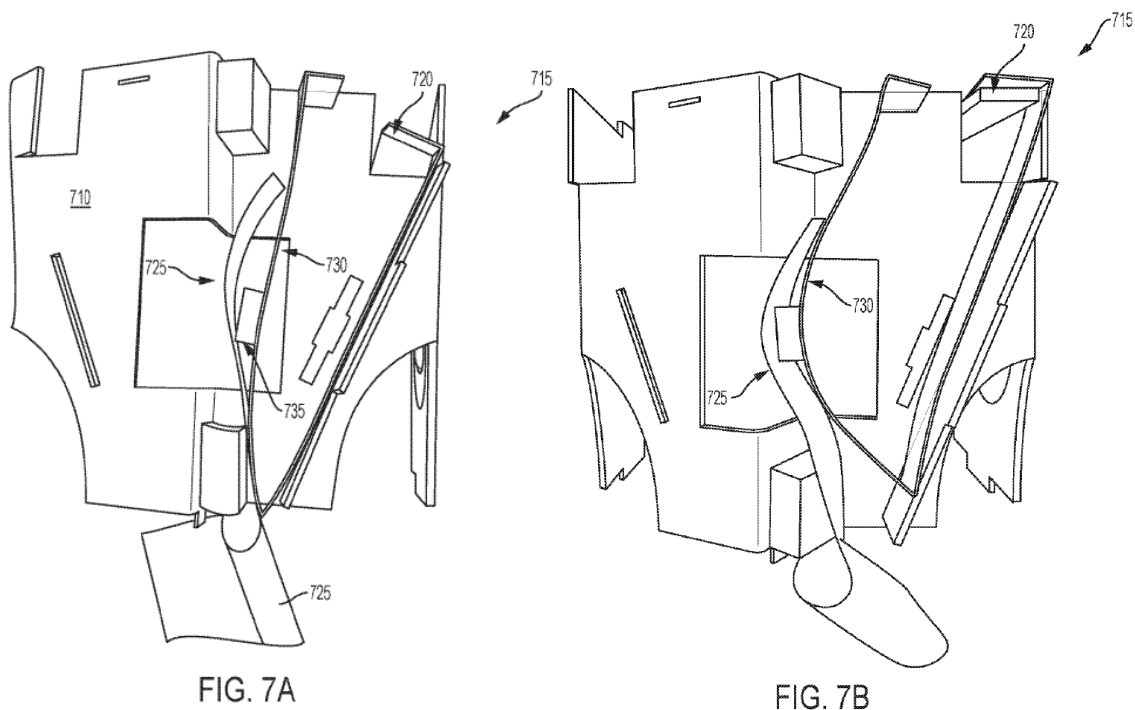


FIG. 1

As shown above, viewer 10 includes housing 12 into which electronic device 15 (e.g., a smartphone) can be placed such that device 15's display is viewable when the user is looking through lenses 70 into housing 12. Ex. 1001, 3:52–64.

Figures 7A and 7B, reproduced below, depict a cross-sectional view of a VR viewer of another embodiment of the invention. Ex. 1001, 3:8–12, 6:61–7:9.



As shown above, Figures 7A and 7B each illustrate view divider 710 with one side of the view divider folded back so as to expose a portion of user input mechanism 715, which is located in the interior of the viewer. Ex. 1001, 7:35–39, 9:56–60. When the proximal end of a lever (not shown) is activated by a user, distal end 720 moves, thereby deforming coupling 730 and causing input mechanism 715 to move from unactuated state (shown in Figure 7A) to an actuated state (shown in Figure 7B), in which electrical shield 725 contacts the touchscreen. *Id.* at 7:40–53, 8:13–17, 8:23–38. A capacitive touchscreen can detect electrical shield 725 when input mechanism 715 is in the extended position. *Id.* at 7:46–53.

E. Illustrative Claim

Claims 1–30 of the ‘001 patent are challenged. Claims 1, 21, and 30 are independent claims. Claims 1, 21, and 30 are reproduced below, with bracketed designations added for reference purposes.

1[a] An apparatus comprising:

1[b] a housing having a portion configured to receive a mobile electronic device having a touchscreen display, the housing further including multiple lenses;

1[c] an input device accessible from an exterior of the housing; and

1[d] a contact element located within an interior of the housing, the contact element responsive to the input device and the contact element moveable within the interior of the housing between at least a first position and a second position, wherein in the second position a surface of the contact element is configured to generate a detectable touch event at the touchscreen display of the mobile electronic device.

21[a] An apparatus comprising:

21[b] a housing having a portion configured to receive a mobile electronic device having a touchscreen display, the housing further including multiple lenses;

21[c] an input device accessible from an exterior of the housing; and

21[d] a contact element located within an interior of the housing, the contact element electro-mechanically coupled, via a linkage element, to the input device, the contact element moveable within the interior of the housing between at least a first position and a second position, wherein in the second position the contact element is configured to generate a touch event at the touchscreen of the mobile electronic device.

30[a] A virtual reality viewer apparatus comprising:

30[b] a housing having a portion configured to receive a mobile electronic device having a touch-screen, the housing further including a sidewall structure that supports at least two lenses,

30[c] an input device that comprises a depressible button, the input device accessible from an exterior of the housing; and

30[d] a contact element electro-mechanically coupled, via a linkage element, to the input device, the contact element

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moveable within an interior of the housing between at least a first position and a second position, wherein in the second position a surface of the contact element is configured to generate a detectable touch event at the touch-screen of the mobile electronic device, wherein the linkage element comprises a conductive lead that runs through at least a portion of the interior of the housing.

Ex. 1001, 12:58–13:4, 14:1–13, 14:41–58.

F. Asserted Grounds of Unpatentability

Claims Challenged	35 U.S.C. § ²	Reference(s)
1–30	103	Kondo ³ , Chu ⁴

Pet. 8.

II. ANALYSIS

A. Issues Related to Ordinary Skill in the Art

1. Determination of Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art at the time of the alleged invention would have had, at minimum:

[a]n undergraduate degree (or equivalent) in mechanical engineering or a related field, with knowledge of mechanical actuation systems, basic optical design with lenses, head-mounted displays, a basic understanding of touchscreen

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application and provisional applications for the ’001 patent were filed after this date, the AIA version of § 103 applies. *See* Ex. 1001, codes (22), (60). However, our analysis would be the same under the pre-AIA version of the statute.

³ JP 3176588, issued June 28, 2012. Ex. 1003. Petitioner relies on a certified translation of Kondo, which also appears in Exhibit 1003.

⁴ US 2013/0082963 A1, published on April 4, 2013 (Ex. 1004).

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technology, and at least two years of professional experience in mechanical and basic optical design or engineering.

Pet. 24.

Patent Owner asserts that Petitioner’s proposed definition “gives too much weight to certain skills/experience that are of limited importance with respect to the ’001 patent, and too little weight to other skills/experience that are pertinent to the claimed inventions of the ’001 patent.” PO Resp. 1. Patent Owner contends that Petitioner proposes that the qualifications include a degree in “mechanical engineering or a related field,” but this affords undue weight to the mechanical actuation method, and the mechanism is “readily understood by even those with limited specific educational background.” *Id.* Similarly, Patent Owner argues that Petitioner’s proposal to include knowledge of “basic optical design with lenses” and “head mounted displays” places undue weight on technologies that are well-known or are not claimed. *Id.* at 1–2.

Patent Owner asserts that, rather than having extensive experience in “mechanical and basic optical design or engineering,” a person of skill in the art “should have sufficient experience in ‘touchscreen technology’ and ‘capacitive/conductive technology and materials,’ because they are pertinent to the inventive elements of the claimed inventions.” PO Resp. 2 (citing Ex. 2050 ¶ 9). Patent Owner contends that Petitioner’s proposal of a “basic understanding of touchscreen technology” is insufficient, and “[a] strong understanding of touchscreen technology is fundamental to the inventions claimed.” *Id.* (citing Ex. 2050 ¶ 20). Patent Owner proposes that a person of ordinary skill in the art “would have a minimum of two years of experience in implementing touchscreen and optics technology, along with

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relevant education (e.g., a bachelor’s degree) in science or engineering. In addition to specific academic training, a POSA [person of ordinary skill in the art] may draw upon appropriate industry experience.” *Id.* at 4 (citing Ex. 2050 ¶ 25).

Petitioner responds that Patent Owner’s arguments requiring that the level of required skill in the art include detailed knowledge of touchscreen implementation “is unnecessary because the ’001 patent does not improve touchscreen technology or even claim to.” Pet. Reply 1. Petitioner asserts that the ’001 patent “explains that its ‘pad and electrical shield material work . . . so that ***any form of touch screen technology*** will register a touch event,” so “the details of any particular touchscreen are irrelevant to the patent.” *Id.* (citing Ex. 1001, 11:8–12). Petitioner contends that Mr. Buckley, the inventor of the ’001 patent, is a mechanical engineer and has no experience implementing touchscreens. *Id.* (citing Ex. 1023, 133:14–20, 140:22–25). Petitioner asserts its proposed level of qualifications “is proper because it is grounded in the field of the invention of the ’001 patent and its related family members,” which is stated to be “virtual reality viewer devices for use with personal mobile electronic devices and having an input device.” *Id.* at 1–2 (citing U.S. Patent No. 9,420,075, 1:23–26 (an ancestor of the ’001 patent)).

Patent Owner further argues that Petitioner relies on the general field of invention of a related patent rather than the claims of the ’001 patent. PO Sur-reply 1. Patent Owner contends that the person of ordinary skill in the art “must understand the claimed inventions, which are directed to an input mechanism for inducing a touch event on a touchscreen of a mobile device enclosed in a housing.” *Id.* Patent Owner further asserts that a person of

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ordinary skill “would need to understand the touchscreens suitable for use in mobile phones and how to induce a touch event on them.” *Id.* at 2.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted).

The key differences between Petitioner’s and Patent Owner’s proposed qualifications for a person of ordinary skill at the time of the invention is that Patent Owner asserts that experience in “implementing touchscreen and optics technology,” that is, specific experience is touchscreen and optics design and construction details, is required. PO Resp. 4. We do not find support for a requirement for this type of experience in the intrinsic record. The ’001 patent Specification explains that its invention is for “any form of touch screen technology will register a touch event,” which indicates that the invention is agnostic as to the type of touchscreen that is used. Ex. 1001, 11:8–12. We agree with Petitioner that this disclosure, as well as other disclosures in the Specification, indicate that detailed knowledge of the touchscreen design and construction, to the extent that Patent Owner advocates, was not necessary for an understanding of the invention. The Specification indicates that one of ordinary skill in the art would have an understanding of the basic concepts of touchscreen operation. For instance, the Specification explains that one of skill in the art would have understood that the invention could be used with “a variety of touch screen technologies such as capacitive, resistive, or conductive touch screen

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technologies” (*id.* at 11:12–16); that a skilled artisan would have understood that the electronic device could “receive user inputs via a touch sensitive user interface (e.g., a capacitive touch sensitive display)” (*id.* at 3:60–66); and that one of skill would have understood that a device’s “capacitive touch display [] can detect the particular change in the electrical property that is caused by user touch of the user input” (*id.* at 6:8–12). The disclosures reflect that one of ordinary skill would have had an understanding of the basic functionality of touchscreens, but we do not discern any disclosures suggesting that one of skill would have had to had experience in implementing touchscreens, such as designing and constructing touchscreens themselves.⁵ Thus, we agree with Petitioner that a basic understanding of touchscreen technology is required for one of ordinary skill in the art.

We additionally discern that no specialized optical implementation experience, such as experience in the design of optical systems, is suggested in the ’001 patent. Instead, as Patent Owner acknowledges, “the ’001 specification makes clear that the lenses in the claimed apparatuses are well known.” PO Resp. 1–2; *see also*, Ex. 2050 ¶ 18. Thus, we agree with Petitioner that a basic understanding of basic optical design with lenses is required for one of ordinary skill in the art. Additionally, we agree with Petitioner that an educational background in mechanical engineering, or a related field, and knowledge of mechanical actuation systems and head-

⁵ The inventor of the ’001 patent (Mr. Patrick Buckley) testified that he did not have any experience implementing touchscreens. Ex. 1023, 140:22–25. In finding the level of ordinary skill in the art, we may consider various factors, including: “(1) the educational level of the inventor.” *Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)).

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mounted displays is consistent with requirements of the field of the invention, i.e., virtual reality viewers. Ex. 1001, code (54). Accordingly, we apply Petitioner’s assessment of the qualifications for a person of ordinary skill in the art at the time of the invention.

2. Mr. Keller’s Qualifications

Patent Owner criticizes Mr. Keller based on testimony that Patent Owner characterizes as “misunderstandings” of the technology and, more specifically, touchscreens. PO Resp. 3, 6, 8, 11. Additionally, in its Sur-reply, Patent Owner asserts that Petitioner’s declarant, Mr. Keller, is not a person of ordinary skill in the art. Patent Owner argues that Mr. Keller “has no relevant experience with touchscreens” and instead has “experience only with optics associated with head-mounted displays.” PO Sur-reply 2.

As an initial matter, Patent Owner’s assertion that Mr. Keller is not a person of ordinary skill in the art was late-raised in Sur-reply, and we disregard it. 37 C.F.R. § 42.23(b). Additionally, consistent with our discussion in the Institution Decision (Dec. 9), we find that Mr. Keller possesses the qualifications of a person of ordinary skill in the art which we have adopted here. Mr. Keller testifies that he has a bachelor of science degree in Mechanical Engineering, a master of science degree in Integrated Manufacturing Systems Engineering, and over two decades of experience including direct involvement in “the mechanical, electrical, optical and integration aspects” of hardware and software, including the design of head-mounted displays and Virtual and Augmented Reality hardware/systems. Ex. 1002 ¶¶ 8, 10–11. Mr. Keller’s testimony also presents his understanding of touchscreens—which Patent Owner does not directly dispute; rather Patent Owner instead puts a finer point on Mr. Keller’s

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declaratory testimony. *Id.* at ¶¶ 31–32; PO Resp. 3 (citing Ex. 2050 ¶ 21) (Patent Owner stating that Petitioner’s expert’s testimony on capacitive touchscreens using electrical properties “may” be true, but “it is not” necessarily so). As to Patent Owner’s arguments that Mr. Keller was not familiar with surface-capacitive touchscreens, and touchscreens in general, these assertions are based on deposition testimony from Mr. Keller. PO Resp. 6 (citing Ex. 2053, 44:24–50:1), 8 (citing Ex. 2053, 57:21–58:16), 11. Although we agree that Mr. Keller’s testimony indicates that he was not familiar with the specific terms “surface-capacitive touchscreen” or “projected capacitive touchscreen” (*see* Ex. 2053, 44:24–50:1), we do not agree that this indicates that Mr. Keller is not one of ordinary skill or is not credible.⁶ A skilled artisan would not necessarily had to have known the terminology for the different types of capacitive touchscreens, and we do not agree that this knowledge is required in order to credibly discuss the claimed invention, which is not limited to any particular type of capacitive touchscreen.⁷

B. Claim Construction

⁶ Mr. Keller’s experience includes using cell phone touchscreens in head mount displays. *See* Ex. 2053, 38:20–22 (“[W]e would take a cell phone and strip out a display from it, to try to use in a head mount display setup, to see how well it could work.”).

⁷ Further, as discussed below, Patent Owner’s focus on the terminology used for the touchscreens relates to Patent Owner’s contention that there is no motivation to combine Kondo and Chu because Kondo’s touchscreen is not suitable for use in a smartphone. However, as discussed below, we find that Patent Owner’s allegations about the specific type of touchscreens amount to a red herring because Kondo’s disclosures repeatedly state that its touchscreen is used in smartphones.

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In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2022). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

The Petition asserts that a “virtual reality viewer” should be interpreted as “[a] viewer of an artificial environment,’ where ‘viewer’ includes both handheld devices and headsets.” Pet. 25–26. Petitioner contends that the ordinary and customary meaning of terms should be used for the remainder of the terms. *Id.* at 24.

Patent Owner states that it applies the ordinary and customary meaning of terms. PO Resp. 3.

We determine that we need not expressly construe any claim terms. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (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.’”

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(quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103 “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 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) when in evidence, objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

D. Obviousness of Claims 1–30 over Kondo and Chu

Petitioner contends that claims 1–30 would have been obvious over the combination of Kondo and Chu. Pet. 30–88. To support its contentions, Petitioner provides explanations as to how the combination of the prior art teaches each claim limitation and provides rationale to combine the references. *Id.* Petitioner also relies upon the Keller Declaration (Ex. 1002) to support its positions. Patent Owner contends that Petitioner fails to demonstrate that the combination of Kondo and Chu renders the claims obvious because Kondo uses a specific type of touch panel and a person of ordinary skill in the art would not use this panel in a personal mobile phone, so there would be no motivation to combine Kondo with Chu. PO Resp. 4–

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18. Patent Owner also argues that objective indicia of non-obviousness favor a conclusion of non-obviousness. *Id.* at 26–64.

We begin our discussion with brief summaries of Kondo and Chu, and then address the evidence and arguments presented.

1. Kondo (Ex. 1003)

Kondo is titled “Remote Touch Circuit and Attachment” and seeks “[t]o provide an attachment that achieves remote control input to a touch panel mounted on an electronic device.” Ex. 1003, codes (54), (57). Kondo discloses “a stereoscope product attachment . . . for enjoying three-dimensional stereoscopic images provided with a remote touch circuit for enabling remote operation input to a touch panel with fingers supporting the attachment by equipping a smartphone having a touch panel.” *Id.* ¶ 21. Figure 1, reproduced below, is a perspective view of an embodiment of Kondo. *Id.* ¶¶ 20, 22.

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FIG. 1

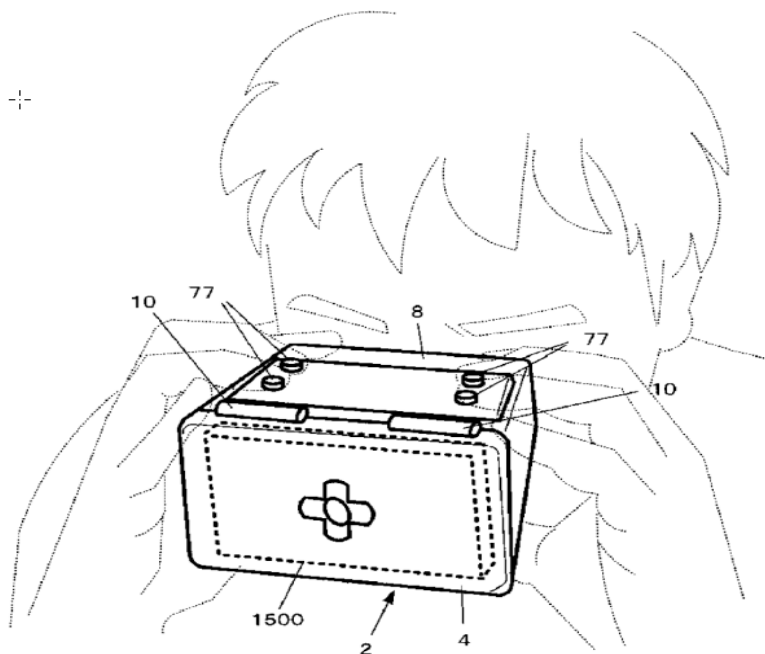


Figure 1 of Kondo, above, depicts smartphone 1500 inside of attachment 2, attachment main body 8 with hinges 10, and with button 77. Ex. 1003 ¶¶ 22, 30, 38, 58. Figure 2, reproduced below, depicts a front external view of smartphone 1500. *Id.* ¶ 23.

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FIG. 2

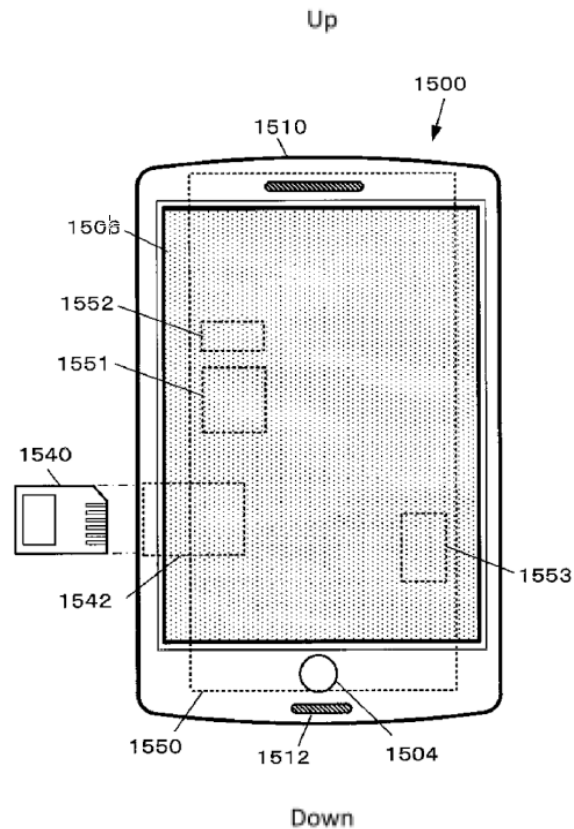
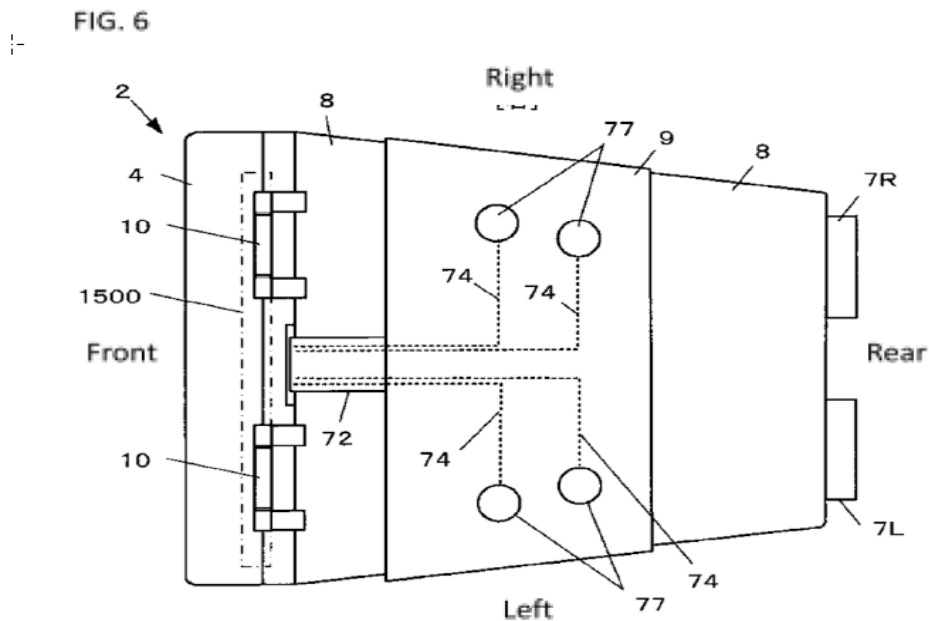


Figure 2 of Kondo, above, shows a configuration of smartphone 1500, which “is a computer and electronic device that includes a capacitive touch panel.” Ex. 1003 ¶ 23. Smartphone 1500 includes touch panel 1506 “that functions as an image display device and a contact position input device.” *Id.* Figure 6, illustrating a plan view of configuration of Kondo, is reproduced below. *Id.* ¶ 29.



As shown above, Kondo discloses one embodiment that includes left (7L) and right (7R) eyepieces on a rear end of the attachment and smartphone 1500 mounted inside a holding part 4 of the attachment and facing the eyepieces. *Id.* ¶¶ 22, 27. A user interacts with the smartphone's touchscreen by pressing buttons 77, which are conductively connected to electric wire 72 and conductive pads 76. *Id.* ¶¶ 41, 47–49. The conductive pads are in physical contact with virtual button positions W31–W34 on the touchscreen. *Id.*

2. Chu (Ex. 1004)

Chu is titled “Waterproof Housing for Digital Devices Having Capacitive Touch Screen and its Actuator Mechanism.” Ex. 1004, code (54). Chu discloses waterproof housing 10 for holding a smartphone and having actuator mechanism 12 including actuator shaft 14, press button 16, and probe head 18. *Id.* ¶¶ 38, 40, 41. The actuator mechanism is

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movable by a user's finger from a rest position, in which the probe head does not touch the smartphone's capacitive touchscreen 20, to an actuation position, wherein the probe head physically contacts a touchscreen. *Id.*

¶¶ 40, 41, 53–56, Figs. 3, 4.

3. Discussion

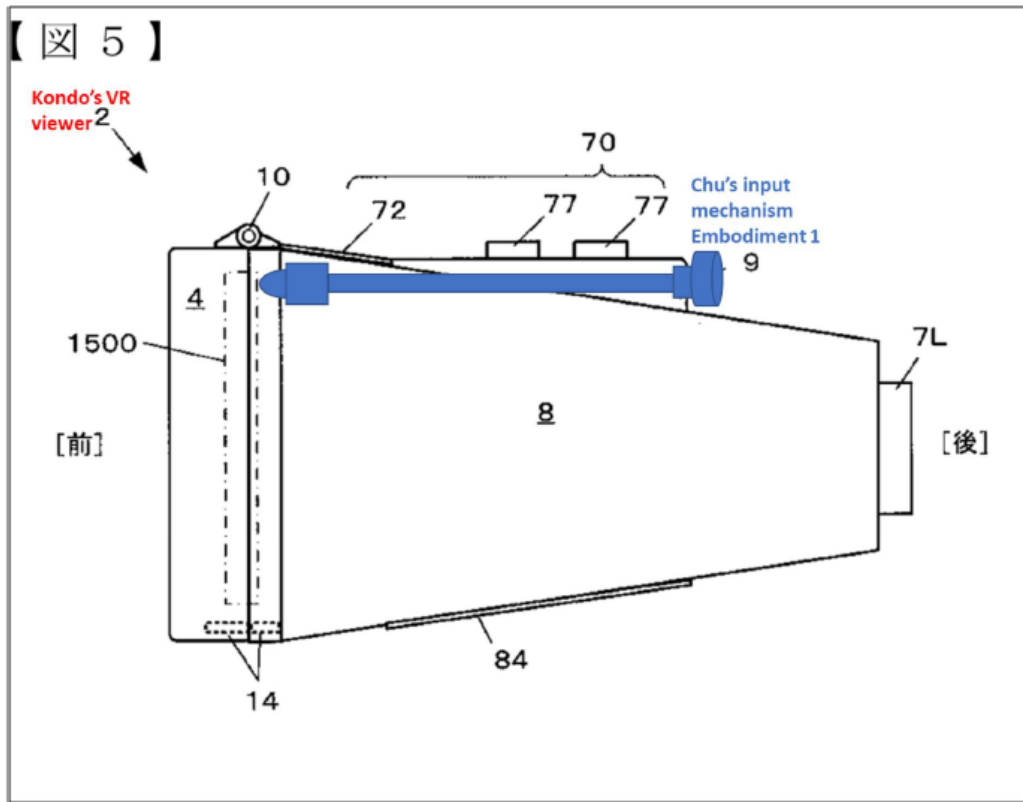
a. Independent Claim 1

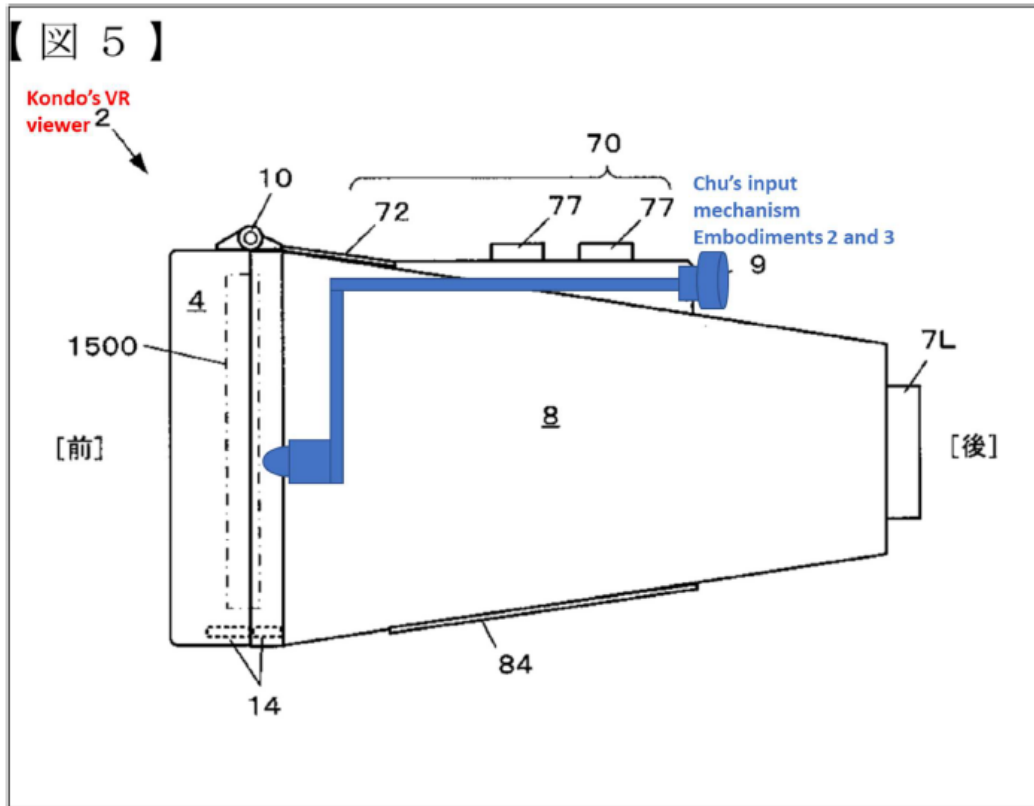
i. Rationale to Combine Kondo and Chu and Proposed Combinations

(1) Petitioner's Assertions

Petitioner proposes two variations of combinations of Kondo and Chu, each of which replace Kondo's electrical input mechanism with Chu's mechanical input mechanism. Pet. 38–42. Petitioner illustrates each proposed combination with annotations to Kondo's Figure 5 (*id.* at 39, 41), reproduced below.

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As shown above, Petitioner's annotations of Kondo's Figure 5 each add a structure (in blue) to the top of Kondo's attachment 2 and with blue text identifying the actuator mechanism as either "Chu's input mechanism Embodiment 1" (for the first combination) or "Chu's input mechanism Embodiments 2 and 3" (for the second combination). Pet. 39, 41.

For each proposed combination, Petitioner submits that one of ordinary skill in the art would recognize that minor adjustments might need to be made to the combination. Pet. 39–40 (citing Ex. 1002 ¶¶ 63–64).

Petitioner argues that, in view of the similar objectives of Kondo and Chu, a person of ordinary skill in the art would have looked to available input mechanisms, such as that of Chu. Pet. 37. Petitioner asserts that there is a rationale to combine Kondo and Chu: (1) to allow Kondo to work with both capacitive and resistive touchscreens; (2) to allow the use of Chu's

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swipe input; and (3) to allow the advantageous use of Chu's waterproof design in certain applications. *Id.* at 36–38. More specifically, as to the first rationale, Petitioner contends that because Kondo's electrical input mechanism can only work with capacitive screens and Chu's mechanical input mechanism can work with both capacitive and resistive screens, a VR designer would have been motivated to replace Kondo's input mechanism with Chu's input mechanism in order to “increase the usability and consumer appeal for their device by making it work with both capacitive and resistive screens.” *Id.* at 36 (citing Ex. 1002 ¶ 55). Petitioner asserts that “both Kondo and Chu deal with a smartphone enclosed in a housing or device and both references face a similar problem, the external activation of the touchscreen of the smartphone enclosed in that device,” so a person of ordinary skill in the art who is “designing a VR viewer by using Kondo would look to other available input mechanisms,” thus leading a person of skill to Chu. *Id.* at 36–37 (citing Ex. 1003, 2; Ex. 1004 ¶ 9; Ex. 1002 ¶ 56). For the second rationale, Petitioner asserts that a person of ordinary skill in the art would have been motivated to use Chu's input mechanism in Kondo because the Chu input mechanism allows for transmitting different levels of pressure, which can be interpreted as differing input, and also allows for screen interaction by another type of input, that is, the swipe form of input. *Id.* at 37 (citing Ex. 1002 ¶¶ 57–58). For the third rationale, Petitioner argues that a designer would also have been motivated to include Chu's waterproof design in Kondo because it would be less susceptible to damage from water and other environmental factors and would allow the device to be cleaned without cleaning fluid reaching the device's inner parts for applications in sanitary environments. *Id.* at 38 (citing Ex. 1002 ¶¶ 59–61).

(2) Patent Owner's Arguments

Patent Owner argues that an ordinarily skilled artisan would not have combined Kondo and Chu. PO Resp. 4–18. Patent Owner alleges that a person of ordinary skill would know that Kondo's touch panel 1506 is a surface-capacitive touchscreen, which would not be used in a personal mobile phone. *Id.* at 12 (citing Ex. 2050 ¶45). Mr. Mackey testifies that a person of ordinary skill in the art “who was considering combining Kondo's and Chu's patents would therefore be faced with combining designs created for two different and incompatible touchscreen technologies” and “[t]his would significantly increase the difficulty and decrease the likelihood of the combination being achieved.” Ex. 2050 ¶43.

Patent Owner asserts that a person of ordinary skill in the art would have been aware of two distinct types of capacitive touchscreens at the time of the '001 patent, surface-capacitive and projected-capacitive, and that Kondo describes a surface-capacitive touchscreen. PO Resp. 6 (citing Ex. 2050 ¶ 37). Patent Owner contends that although Kondo states that the touchscreen technology used is “projected-capacitive,” “the entire remainder of Kondo's patent describes a design based on a different form of touchscreen technology, that of ‘surface-capacitive.’” *Id.* at 5 (citing Ex. 2050 ¶ 33). Patent Owner refers to disclosures in Kondo, including a description of the operation of its panel, and asserts that the disclosure describes how a surface-capacitive screen works. *Id.* (citing Ex. 1003 ¶24). Patent Owner alleges that Petitioner's expert, Mr. Keller, acknowledged that the referenced portion of Kondo does not accurately describe a projected-capacitive touchscreen. *Id.* (citing Ex. 2053, 144:4–147:1). Patent Owner further contends that Kondo refers to a current-based method of touch-

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location detection (Ex. 1003 ¶ 48; Ex. 2050 ¶ 36), and asserts that “[w]hile Petitioner’s expert was not familiar with surface-capacitive touchscreens (EX2053, 44:24–50:1), he did understand that Kondo’s ¶ 0048 did not accurately describe a projected-capacitive touchscreen.” PO Resp. 6 (citing Ex. 2053, 58:22–62:17).

Patent Owner asserts that Kondo emphasizes the need for protection against static electricity, which is unique to surface capacitive touchscreens, and cites to several disclosures in Kondo regarding the emphasis of static electricity management. PO Resp. 6–8 (citing Ex. 1003 ¶¶ 12, 33, 36, 39, 42; Ex. 2025 ¶ 37). Patent Owner argues that Petitioner’s expert “acknowledged confusion about why Kondo would be trying to reduce static electricity given his view that touchscreen technologies are ‘very resilient to static electricity.’” *Id.* at 8 (citing Ex. 2053, 57:21–58:16).

Patent Owner also refers to Kondo’s use of a reference ground for the user, arguing that this is an indication that “Kondo designed his remote touch circuit around a surface-capacitive touchscreen.” PO Resp. 8 (citing Ex. 2050 ¶ 39). Patent Owner refers to Kondo’s disclosure of ground circuit 80 as support for this assertion. *Id.* at 8–10 (citing Ex. 1003 ¶ 47, Fig. 10; Ex. 205 ¶¶ 39–40). Patent Owner further contends that a unique characteristic of a surface-capacitive touchscreen is the “use of a low-impedance signal return path through the user’s finger back to the surface capacitive touchscreen’s signal reference,” where the signal reference is known as a “reference ground.” *Id.* at 10 (citing Ex. 2050 ¶ 41). Patent Owner asserts that this is important in a surface-capacitive touchscreen because it establishes the baseline reference current for a no-touch condition, but no reference ground is needed for a projected-capacitive touchscreen.

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Id. at 10–11. Patent Owner argues that “Petitioner’s expert acknowledged confusion as to why Kondo attempted to provide a ground” in the manner used for a surface-capacitive touchscreen. *Id.* at 11 (citing Ex. 2053, 64:4–66:10). Patent Owner further contends that a person of ordinary skill in the art would know what a lay user knew in 2014, that is, that “[a] typical phone user would also know that the touchscreen operates whether the user is grounded, or if they are not grounded.” *Id.* (citing Ex. 2050 ¶ 42).

Patent Owner asserts that a person of ordinary skill in the art “would have known with certainty that it was not possible to integrate a surface-capacitive touchscreen into a mobile consumer-electronics device such as a smartphone.” PO Resp. 11 (citing Ex. 2050 ¶ 43). Patent Owner argues that all smartphones that are capable of providing display capabilities in a VR viewer would have used projective-capacitive touchscreens at the time of the ’001 patent. *Id.* In its Sur-reply, Patent Owner, pointing to Mr. Mackey’s testimony, asserts that a person of ordinary skill in the art “would have understood that Kondo’s touch panel 1506 operates as a surface-capacitive touchscreen (and, thus, would not have been a smartphone in 2014).” PO Sur-reply 4; Ex. 2050 ¶¶ 33–42.

Patent Owner further contends that “[b]ecause of the electrical requirements of both the touchscreen and the control circuit, there would be no reason for a [person of skill] to create a surface-capacitive touchscreen that would fit within and be powered by a personal mobile device.” PO Resp. 12 (citing Ex. 2050 ¶ 45). Patent Owner asserts that it is not clear to a person of skill in the art that Kondo’s design would work with a surface-capacitive touchscreen. *Id.* (citing Ex. 2050 ¶ 46). Patent Owner argues that because in the applications that use surface-capacitive technology a user

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directly contacts the screen, “there was no demand for *remote*-touch capability for surface-capacitive screens,” so a person of skill “would not have been motivated to utilize Kondo’s surface-capacitive touch panel 1506 as the mobile device recited in the challenged claims.” *Id.* at 12–13 (citing Ex. 2050 ¶ 46). Patent Owner contends that a person of skill “would not have been motivated to utilize Kondo’s surface-capacitive touch panel 1506 as the mobile device recited in the challenged claims.” *Id.* at 13. Patent Owner further argues that surface-capacitive touchscreens cannot identify and report two touch events, so this “makes them unsuitable for use in multi-touch user interfaces.” *Id.* Patent Owner contends that because “[p]ractically all smartphones in 2014 were based on multi-touch user interfaces (e.g., those utilizing projected-capacitive touchscreens),” a person of skill would not be motivated “to utilize Kondo’s surface-capacitive touch panel 1506 as the mobile device.” *Id.*

Patent Owner asserts that Petitioner’s expert was unfamiliar with surface-capacitive touchscreens. PO Sur-reply 5 (citing Ex. 2053, 44:24–50:1, 32:19–33:6). Patent Owner contends that Petitioner’s expert “understood enough to concede that Kondo did not accurately describe a projected-capacitive touchscreen, but not enough to recognize that Kondo describes a surface-capacitive touchscreen.” *Id.* (citing Ex. 2053, 58:22–62:17, 144:4–147:1). Patent Owner argues that, although Petitioner’s expert testified that he “didn’t make any distinguished differences between a capacitive touchscreen and what you call here a surface capacitive touchscreen,” “[t]here are profound differences between a surface-capacitive touchscreen and a projected-capacitive touchscreen.” *Id.* (quoting Ex. 2053, 146:24–147:1). Patent Owner alleges, pointing to Mr. Mackey’s testimony,

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that surface-capacitive touchscreens are suitable for “large devices like ATMs, arcade games, and factory-automation appliances, but it wasn’t possible or desirable to integrate a surface-capacitive touchscreen into a smartphone,” whereas “projected-capacitive devices [are] so well-suited to smartphones that they became ubiquitous.” *Id.* at 6 (citing Ex. 2050 ¶¶ 36, 43, 46, 52–53).

Patent Owner contends that Kondo only discloses embodiments where the touch pads are in constant contact with the touchscreen, and a person of ordinary skill in the art touchscreen “would have no particular motivation to change Kondo’s input mechanism to a non-contact system like Chu.” PO Resp. 13 (citing Ex. 2050 ¶ 47). Patent Owner argues that a person of skill would not be motivated to modify Kondo in that manner “because adding moving parts would make the remote touch system more complicated and expensive for no technical or user benefit” and would be less reliable. *Id.*

Patent Owner disputes Petitioner’s motivation to modify Kondo to use Chu’s input mechanism so that it would work with resistive touchscreens. PO Resp. 14–18. Patent Owner argues that resistive touchscreens comprised little market share in the time of invention. *Id.* at 14–15 (citing Ex. 2034; Ex. 2050 ¶ 48). Patent Owner contends that the few resistive touchscreens that were available on the market were used on low-cost devices that would not have had the graphic processing power or display resolution necessary for use with a VR headset. *Id.* at 16 (citing Ex. 2050 ¶ 49). Patent Owner contends that further reasons to avoid the use of resistive touchscreens are their poor optical properties and inability to process multi-touch gestures. *Id.* at 16–17 (citing Ex. 2050 ¶¶ 51, 52). Patent Owner argues that because “the smartphone market was entirely dominated by projected capacitive

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touchscreens,” adding a resistive touchscreens “was directly contrary to the accepted approach of the entire market segment.” *Id.* at 17 (citing Ex. 2050 ¶ 53).

As to the other rationale that Petitioner has presented for the combination of Kondo and Chu, that is, the enablement of varying inputs, allowing swipe inputs, and allowing waterproofing, Patent Owner asserts that “[n]one of these arguments address the unsuitability of Kondo’s surface-capacitive touchscreen.” PO Sur-reply 11–12.

In summary, Patent Owner’s arguments on lack of motivation to combine are that: 1) Kondo’s touch panel is a surface-capacitive touchscreen and it would not be used in mobile electronics devices, such as a smartphone; 2) there is no motivation to make the combination so that it can work with resistive screens; and 3) there is no motivation to change Kondo’s input mechanism to Chu’s non-contact system.

(3) Analysis

We consider Petitioner’s support of the rationale to combine Kondo and Chu and the reasonable likelihood of success of the combination. Petitioner contends that “both Kondo and Chu deal with a smartphone enclosed in a housing or device and both references face a similar problem, the external activation of the touchscreen of the smartphone enclosed in that device.” Pet. 36 (citing Ex. 1003, code (57); Ex. 1004 ¶ 9). In view of that, Petitioner asserts that a person of ordinary skill in the art who “is designing a VR viewer by using Kondo would look to other available input mechanisms, thus leading [a person of skill] to Chu.” *Id.* at 37 (citing Ex. 1002 ¶ 56). In addition to the rationale that the combination would allow Kondo to work with both capacitive and resistive touchscreens, Petitioner also asserts that

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the combination would allow the use of Chu’s variable pressure and swipe inputs and also allow the advantageous use of Chu’s waterproof design. *Id.* at 37–38 (citing Ex. 1002 ¶¶ 57–61). Petitioner also asserts that “[b]oth Kondo and Chu are simple mechanical devices,” and Mr. Keller testifies that a person of ordinary skill in the art “would consider the formation of this combination to be merely routine, requiring little skill,” with a reasonable likelihood of success for the combination. *Id.* at 38; Ex. 1002 ¶ 62.

In *KSR*, the Supreme Court stated “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415 (2007). “[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. “The motivation-to-combine analysis is a flexible one.” *Intel Corp. v. PACTXXP Schweiz AG*, 61 F.4th 1373, 1379 (Fed. Cir. 2023).

We agree with Petitioner that Chu’s variable pressure input, as well as its swipe input, are features that allow a wider range of input types and therefore would provide greater functionality to Kondo. *See* Pet. 37; Ex. 1002 ¶¶ 57–58. We additionally agree with Petitioner that because both Kondo and Chu address the same problem, that is, the external activation of the touchscreen of an enclosed smartphone, there is support that a person of ordinary skill in the art designing a VR viewer using Kondo would look to available input mechanisms, such as the one in Chu. *See* Pet. 37; Ex. 1002 ¶ 56. We also agree with Petitioner that a person of ordinary skill would

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have had a reasonable expectation of success in making the combination.

Pet. 39, 41; Ex. 1002 ¶¶ 63, 66.

Although Patent Owner presents arguments related to Petitioner's rationale to combine directed to modifying Kondo for use with resistive touchscreens (PO Resp. 14–18), Patent Owner does not present arguments regarding the benefits of the use of Chu's varying or swipe inputs. PO Sur-reply 11–12. Patent Owner also does not allege that Chu's swipe functionality would not operate in the proposed combination of Chu's input structure with Kondo's device.. *See generally* PO Resp. In its discussion of rationale, Patent Owner predominantly relies on its arguments related to the unsuitability of Kondo's alleged surface-capacitive touchscreen in a mobile device, which we discuss further below. *Id.*

Additionally, as to Patent Owner's argument that there is no motivation to change Kondo's input mechanism to Chu's non-contact system (PO Resp. 13), we disagree for the reasons explained above (*see also* Pet. 37; Ex. 1002 ¶¶ 57–58), that is, that the combination offers advantages.

Further, we credit Mr. Keller's testimony that minor adjustments might need to be made to the combination, but that such modifications would have been routine and would have required little skill and there would have a reasonable likelihood of success of the combination. Ex. 1002 ¶¶ 62–66. In addition, we note that Patent Owner does not dispute Petitioner's testimonial evidence that, in the view of a person of ordinary skill in the art, this modification would have been routine and that there would have been a reasonable likelihood of success for the combination (*id.*), short of the arguments directed to a surface-capacitive touchscreen, which we address below (*see* PO Resp. 4–18).

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Patent Owner does, however, assert that the combination makes the system more complicated, costly, and less reliable. PO Resp. 13 (citing Ex. 2050 ¶ 47). Patent Owner appears to be essentially arguing a potential offset of the advantages offered by the combination compared to the possible disadvantages of the combination, but does not present evidence supporting or presenting details of alleged disadvantages, including how a person of ordinary skill in the art would have compared and weighed the advantages of the combination relative to the alleged disadvantages. Further, Patent Owner does not dispute that the modification to Kondo would have been routine and required little skill, which suggests that it does not entail significant complications and cost. In comparison, we have found that Petitioner has identified several features that offer advantages in the combination where one of ordinary skill in art would have been motivated to make the combination. Moreover, a disclosed motivation does not necessarily have to be the best option, only that it be a suitable option. *See Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (Fed. Cir. 2021) (“simultaneous advantages and disadvantages . . . do[] not necessarily obviate motivation to combine.” (quoting *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006))). Thus, we do not find Patent Owner’s arguments on this issue to be persuasive.

As to Patent Owner’s argument that Kondo’s touch panel is a surface-capacitive touchscreen and would not be used in mobile electronics devices, such as a smartphone, we do not agree with this argument based on the complete trial record. Patent Owner asserts that that surface-capacitive touchscreens, which Patent Owner says that Kondo uses, would not be used in a personal mobile phone. PO Resp. 12. In support, Mr. Mackey testifies

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that a person of ordinary skill at the time of the '001 patent “would know with certainty that it was not possible to integrate a surface-capacitive touchscreen into a mobile consumer-electronics device such as a smartphone,” and “would know that a surface-capacitive touchscreen such as Kondo’s touch panel 1506 would not be used in personal mobile devices.” Ex. 2050 ¶¶ 43, 45. So, under Patent Owner’s contentions, the premise is that Kondo’s touch panel 1506 cannot be used in a personal mobile phone, such as a smartphone, so a person of skill would not seek to combine Kondo with Chu. *See id.* ¶ 43. Patent Owner also argues that because a user directly contacts the screen in applications that use surface-capacitive technology, “there was no demand for *remote*-touch capability for surface-capacitive screens.” PO Resp. 12–13 (citing Ex. 2050 ¶ 46). Mr. Mackey further testifies that a surface-capacitive touchscreen is unable to process multi-touch events, and because practically all smartphones are based on multi-touch interfaces, a person of skill would not use Kondo’s surface-capacitive touch panel 1506 as the mobile device. Ex. 2050 ¶ 46.

We find that Patent Owner’s arguments on these issues do not hold together because they are contrary to Kondo’s explicit disclosures. Although Patent Owner argues that Kondo only has a surface-capacitive touchscreen that cannot be used in a personal mobile device, this contention is contrary to Kondo’s explicit disclosures that it is directed to the use of smartphone. In multiple instances, Kondo identifies the use of its touch panel in its “smartphone 1500.” *See, inter alia*, Ex. 1003, code (57), ¶¶ 20–23, 27–28, 33–37, 40–41, 47, 49–50, 53–58, Figs. 1, 2, 6, 7, 8, 10). Moreover, under its contention that Kondo only has a surface-capacitive touchscreen, Patent Owner argues that there would be no demand for

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remote-touch capability. But the stated objective of Kondo “is to achieve remote operation input to a touch panel equipped on an electronic device like smartphones.” *Id.* ¶4, *see also id.* at code (57), claims 1–10, ¶¶ 1, 4–5, 6–9, 12, 16, 21–22, 38, 47, 49, 52, Fig. 10. Thus, we find that the evidence of record supports that Kondo’s device has a touchscreen that is suitable for use in a smartphone and, further, that Kondo is directed to remote operation input to a touchscreen on a smartphone.

Additionally, Patent Owner’s arguments that some of Kondo’s disclosures show that its touchscreen is a surface capacitive type, as well as its arguments that a surface capacitive touchscreen cannot be used in a smartphone, are mainly based on the testimony of its expert, Mr. Mackey. *See* Ex. 2050 ¶¶ 33–46. Even if the arguments and testimony were true, however, they could not be reconciled with the explicit multiple disclosures of the use of touchscreen that works in a smartphone in Kondo (Ex. 1003, code (57), ¶¶ 20–23, 27–28, 33–37, 40–41, 47, 49–50, 53–58, Figs. 1, 2, 6, 7, 8, 10). Additionally, Patent Owner’s arguments and Mr. Mackey’s testimony conflict with Kondo’s explicit disclosure of its use of a projected-capacitive screen. Ex. 1003 ¶ 24.

As to the full trial record, Patent Owner’s counsel argued that “Kondo is a flawed piece of prior art and one of ordinary skill in the art would have known that” and there could be errors in the translation and drafting of Kondo. Tr. 56:1–2; 56:18–20. These arguments were first presented at the oral hearing, were late-raised, and are attorney argument only, so we disregard them. But even if we were to consider them, Petitioner provides a certificate for the translation of Kondo attesting to the accuracy of the translation, which was unchallenged. Ex. 1003, 1. Further, Kondo

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consistently describes and depicts the use of its touchscreen with a smartphone, which is at odds with Patent Owner's allegations of potential drafting or translation error.

Additionally, even if we agreed with Mr. Mackey that Kondo includes errors or inconsistencies in its description of the touchscreen, this still would not help Patent Owner. Petitioner relies on Kondo's description of a viewer into which a smartphone is placed, not its description of the smartphone's touchscreen, and we do not agree that any of the alleged errors or inconsistencies when describing the latter would have affected the ordinarily skilled artisan's understanding of the former.

Although we are persuaded by Petitioner's rationale to combine based on the benefits of Chu's variable pressure and swipe input features, we are not persuaded by its alleged rationale based on use with resistive screens and waterproofing. As to the resistive screens, Petitioner asserts that one of skill would have been motivated to modify Kondo to work with resistive touchscreens in order to "allow[] many different types of smartphones and touchscreens to be used." Pet. 36; Ex. 1002 ¶ 55. The evidence shows, however, that mobile phones with resistive touchscreens were significantly less common than those with capacitive touchscreens at the time of invention, and trending downward. *See* Ex. 2034 (resistive screens had 3.5% market share in 2013, 0.5% in 2014; and 0% in 2015); Ex. 2050 ¶ 48. Resistive touchscreens also had poor optical properties, which made them less desirable for use with VR (*see* Ex. 2050 ¶ 51). In view of the lack of contrary persuasive evidence, we credit Mr. Mackey's testimony on these issues.

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Petitioner additionally refers to the '001 patent, which mentions that it can work with resistive touchscreens, and a prior patent application publication, Compton, that contemplated accommodating different types of touchscreens, including resistive touchscreens. *See* Pet. Reply 6–7 (Ex. 1001, 7:3–6, 11:12–16; Ex. 1022 ¶ 50). These portions note use with various touchscreens. *See* Ex. 1001, 7:3–6, 11:12–16; Ex. 1022 ¶ 50. Although this provides some support for Petitioner's contention that a person of skill would have been aware of potential viewer compatibility with resistive touchscreens, we find Patent Owner's evidence to the contrary to be more persuasive.

Additionally, we are not persuaded by Petitioner's rationale to combine Kondo and Chu because Chu's input mechanism "is designed to be waterproof." Pet. 38; Ex. 1002 ¶¶ 59–60. Under the combinations that Petitioner relies upon, Petitioner modifies Kondo's remote touch circuit by replacing it with Chu's movable mechanical input mechanism. *See* Pet. 38–41. Petitioner's assertion of general desirability of waterproofing, however, fails to sufficiently address why a person of ordinary skill in the art would have sought to modify Kondo to change its remote touch circuit to a movable input mechanism. In other words, we do not discern any relationship between the general waterproofing features of Chu and a motivation to make the specific substitution of Chu's input mechanisms in Kondo. As *KSR* states, "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 550 U.S. at 418; *see also ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012) (finding evidence of motivation to

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combine to be legally insufficient because it “bears no relation to any specific combination of prior art elements” and “fails to explain why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does”). In this case, we discern no persuasive explanation why a person having ordinary skill in the art would have sought to change Kondo’s remote touch circuit mechanism to a movable mechanical input mechanism under the general guise of providing waterproofing.

Accordingly, the evidence supports that Kondo and Chu have similar objectives and that one of ordinary skill in the art would have been motivated to modify Kondo with Chu to benefit from Chu’s variable pressure and swipe input features. Based on the totality of the record, we do not find persuasive Patent Owner’s arguments concerning Kondo’s touchscreen and the allegation that Kondo’s touchscreen cannot be used in a smartphone. Thus, Patent Owner’s arguments do not serve to undermine Petitioner’s showing of rationale to combine Kondo and Chu.

Accordingly, we conclude that Petitioner has provided adequate reasoning with rational underpinning for why a person of ordinary skill in the art would have been motivated to modify Kondo with Chu.

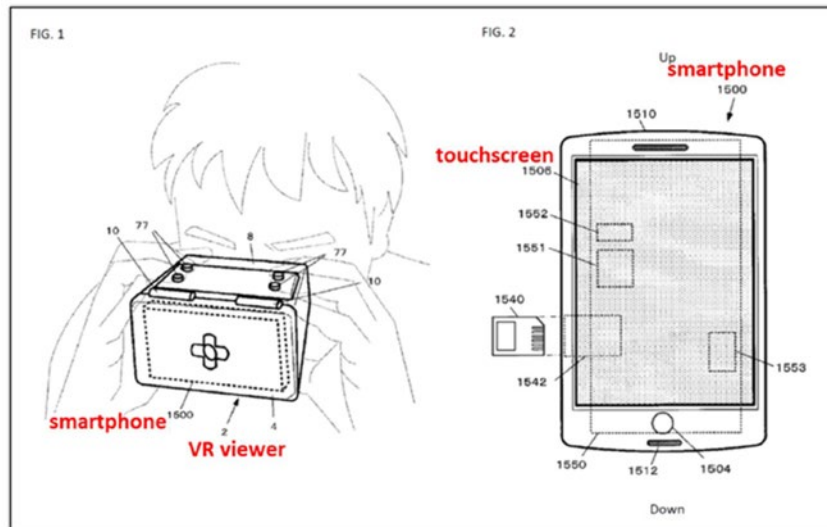
ii. Claim 1 Limitations

(1) Preamble 1[a]

Petitioner asserts that the preamble is taught by Kondo, which discloses “an apparatus, a virtual reality viewer.” Pet. 43–45 (citing *e.g.*, Ex. 1003 ¶¶ 21 (“a stereoscopic product attachment (hereinafter simply referred to as an ‘attachment’) for enjoying three-dimensional stereoscopic images”), 22, 27, Fig. 3). Petitioner asserts that Kondo teaches an apparatus as a

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virtual reality viewer, as depicted in Petitioner’s annotated Kondo Figures 1 and 2, reproduced below. *Id.* at 44.



Petitioner’s annotated Kondo Figures 1 and 2, above, depict a perspective view of a viewer and front external view of a smartphone, respectively. Pet. 44; Ex. 1003 ¶ 20.

Petitioner also asserts that Chu discloses “an apparatus, a device that holds a mobile phone.” Pet. 45 (citing Ex. 1004, Fig. 1; Ex. 1004 ¶¶ 11, 38).

Patent Owner presents no arguments specific to the preamble and only presents arguments on the rationale to combine, which we have addressed above.

On this complete record, we agree that Kondo teaches an apparatus, a virtual reality viewer. *See* Pet. 43 (citing Ex. 1003, Figs. 1, 2).⁸

(2) Limitation 1[b]

⁸ Petitioner has sufficiently shown that Kondo discloses the preamble (i.e., element 1[a]), so we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

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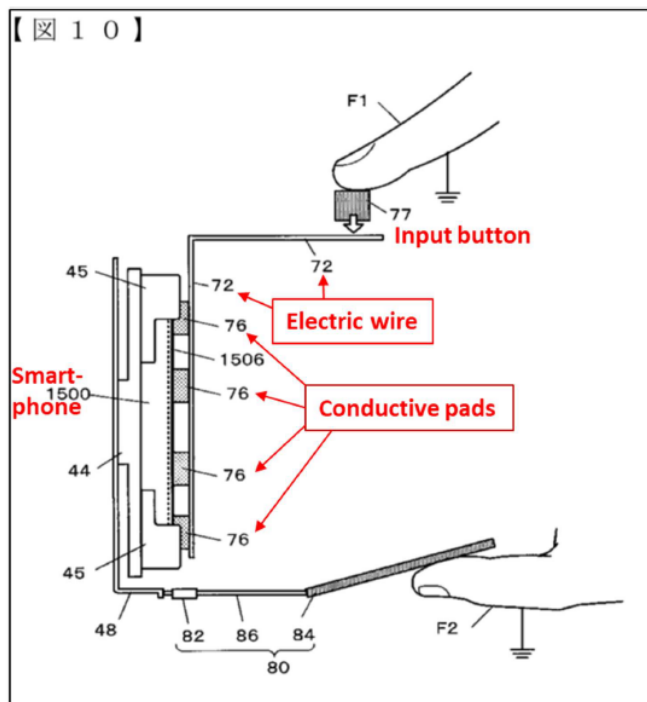
Petitioner primarily relies on Kondo for the teaching of limitation 1[b]. *See* Pet. 46–57. Petitioner asserts that Kondo discloses “a housing . . . configured to receive a smartphone 1500, and a user viewing the smart phone through two lenses on a side known as the ‘rear end.’” *Id.* at 46–47 (citing Ex. 1003, Fig. 1). In support, Petitioner asserts that Kondo discloses a housing, “the VR viewer’s housing.” *Id.* Further, Petitioner asserts that Kondo teaches that its housing has a portion configured to receive a mobile electronic device (smartphone 1500). *Id.* In further support, Petitioner asserts that Kondo teaches the use of a smartphone having a touchscreen display (touch panel 1506). *Id.* at 55–56 (citing Ex. 1003, Fig. 8). Petitioner also asserts that Kondo teaches a housing that includes multiple lenses (Kondo right eyepiece 7R and left eyepiece 7L). *Id.* at 46, 48 (citing Ex. 1003, Fig. 4(2)).

Patent Owner presents no arguments specific to this limitation and only presents arguments on the rationale to combine, which we have addressed above.

On the complete record, we agree that Kondo teaches limitation 1[b].

(3) Limitation 1[c]

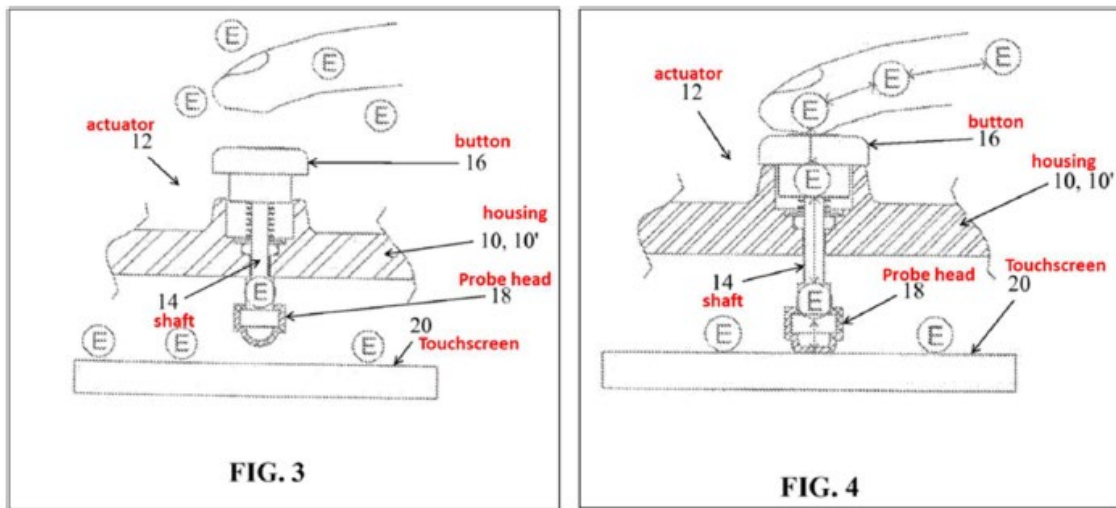
Petitioner relies on both Kondo and Chu for the teaching of limitation 1[c]. Pet. 58–62. More specifically, Petitioner asserts that Kondo discloses “an input device on the exterior of the housing,” as shown in Petitioner’s annotated Figure 10, reproduced below. *Id.* at 58 (citing Ex. 1003, Fig. 10).



Petitioner’s annotated Figure 10 of Kondo, above, depicts a remote touch circuit of the device. Pet. 58; Ex. 1003 ¶ 20. Petitioner asserts that Kondo illustrates “that button 77 is accessible from the exterior of the housing and that this button moves in the interior from a first position to a second position through a cut out in the main body of the attachment, called the gripping part 9.” Pet. 59 (citing Ex. 1003, Fig. 7, ¶¶ 42, 43, 47, 48, 49, 52).

Petitioner also asserts that Chu also discloses “an input device on the exterior of the housing.” Pet. 60 (citing Ex. 1004, Fig. 2). In further support, Petitioner asserts that Chu teaches an input device that is both accessible from the exterior of the housing, and is depressible, as illustrated in annotated Figures 3 and 4 from Chu reproduced below. *Id.* at 61–62 (citing Ex. 1004 ¶¶ 53–57, Figs. 3, 4).

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Petitioner's annotated Figures 3 and 4 of Chu, above, depict button 16 of actuator 12 that is accessible from the exterior of the housing. *See* Pet. 61.

Patent Owner presents no arguments specific to this limitation and only presents arguments on the rationale to combine, which we have addressed above.

On the complete record, we agree that the combination of Kondo and Chu teaches limitation 1[c].

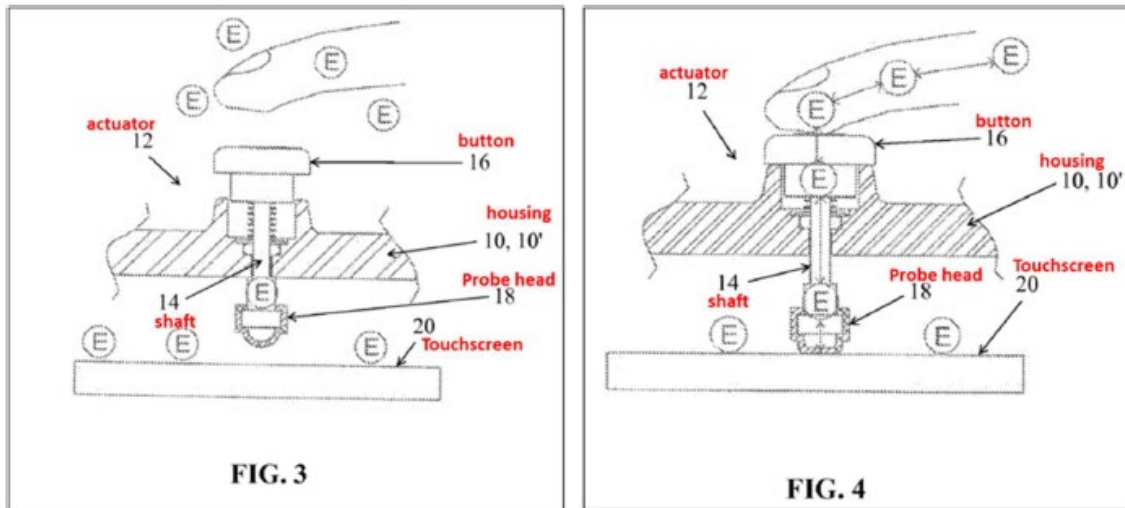
(4) Limitation 1[d]

Petitioner asserts that Chu teaches limitation 1[d]. *See* Pet. 62–67. In support, Petitioner asserts that Chu discloses an input device (button 16 of actuator 12) accessible from the exterior of the housing 10 with a contact element consisting of probe head 18 and, specifically, probe pad 30. *Id.* at 62–63 (citing Ex. 1004, Figs. 3, 4). Petitioner asserts that the Chu contact element is “(1) is moveable in the interior of the housing between a first position (i.e., unactuated) to a second position (i.e., actuated); (2) is responsive to the input device (button 16) because it is coupled to the input device; and (3) generates a touch event on the touchscreen when in the

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second position (i.e., actuated).” *Id.* at 63 (citing Ex. 1004 ¶¶ 53–56).

Petitioner illustrates these assertions in Petitioner’s annotated Figures 3 and 4 from Chu, reproduced below. *Id.*



Petitioner’s annotated Figures 3 and 4 of Chu, above, depict the contact of the probe pad’s surface contacting touchscreen 20 of the smartphone when there is actuation to a second position. *See* Pet. 63–66 (citing Ex. 1004 ¶¶ 53–56).

Petitioner contends that Chu illustrates “the contact element (probe pad 30), which has a surface that is made of material capable of conducting electric charge to a touchscreen.” Pet. 65 (citing Ex. 1004, Fig. 5, ¶ 11). Petitioner asserts that Chu illustrates “the probe pad’s surface contacting the touchscreen 20 of the smartphone when the input device is actuated to the second position to create a detectable touch event,” as shown in annotated Chu Figure 4. *Id.* at 65–66 (citing Ex. 1004, Fig. 4, ¶ 41). Petitioner contends that Chu discloses that the “probe pad 30 is made of conductive material, such as metal or rubber with a conductive additive.” *Id.* at 66–67 (citing Ex. 1004 ¶ 11). Petitioner also contends that in Chu “[t]he press

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button, the shaft, the adaptor, and the probe head may be made of metal.”
Id. at 67 (citing Ex. 1004 ¶¶ 14, 19, 49).

Patent Owner presents no arguments specific to this limitation and only presents arguments on the rationale to combine, which we have addressed above.

On the complete record, we agree that Chu teaches limitation 1[d].

(5) Conclusion Sufficiency of Prior Art Teachings and Rationale to Combine for Claim 1

For the reasons provided above, Petitioner has shown that the combination of Kondo and Chu teaches each limitation of independent claim 1, and sufficient reasoning with rational underpinning has been provided for the motivation to combine the references.

iii. Objective Indicia of Nonobviousness

We consider objective indicia of nonobviousness, which is also referred to as secondary considerations. “The objective indicia of non-obviousness play an important role as a guard against the statutorily proscribed hindsight reasoning in the obviousness analysis.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Objective indicia “may often be the most probative and cogent evidence in the record” and “must be considered in every case” where present. *Id.* (quotation and emphasis omitted); *see also Graham*, 383 U.S. at 36 (“[Objective indicia] may also serve to guard against slipping into use of hindsight, and to resist the temptation to read into the prior art the teachings of the invention in issue.” (internal quotation marks and citation omitted)).

“In order to accord substantial weight to secondary considerations in an obviousness analysis, the evidence of secondary considerations must have

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a nexus to the claims, *i.e.*, there must be a legally and factually sufficient connection between the evidence and the patented invention.” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (citations and internal quotation marks omitted). “The patentee bears the burden of showing that a nexus exists.” *Id.* A patent owner is entitled to a rebuttable presumption of nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Id.* (citation omitted).

Alternatively, the patent owner may prove nexus “by showing that the evidence of secondary considerations is the “direct result of the unique characteristics of the claimed invention.” *Id.* at 1373–74 (quotation omitted).

Patent Owner appears to contend that it is entitled to a presumption of nexus for evidence based on the DODOcase VR 1.2 viewer and Petitioner’s GCV2 VR viewer. PO Resp. 27–54. Patent Owner also argues that evidence of copying, industry praise, long-felt need, and commercial success show that claim 1 would not have been obvious. PO Resp. 26–64; PO Sur-reply 13–22. Assuming that nexus has been established for evidence relating to the DODOcase VR 1.2 viewer, we do not find that find that the evidence of the secondary considerations indicates nonobviousness. We address the respective objective indicia below.

(1) Copying

“It is well established that copying by a competitor is a relevant consideration in the objective indicia analysis” and “may be evidence that the patented invention is nonobvious.” *Liqwd, Inc. v. L’Oreal USA, Inc.*,

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941 F.3d 1133, 1137 (Fed. Cir. 2019) (citing *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004)). For this, there must be evidence of actual copying—i.e., “duplication of features of the patentee’s work based on access to that work”—not just a showing that the allegedly copied product falls within the scope of the claims. *Id.* (quoting *Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, 738 F.3d 1337, 1347–48 (Fed. Cir. 2013)). “Evidence of access and substantial similarity *is* evidence of copying.” *Medtronic, Inc. v. Teleflex Innovations S.a.r.l.*, 70 F.4th 1331, 1340 (Fed. Cir. 2023); *see also Iron Grip Barbell*, 392 F.3d at 1325 (explaining that copying may be demonstrated through “access to, and substantial similarity to, the patented product (as opposed to the patent)”).

Patent Owner argues that Petitioner copied its invention. PO Resp. 36–54, 58–64; *see also* PO Sur-reply 17–19. In support, Patent Owner relies upon evidence to show that: (1) Mr. Buckley described his idea for a capacitive button to Petitioner via email; (2) Petitioner’s employees responded that it was “genius,” “ingenious,” and “really neat”; (3) Mr. Buckley sent Petitioner a sample of its DODOcase VR 1.2 viewer; and (4) less than one year later, Petitioner released its GCV2 VR viewer, which embodies the claimed features. PO Resp. 58–64.

Petitioner does not dispute the occurrence or sequence of events alleged by Patent Owner. *See generally* Pet. Reply. Instead, Petitioner responds that Patent Owner’s argument “fails as a matter of law” because it compared the GCV2 VR viewer to the claims, rather than to Patent Owner’s product (*id.* at 18), and Petitioner argues that there is “a remarkable difference” between the two products (*id.* at 18–19). Petitioner also asserts that nexus has not been shown because Patent Owner’s evidence exclusively

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relates to a feature that was known in the prior art. *Id.* at 8–18.

We begin by summarizing findings regarding the relevant events, and then we turn to our analysis.

(a) Relevant Events

In June 2014, Petitioner announced a Google Cardboard viewer that used a magnetic switch to simulate a touch event (the “GCV1 VR viewer”). Ex. 2023 ¶¶ 20–23. DODOcase was the first company to manufacture and sell a viewer based on the GCV1 VR design, and Mr. Buckley was involved in those efforts. *Id.* ¶¶ 27–28; *see* Ex. 2024, 3–4.

Mr. Buckley decided that the viewer’s design could be improved by using a capacitive button rather than a magnetic one (Ex. 2023 ¶ 28)⁹, and he contacted Petitioner’s employees to discuss (Ex. 2024). Specifically, in early-July 2014, Mr. Buckley emailed Mr. Andrew Nartker and Mr. Clay Bavor to say: “I think we have a clever/elegant way to make a conductive tap button which has a couple advantages.” Ex. 2024, 4. Mr. Nartker responded that he agreed a “[c]onductive button . . . could have benefits.” *Id.* at 3 (emphasis omitted). He also stated that Petitioner had “experimented briefly with this but didn’t fully refine,” and he offered a meeting with Mr.

⁹ Petitioner argues that we should give Mr. Buckley’s testimony “little, if any, weight” because he is biased. Pet. Reply 8. We agree that Mr. Buckley is biased because he receives a material percentage of revenues associated with enforcement of the ’001 patent (Ex. 1023, 124:22–126:25). As a result, we give little to no weight to any testimony regarding subjective opinions and any testimony that is not sufficiently specific unless supported by documentary evidence; however, we give weight to testimony regarding specific unrebutted facts.

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Alex Kauffman “to share our tips here.” *Id.* Mr. Buckley and Mr. Kauffman met the following week to discuss the conductive button. Ex. 1023, 54:13–57:21; *see also* Ex. 2024, 2 (providing meeting date). Mr. Buckley does not recall the specific content of that meeting, and the record includes no evidence regarding what tips were shared by Mr. Kauffman on behalf of Petitioner. *See* Ex. 1023, 54:13–57:21.

Shortly after the meeting, Mr. Buckley followed-up with Mr. Nartker via email. Ex. 2024, 1–2. In that email, Mr. Buckley said:

I am most excited by what I think is a breakthrough on a very simple conductive touch button for the cardboard viewer. Check out the attached video clips.

Id. at 2. The attached video clips showed a prototype (hereinafter, “Buckley’s prototype”)¹⁰ and its operation. Ex. 2060; Ex. 2061; *see* Ex. 2054 ¶ 11 (testifying that Exhibits 2060 and 2061 are the attached video clips). Specifically, the videos show that Buckley’s prototype is a VR viewer that includes a mechanism, actuated by pressing a button on the outside of the viewer, that causes a touch event on the center of a smartphone’s touchscreen. Ex. 2060; Ex. 2061.

Mr. Kauffmann—one of Petitioner’s “lead designers” (Ex. 2024, 3)—responded by saying:

That’s an ingenious button! Does it work consistently on a variety of phones? I’d love to play with it.

¹⁰ Although there are notable similarities between Buckley’s prototype and the DODOcase VR 1.2 viewer, there are also differences between these devices. *Compare* PO Resp. 27–35 (showing images of the DODOcase VR 1.2 viewer), *with* Exs. 2060–2061 (showing videos of the prototype). As a result, we distinguish between them in our analysis.

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Id. at 1. Mr. Bavor and Mr. Nartker also complemented the button in Buckley’s prototype, saying it “is genius” and “looks really neat!” *Id.* Approximately two months later (in September 2014), DODOcase launched the VR 1.2 viewer (Ex. 2023 ¶ 7), and Petitioner received at least one of these products in October 2014 (Ex. 2025, 1; *see also* Ex. 1023, 51:15–52:10).

Within a year, Petitioner launched a second version of its VR viewer (“the GCV2 VR viewer”). Ex. 2054 ¶ 4; *see also* Ex. 2031, 1 (“The new Cardboard was unveiled at Google I/O 2015.”); Ex. 2062 (product technical specifications), 1 (dated July 2015). The GCV2 VR viewer includes a conductive button rather than a magnetic one. Ex. 2054 ¶ 4; *see also* Ex. 2062, 8–9.¹¹ Like Buckley’s prototype and the DODOcase VR 1.2 viewer, the GCV2 VR viewer includes a mechanism, actuated by pressing a button on the outside of the viewer, that causes a touch event on the smartphone’s touchscreen. *See* Ex. 2054 ¶ 4; PO Resp. 52–54.

(b) Analysis

Patent Owner alleges that the Buckley prototype and the DODOcase VR 1.2 viewer were accessible to and copied by Petitioner. PO Resp. 27–35. Patent Owner contends that copied features were then included in Petitioner’s GCV2 VR viewer. *Id.* at 36–54. Patent Owner asserts that “the distinguishing feature of the DODOcase VR 1.2 Viewer was the user input mechanism” and this viewer “did not include any critical unclaimed features

¹¹ Unless otherwise noted, when an exhibit includes two sets of page numbering, we cite to the numbering added by a party for this proceeding.

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beyond those recited in claim 1.” *Id.* at 35. Patent Owner contends that the DODOcase VR 1.2 Viewer was copied by “incorporating a similar capacitive button” into Petitioner’s GCV2 VR viewer. *Id.* at 36.

Petitioner argues that “[o]ne way to show a lack of nexus is if the evidence ‘exclusively relates to a feature that was ‘*known* in the prior art’—not necessarily well-known’ including through obviousness.” Pet. Reply 8–9 (citing *Yita v. MacNeil*, 69 F.4th 1356, 1364 (Fed. Cir. 2023)). Petitioner provides a chart comparing the disclosures of Compton, a prior art reference, to the elements of claim 1. *Id.* at 9–15.

We agree with Petitioner that the evidence relied upon by Patent Owner for copying exclusively relates to features that were known in the prior art. Specifically, we find that Compton discloses the input mechanism and contact element that are recited in claim 1 (i.e., elements 1[c] and 1[d]). *See* Pet. Reply 12–15. Our review of Petitioner’s assertions regarding Compton support that it discloses the input device on the outside of the viewer (Pet. Reply 13; Ex. 1022, Fig. 2A, elements 24), that causes a touch event on the smartphone’s touchscreen by a contact element, within the viewer, when actuated (Pet. Reply 12–15; Ex. 1022, Fig. 6A, elements 610, ¶¶ 44–48).

Patent Owner does not directly dispute that Compton discloses the input element and contact element in limitations 1[c] and 1[d], arguing that Compton does not disclose “housing” or “lenses” as claimed. PO Sur-reply 13–15.¹² Patent Owner instead indirectly asserts that Compton fails to

¹² Patent Owner contends that Petitioner argues that the “housing” is Compton’s element 26 plus mobile device holder 22, which ignores the limitation that the lenses be part of the housing. PO Sur-reply 14. Patent

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disclose limitations 1[c] and 1[d] because the limitations recite “an input device accessible from an exterior of the housing” and “a contact element located and moveable within the interior of that housing,” and because Compton does not disclose the *housing*, it does not disclose the limitations. *Id.* at 15. Patent Owner does not explain, however, why a prior art disclosure for the housing or lenses relate to whether the input device and contact element are disclosed in the prior art, short of arguing that “housing” is included in limitations 1[c] and 1[d]. Additionally, we do not discern that the details of the disclosure of the housing are related or material to the issue of whether the input device and contact element are disclosed in Compton. We are persuaded that Compton does disclose a “housing” (e.g., mobile device holder 22), even if we agreed with Patent Owner that Compton does not disclose the specific housing required by element 1[b].

When determining nexus, evidence may be accorded no weight where “the merits of the invention were ‘readily available in the prior art,’” yet we must still assign weight to evidence “related to features that were not available in the prior art.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). Even where an invention is “admittedly, a combination of elements that were individually known in the prior art,” nexus may be shown where the evidence is “linked to the inventive combination of known elements.” *WBIP*, 829 F.3d at 1332. In this case, however, Patent Owner

Owner also argues that Compton’s eyepieces 40 are not lenses. *Id.* Patent Owner refers to Compton’s disclosure that eyepieces 40 could be combined with lenses, asserting that “were eyepieces 40 themselves lenses, there would be no need to combine them with another component.” *Id.* at 15 (citing Ex. 1022 ¶ 30).

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contends that Petitioner copied the “input mechanism” specifically (i.e., the input device and contact element) – and those elements have been shown to be in the prior art as evidenced by Compton. PO Resp. 35–36; PO Sur-reply 13, 18; Pet. Reply 12–15. In addition, the evidence of copying exclusively relates to the viewer’s input mechanism. Mr. Buckley testifies that he improved upon Petitioner’s GCV1 viewer “by adding a capacitive/conductive touch button” (Ex. 2023 ¶ 28; *see also* Ex. 2054), and the emails from Petitioner’s employees commented only on the “button” in Buckley’s prototype (Ex. 2024, 1–2). Indeed, Petitioner released its GCV1 viewer in mid-2014, before receiving the videos of Buckley’s prototype or a sample of the DODOcase VR 1.2 viewer. *Compare* Ex. 2023 ¶¶ 20–23, *with* Ex. 2023 ¶ 3, Ex. 2025, 1. Based on this evidence, we are not persuaded that Petitioner copied the claimed combination as a whole.

Moreover, the evidence of copying is exclusively directed to the “conductive touch button,” which, as discussed above, is a mechanism, actuated by pressing a button on the outside of the viewer, that causes a touch event on the smartphone’s touchscreen. Patent Owner does not dispute that Compton discloses the corresponding related limitations of claim 1, except for its argument for housing being recited in the claims, which we find unpersuasive. Thus, there is no nexus to the copying evidence because the evidence exclusively relates to features that were known in the prior art. *See Yita*, 69 F.4th at 1364; *ClassCo*, 838 F.3d at 1220 (“A nexus may not exist where, for example, the merits of the claimed invention were ‘readily available in the prior art.’” (quoting *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1580 (Fed. Cir. 1983))).

Accordingly, the evidence of copying provided in support of

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nonobviousness is entitled to no weight.

(2) Industry Praise

“Evidence that the industry praised a claimed invention or a product that embodies the patent claims weighs against an assertion that the same claimed invention would have been obvious” because “[i]ndustry participants, especially competitors, are not likely to praise an obvious advance over the known art.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1053 (Fed. Cir. 2016) (en banc). Industry praise can be established with awards, articles, and/or emails. *See WBIP*, 829 F.3d at 1335; *see also Apple*, 839 F.3d at 1053–54 (relying on “internal documents from the patentee’s top competitor”).

Patent Owner argues that Petitioner’s employees praised the invention. *See* PO Resp. 58–60; *see also id.* at 35–36. In support, Patent Owner relies on the email chain found in Exhibit 2024, and Patent Owner also contends that the “genuineness of [Petitioner’s] praise is shown by its decision soon thereafter to copy DODOcase.” *Id.* at 36.

Petitioner responds that the email communications show encouragement and support for DODOcase and Mr. Buckley, including “cheer[ing] them along to help them succeed,” but not praise. Pet. Reply 20. In support, Petitioner points to evidence that Petitioner provided suppliers, technical input, marketing opportunities, advertising, and more to Mr. Buckley and DODOcase. *Id.* (citing Ex. 1023, 25:2–11, 45:17–19, 47:1–62:9, 74:18–79:14, 82:12–83:5; Ex. 1026, 1–2).

Here, the email communications concerning the Buckley prototype demonstrate that any arguable praise is directed to the “conductive touch

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button,” that is, a mechanism, actuated by pressing a button on the outside of the viewer, that causes a touch event on the center of a smartphone’s touchscreen.¹³ See Ex. 2024, 1–2; Ex. 2060; Ex. 2061. As discussed for the copying evidence above, there is no nexus to any alleged industry praise because the evidence that Patent Owner relies upon exclusively relates to features of the claim that were known in the prior art.

Accordingly the evidence of industry praise provided in support of nonobviousness is entitled to no weight.

(3) Long-Felt Need

“Evidence of a long-felt but unresolved need can weigh in favor of the non-obviousness of an invention because it is reasonable to infer the need would not have persisted had the solution been obvious.” *Apple*, 839 F.3d at 1056.

Patent Owner contends that the claimed invention addressed a long-felt need. PO Resp. 54–58. In support, Patent Owner identifies four prior VR viewers, none of which included “a capacitive button mechanism.” *Id.* (citing Ex. 2054 ¶¶ 12–13, 15–16). Also, according to Patent Owner, Petitioner recognized a need for an improved input mechanism, as shown by the fact that it included a magnetic button in its GCV1 VR viewer in 2014. *Id.* at 57–58 (citing Ex. 2023 ¶¶ 22–26). Patent Owner asserts that

¹³ The email chain in Exhibit 2034 relates to Buckley’s prototype, not the DODOcase VR 1.2 viewer. Compare Ex. 2024, 1–2 (emails sent in July 2014), with Ex. 2023 ¶ 7 (VR 1.2 viewer launched in September 2014). Patent Owner does not show that Buckley’s prototype embodies and is coextensive with claim 1, and consequently, Patent Owner is not entitled to a presumption of nexus for this device. See *Fox Factory*, 944 F.3d at 1373.

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Petitioner's employees' emails also demonstrate that Petitioner perceived a long-felt, unresolved need. *Id.* at 58–64.

According to Petitioner, Patent Owner's argument "fails as a matter of law" because "[c]onductive/capacitive input mechanisms for VR viewers were known." Pet. Reply 18 (citing *Geo. M. Martin Co. v. Alliance Machine Systems Intern. LLC*, 618 F.3d 1294, 1304–05 (Fed. Cir. 2010)). Petitioner also argues that Patent Owner's evidence relates exclusively to a feature that was known in the prior art. *Id.* at 8–18.

We are not persuaded by Patent Owner's long-felt need arguments because Patent Owner does not identify any alleged "need." For example, Patent Owner identifies no known problems with existing techniques or desire for something not provided by those techniques. Even if we agree that prior VR viewers lacked "a capacitive button mechanism" that was utilized in the DODOcase VR 1.2 viewer (*see* PO Resp. 54–59), this alone does not show a long-felt need. *See Iron Grip Barbell*, 392 F.3d at 1324–25 (rejecting a substantially similar argument).

In addition, we do not agree that Petitioner's apparent brief experimentation with a conductive button (Ex. 2024, 3) necessarily shows either long-felt need or any failure by Petitioner. Importantly, there is no evidence regarding the nature or substance of any such experimentation by Petitioner.

Further, to the extent Patent Owner argues that there was a need for a conductive button to interact with a smartphone's touchscreen, we agree with Petitioner that this alleged long-felt need is related to features were known in the prior art. *See* Pet. Reply 18. Thus, there is there is no nexus to any alleged long-felt need.

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Accordingly, we give no weight to Patent Owner’s arguments and evidence regarding long-felt need.

(4) Commercial Success

“When a patentee can demonstrate commercial success, usually shown by significant sales in a relevant market, and that the successful product is the invention disclosed and claimed in the patent, it is presumed that the commercial success is due to the patented invention.” *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997). “Commercial success is relevant because the law presumes an idea would successfully have been brought to market sooner, in response to market forces, had the idea been obvious to persons skilled in the art.” *Galderma Lab’ys, L.P. v. Tolmar, Inc.*, 737 F.3d 731, 740 (Fed. Cir. 2013) (quoting *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1376 (Fed. Cir. 2005)).

Patent Owner argues that the commercial success of the DODOcase VR 1.2 viewer and the GCV2 VR viewer weigh in favor of nonobviousness. PO Resp. 60–64. Patent Owner refers to the use of the capacitive/conductive touch button in the DODOcase VR 1.2 viewer and the capacitive mechanism in the GCV2 VR viewer. *Id.* at 60, 63.

We find the evidence of commercial success of the DODOcase VR 1.2 viewer and the GCV2 VR viewer to be deficient. We address evidence related to these products separately.

(a) DODOcase VR 1.2 viewer

Patent Owner alleges that the DODOcase VR 1.2 viewer was

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commercially successful because DODOcase received approximately \$68,000 of revenue for this product as well as approximately \$217,000 of revenue for a “Virtual Reality Cardboard Toolkit,” for a total of approximately 10,000 sales. PO Resp. 60–61 (citing Ex. 2054 ¶¶ 18–19; Ex. 2055; Ex. 2056).

Petitioner argues that Patent Owner cannot show that any sales increase “was due to a conductive/capacitive input mechanism” because the DODOcase VR 1.2 viewer was part of the Works With Google Cardboard (WWGC) program, which “drove sales . . . , as admitted by Mr. Buckley.” Pet. Reply 22 (citing Ex. 1023, 58:12–59:15, 77:15–78:6); *see also id.* at 29.

Patent Owner responds that it is entitled to a presumption of nexus between increased sales and the claimed invention, and that Petitioner presents no evidence that increased shipments were driven by unclaimed features. PO Sur-reply 19–20. Even assuming that Patent Owner is entitled to a presumption of nexus for the DODOcase VR 1.2 viewer, having considered the evidence, we are not persuaded that the evidence demonstrates commercial success that tends to show nonobviousness.

First, we find that Patent Owner has only established approximately \$68,000 in revenue for sales of the DODOcase VR 1.2 viewer. *See* PO Resp. 61; Ex. 2055 (revenue for “Virtual Reality Cardboard Toolkit – V1.2”). Although Patent Owner attempts to rely on an additional \$217,000 in revenue, we find that Patent Owner fails to sufficiently show that this revenue was associated with sales of the DODOcase VR 1.2 viewer. *See* PO Resp. 60–61. In particular, Patent Owner points to the revenue associated with the “Virtual Reality Cardboard Toolkit,” but the evidence distinguishes between those sales and sales of the “Virtual Reality Cardboard Toolkit –

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V1.2,” indicating that the former is not the same as the latter. *See* Ex. 2055; Ex. 2056. Patent Owner cites Mr. Buckley’s testimony, but we do not find his testimony on this point to be credible given his bias coupled with the lack of specificity, certainty, and supporting documentary evidence. *See* Ex. 2054 ¶ 18 (testifying regarding his “belie[f]” based on his recollection of events without supporting details or documentary evidence). Moreover, even if we credited this testimony, Mr. Buckley indicates that the revenue at issue likely included sales of other products, but Patent Owner fails to provide any way to estimate the revenue associated with sales of the VR 1.2 viewer alone. *See* Ex. 2054 ¶ 18 (testifying that he “believe[s] that a *significant* portion of [the] \$216k revenue is attributable to the Version 1.2 Viewer” (emphasis added)).

Second, regardless of whether we include the additional \$217,000 in revenue, we are not persuaded that Patent Owner has shown commercial success. Patent Owner’s evidence shows (at best) 10,000 units sold for a total of \$285,000 over nine months. Standing alone, this shows that the product was *sold*, but not that it was a commercial *success*. Patent Owner fails to provide any context for these values, such as comparison sales data for other VR viewers (such as its first VR viewer) or market share data. *See In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (stating that “evidence related solely to the number of units sold provides a very weak showing of commercial success, if any”); *but see Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1378 (Fed. Cir. 2021) (“[M]arket share data, though potentially useful, is not required to show commercial success.”). Moreover, other evidence indicates that these sales were, in fact, quite modest. Specifically, Patent Owner introduces an article stating that, in one

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year, Petitioner shipped *one hundred times* more first generation VR viewers (which lack the claimed feature). *See* Ex. 2057, 1–2 (article stating that Petitioner shipped 1,000,000 viewers, which “demonstrat[es] impressive demand”).

For these reasons, we do not find that the sales of the DODOcase VR 1.2 viewer are indicative of commercial success.

(b) GCV2 VR viewer

Patent Owner also argues that the GCV2 VR viewer was commercially successful. PO Resp. 62–63. Patent Owner submits that Petitioner’s quarterly shipments of VR viewers increased nearly ten-fold after the GCV2 VR viewer’s introduction, and that it sold a total of nine million units in less than two years. *Id.* (citing Ex. 2057; Ex. 2058; Ex. 2059; Ex. 2054 ¶ 20).

Petitioner responds that Patent Owner relies on articles published by third parties, and that the figures therein may include sales for other WWGC members (who may or may not have used capacitive input mechanisms). Pet. Reply 21 (citing Ex. 1023, 147:4–153:3, 168:8–25). Petitioner also refers to sales numbers and asserts that there was a “modest increase” in sales with the introduction of the GCV2 VR viewer “due to the continued growth of the WWGC program.” Pet. Reply 21–22.

Patent Owner asserts that it is entitled to a presumption of nexus, and it also “provided evidence that the increased sales were driven by switching from a magnet input to an improved capacitive-input mechanism.” PO Sur-reply 20. Patent Owner also argues that Petitioner’s sales numbers fail to “distinguish between sales of different viewer types (i.e., magnet or

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capacitive).” *Id.* at 22.

Having considered the parties’ arguments and evidence, we determine that Patent Owner fails to sufficiently show a nexus between this evidence and the claimed invention. *See Fox Factory*, 944 F.3d at 1373 (“The patentee bears the burden of showing that a nexus exists”). As a result, we give little to no weight to this evidence.

Patent Owner is not entitled to a presumption of nexus for this evidence. Although Patent Owner argues that the GCV2 VR viewer embodies the claimed features (*see* PO Resp. 36–54), Patent Owner fails to allege or show that this product is *coextensive* with the claim. As a result, Patent Owner is not entitled to a presumption of nexus for this product. *See Fox Factory*, 944 F.3d at 1373 (explaining that “coextensiveness” is required for a presumption of nexus); *see also id.* (“The patentee bears the burden of showing that a nexus exists.”).

Nor has Patent Owner shown that the identified sales are “the direct result of the unique characteristics of the claimed invention.” *Fox Factory*, 944 F.3d at 1373–74. Although Patent Owner attempts to make this showing in its Sur-reply (*see* PO Sur-reply 21–22), the argument is untimely and forfeit because it is not fairly responsive to the Reply. *See* PO Resp. 62–63 (addressing sales figures but not cause of sales); Paper 32, 9 (cautioning that arguments not raised in Response may be deemed waived); 37 C.F.R. § 42.23(b); Trial Practice Guide 73–74.

Further, even if the argument had been timely raised, we would not have been persuaded by it. Patent Owner asserts that the increased shipments of Petitioner’s VR viewers “were driven by switching from a magnet input to an improved capacitive-input mechanism” (PO Sur-

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reply 20–22), but Patent Owner does not demonstrate the alleged causality. Patent Owner relies on Mr. Buckley’s testimony that capacitive touch buttons were “adopted by pretty much everyone in the market” because of their advantages. *Id.* at 20–21 (quoting Ex. 1023, 159:7–15; citing Ex. 2024, 4; Ex. 2031; Ex. 1023, 25:19–27:4, 159:16–25); *see also id.* at 22. However, Mr. Buckley’s testimony lacks specificity, supporting details, and documentary evidence, and further in view of Mr. Buckley’s bias, we do not credit it. Moreover, his testimony does not persuasively show that the design was adopted *because* it included the claimed input mechanism—correlation does not imply causation.

Finally, even if we had found a nexus between the GCV2 VR viewer and the claimed invention, Patent Owner fails to sufficiently identify sales figures for that product in particular. Patent Owner’s evidence consists of three articles with sales information (*see* Exs. 2057–2059); however, Mr. Buckley testified that he did not know whether the articles include sales by other members of the WWGC program, or whether they are limited to sales of Petitioner’s viewers (i.e., GCV1 and GCV2). *See* Ex. 1023, 146:21–153:3, 168:8–25. That ambiguity is a problem because we do not know whether other WWGC viewers included the claimed input mechanism. *Cf. id.* at 96:6–106:15. Indeed, Petitioner specifically authorized WWGC members to include different kinds of input mechanisms in the second version of the VR viewers, including a magnetic input such as was used in GCV1. Ex. 2031, 3 (“V2 Manufacturer’s Guide” stating that the “viewer can use different types of inputs, from a simple smartphone screen touch, conductive and capacitive inputs, to Bluetooth-based buttons, magnets, and so on.”).

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Accordingly, Patent Owner fails to sufficiently show a nexus between Petitioner’s VR viewer sales and the claimed invention.

Accordingly, we give no weight to Patent Owner’s arguments and evidence regarding commercial success.

(5) Other

To the extent Patent Owner advances other arguments regarding objective indicia, those arguments are not persuasive.

In addition, although Patent Owner contends that Petitioner also “induced” copying by a third-party, Mattel (PO Resp. 63–64), this argument is not persuasive because Patent Owner fails to establish nexus between its evidence and the claim. Patent Owner alleges copying by Mattel, arguing that its button is “*similar to DODOcase’s*” (*id.* at 63 (emphasis added)), but an unspecified similarity is insufficient. Patent Owner fails to provide any details regarding the structure or operation of Mattel’s button, and it fails to indicate that Mattel’s button qualifies as the “input mechanism” required by claim 1. *See* Ex. 2054 ¶¶ 24–26; Ex. 2066; Ex. 2067.¹⁴ Patent Owner also does not show that any alleged copying is the direct result of unique characteristics of the claimed invention.

¹⁴ We do not consider the Mattel headset video referenced in Mr. Buckley’s declaration (*see* Ex. 2054 ¶ 26) because it was not submitted as evidence. *See* 37 C.F.R. § 42.63(a) (“All evidence must be filed in the form of an exhibit.”).

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iv. Conclusion on Claim 1

Weighing the record as a whole in view of the findings and analysis above, we conclude that Petitioner has met its burden to show, by a preponderance of the evidence, that independent claim 1 would have been obvious over Kondo and Chu. Petitioner establishes that an ordinarily skilled artisan would have had a motivation to replace Kondo's input mechanism with Chu's actuator mechanism to accommodate variable pressure and swipe inputs, and Petitioner demonstrates that the proposed combinations of Kondo and Chu disclose each limitation of the claim. Patent Owner fails to establish that the objective indicia asserted should be afforded weight. On balance, Petitioner's evidence of obviousness is not outweighed by Patent Owner's evidence that is asserted to show nonobviousness.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable.

b. Dependent Claims 2–20

Claims 2–20 depend, directly or indirectly, from claim 1. Petitioner asserts that the combination of Kondo and Chu teach all the limitations of dependent claims 2–20 and that there is a rationale to combine the references. Pet. 67–79.

Patent Owner presents no arguments as to these claims except that Petitioner fails to show that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu for the reasons presented for claim 1. PO Resp. 18–23. We do not find these arguments persuasive for the reasons discussed above for claim 1.

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We are persuaded by Petitioner’s arguments as to claims 2–20 and find they are supported by the cited evidence. Pet. 67–79. Accordingly, we adopt Petitioner’s analysis as our own. Petitioner has shown sufficiently that the combination of Kondo and Chu teaches or suggest each limitation of dependent claims 2–20, and sufficient reasoning with rational underpinning has been provided for the motivation to combine the references. For the reasons discussed for claim 1, that is, that Patent Owner fails to establish that the objective indicia asserted should be afforded weight, Petitioner’s evidence of obviousness is not outweighed by Patent Owner’s evidence that is asserted to show to show nonobviousness.

Accordingly, Petitioner has shown by a preponderance of the evidence that claims 2–20 are unpatentable as obvious over Kondo and Chu.

c. Independent Claim 21

Petitioner asserts that the combination of Kondo and Chu teach all the limitations of independent claim 21 and that there is a rationale to combine the references. Pet. 79–81. In support, Petitioner relies, in large part, upon its analysis of independent claim 1 for most of the elements of claim 21 (*id.* at 79–80), and for element 21[d], Petitioner contends that Chu in the Kondo-Chu combination discloses the claimed “linkage element” by its biasing member 40 and shaft 14 (*id.* at 80–81). *See also id.* at 36–42 (articulating rationale to combine references), 43–67 (analyzing claim 1).

Patent Owner contends that Petitioner fails to show that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu for the reasons presented for claim 1. PO Resp. 24. Patent Owner does not present other arguments regarding claim 21. *See id.*

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We are persuaded that the Kondo-Chu combination discloses each limitation of claim 21. *See* Pet. 79–81 (citing *id.* at 43–67). In particular, we find that Kondo discloses elements 21[a]¹⁵ and 21[b] by its disclosure of an apparatus with a housing configured to receive a mobile electronic device, with the housing having multiple lenses. *See, e.g.*, Ex. 1003 ¶¶ 21–23, 27, Figs. 1, 2, 4, 7. We agree with Petitioner that the combination of Kondo and Chu teaches element 21[c]. Chu’s input device includes an actuator with button 16 and probe head 18. *See, e.g.*, Ex. 1004 ¶¶ 53–62, Figs. 3, 4. For element 21[d], we agree with Petitioner that Chu’s probe pad 30 is electro-mechanically coupled via a linkage element to button 16, with the linkage mechanism consisting of biasing member 40 and shaft 14. *See id.* ¶¶ 44–46, Figs. 4, 5. Chu also discloses that upon actuation, the contact element (probe pad 30) moves from a first position to a second position, with a touch event generated in the second position. *See id.* ¶¶ 41, 44–46, 53–56, Figs. 4, 5.

We are also persuaded that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu with a reasonable expectation of success. In particular, as discussed for claim 1, we find that the ordinarily skilled artisan would have been motivated to replace Kondo’s input mechanism with Chu’s actuator mechanism in order to allow a wider range of input types. We do not find that Patent Owner’s arguments undermine Petitioner’s showing for the reasons explained in connection with claim 1.

¹⁵ Petitioner has sufficiently shown that Kondo discloses the preamble (i.e., element 21[a]), so we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

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We do not accord substantial weight to any objective indicia of nonobviousness when evaluating this claim because Patent Owner fails to show a nexus between its evidence and this claim. *See generally* PO Resp.; *see Volvo Penta*, 81 F.4th at 1210 (“For objective evidence of secondary considerations to be relevant, there must be a nexus between the merits of the claimed invention and the objective evidence.”); *Fox Factory*, 944 F.3d 1373 (“The patentee bears the burden of showing that a nexus exists.” (citation omitted)). Although Patent Owner argued objective indicia of nonobviousness for independent claim 1, it chose not to do so for independent claim 21. *See* Tr. 59:16–60:8 (when asked about the applicability of these arguments to other claims, stating that Patent Owner “chose what claims to focus on in [its] briefing”); *also cf.* PO Resp. 27–54 (addressing only claim 1), 64 (same); PO Sur-reply 13 (same), 18 (same). We hold Patent Owner to its chosen strategy. Moreover, the analysis of the specific objective indicia discussed above for claim 1 would similarly apply to claim 21, resulting in a finding that Patent Owner fails to establish that the objective indicia asserted should be afforded weight.

Petitioner has provided sufficient evidence that a person of ordinary skill in the art would have been motivated to combine Kondo and Chu in the manner proposed, and we are also persuaded that each of the Kondo-Chu combinations disclose each limitation of claim 21. We do not accord substantial weight to any objective indicia of nonobviousness.

Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of independent claim 21 would have been obvious over Kondo and Chu.

d. Independent Claim 30

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Petitioner asserts that the combination of Kondo and Chu teaches all the limitations of independent claim 30 and that there is a rationale to combine the references. Pet. 86–88. In support, Petitioner relies, in large part, upon its analysis of independent claim 1 for most of the elements of claim 30 (*id.* at 86–87), and for element 30[d], Petitioner contends that Chu’s shaft 14 conducts electricity when button 16 is pushed to cause a touch event in the Kondo-Chu combination. *See also id.* at 36–42 (articulating rationale to combine references), 43–67 (analyzing claim 1), 82–83 (analyzing the conductive lead).

Patent Owner contends that Petitioner fails to show that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu for the reasons presented for claim 1. PO Resp. 26. Patent Owner does not present other arguments regarding claim 30. *See id.*

We are persuaded that the Kondo-Chu combination discloses each limitation of claim 30. *See* Pet. 86–88 (citing *id.* at 43–67, 82–83). In particular, we find that Kondo discloses elements 30[a]¹⁶ and 30[b] by its disclosure of a virtual reality viewed apparatus with a housing configured to receive a mobile electronic device, with the housing having multiple lenses. *See, e.g.,* Ex. 1003 ¶¶ 21–23, 27, Figs. 1, 2, 4, 7. We agree with Petitioner that the combination of Kondo and Chu teaches element 30[c]. Chu’s input device includes an actuator with button 16. *See, e.g.,* Ex. 1004 ¶¶ 53–57, Figs. 3, 4. For element 30[d], we agree with Petitioner that Chu’s probe pad

¹⁶ Petitioner has sufficiently shown that Kondo discloses the preamble (i.e., element 30(a)), so we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

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30 is electro-mechanically coupled via a linkage element to button 16, with the linkage mechanism consisting of biasing member 40 and shaft 14. *See id.* ¶¶ 44–46, Figs. 4, 5. Chu also discloses that upon actuation, the contact element (probe pad 30) moves from a first position to a second position, with a touch event generated in the second position. *See id.* ¶¶ 41, 44–46, 53–56, Figs. 4, 5. Additionally, we agree that Chu’s shaft 14 conducts electricity when button 16 is pushed to cause a touch event. *See id.* at ¶¶ 41–62, Fig. 4.

We are also persuaded that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu with a reasonable expectation of success. In particular, as discussed for claim 1, we find that the ordinarily skilled artisan would have been motivated to replace Kondo’s input mechanism with Chu’s actuator mechanism in order to allow a wider range of input types. We do not find that Patent Owner’s arguments undermine Petitioner’s showing for the reasons explained in connection with claim 1.

We do not accord substantial weight to any objective indicia of nonobviousness when evaluating this claim because Patent Owner fails to show a nexus between its evidence and this claim. *See generally* PO Resp.; *see Volvo Penta*, 81 F.4th at 1210 (“For objective evidence of secondary considerations to be relevant, there must be a nexus between the merits of the claimed invention and the objective evidence.”); *Fox Factory*, 944 F.3d 1373 (“The patentee bears the burden of showing that a nexus exists.” (citation omitted)). Although Patent Owner argued objective indicia of nonobviousness for independent claim 1, it chose not to do so for independent claim 30. *See* Tr. 59:16–60:8 (when asked about the applicability of these arguments to other claims, stating that Patent Owner

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“chose what claims to focus on in [its] briefing”); *also cf.* PO Resp. 27–54 (addressing only claim 1), 64 (same); PO Sur-reply 13 (same), 18 (same). We hold Patent Owner to its chosen strategy. Moreover, the analysis of the specific objective indicia discussed above for claim 1 would similarly apply to claim 30, resulting in a finding that Patent Owner fails to establish that the objective indicia asserted should be afforded weight.

Petitioner has provided sufficient evidence that a person of ordinary skill in the art would have been motivated to combine Kondo and Chu in the manner proposed, and we are also persuaded that each of the Kondo-Chu combinations disclose each limitation of claim 30. We do not accord substantial weight to any objective indicia of nonobviousness.

Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of independent claim 30 would have been obvious over Kondo and Chu.

e. Dependent Claims 27 and 28

Dependent claim 27 directly depends from claim 21, and further recites “wherein the linkage element is made from a flexible material.” Ex. 1001, 14:30–31. As discussed above for claim 21, Petitioner asserts that the claimed “linkage element” is taught by Chu’s biasing member 40 and shaft 14. Pet. 80 (“Both the biasing member 40 and shaft 14 constitute the claimed linkage element”). For claim 27, Petitioner further asserts that “Chu’s biasing member 40, part of the linkage element, is a spring. So, it is flexible.” *Id.* at 84. Mr. Keller’s supporting testimony is essentially identical to the arguments in the Petition. Ex. 1002 ¶ 138.

In the Institution Decision, we identified claim 27, and the associated arguments and evidence, and indicated that additional briefing by the parties

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was welcome. Dec. 29–30. Petitioner did not further address this claim in its Reply, and Patent Owner only asserts that Petitioner fails to show that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu for the reasons presented for claim 1. *See generally* Pet. Reply; PO Resp. 23, 25.

Although we agree with Petitioner that Chu’s biasing member 40 is a spring and is flexible, Petitioner does not assert that the other part of the other component of the linkage element, that is, Chu’s shaft 14, is made from a flexible material. Claim 27 explicitly recites that “the linkage element is made from a flexible material,” and does not state that only a part of the linkage element is made from flexible material. Thus, because Petitioner has not demonstrated that Chu’s shaft 14, which is a part of the linkage element under Petitioner’s assertions (Pet. 80),¹⁷ is made from flexible material, we find that Petitioner has not carried its burden of proof for claim 27.

Dependent claim 28 directly depends from claim 21, and further recites “comprising a memory material coupled to the linkage element, the memory material configured to bias the linkage element toward the first position.” Ex. 1001, 14:32–35. As discussed above for claim 21, Petitioner asserts that the claimed “linkage element” is taught by Chu’s biasing member 40 and shaft 14. Pet. 80. For claim 28, Petitioner further asserts

¹⁷ Notably, there is no alternative contention alleging that the linkage element is taught by Chu’s biasing member 40 alone. *See* Pet. 80–81 (“Both the biasing member 40 and shaft 14 constitute the claimed linkage element . . .”), 84 (“Chu’s biasing member, *part of* the linkage element, is a spring.” (emphasis added)).

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that “[b]iasing member 40 is made of a memory material; it is a spring, which ‘provides a biasing force to urge the press button 16 to its highest position, which is the initial position when the press button 16 is not pressed by a user.’” *Id.* at 84 (quoting Ex. 1004 ¶ 45). Mr. Keller’s supporting testimony is essentially identical to the arguments in the Petition. Ex. 1002 ¶ 139.

In the Institution Decision, we identified claim 28, and the associated arguments and evidence, and indicated that additional briefing by the parties was welcome. Dec. 29–30 (explaining that Petitioner’s contention “appears inconsistent with the language of the limitation which requires that the memory material be coupled to the linkage element”). Petitioner did not further address this claim in Reply, and Patent Owner only asserts that Petitioner fails to show that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu for the reasons presented for claim 1. *See generally* Pet. Reply; PO Resp. 23, 25.

Petitioner asserts that Chu’s biasing member 40 is part of the claimed “linkage element,” and that biasing member 40 is made of a memory material. But claim 28 requires that the “memory material [be] coupled to the linkage element.” Petitioner does not reconcile how biasing member 40 is *part* of the linkage element, but is also *coupled* to the same linkage element. Thus, because of the inconsistencies in how Petitioner attempts to demonstrate that Chu teaches the claim, we find that Petitioner has not carried its burden of proof for claim 28.

Accordingly, we determine that Petitioner has not shown, by a preponderance of the evidence, that the subject matter of dependent claims 27 and 28 would have been obvious over Kondo and Chu.

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f. Claims 22–26 and 29

Claims 22–26 and 29 depend, directly or indirectly, from independent claim 21. Petitioner contends that these claims would have been obvious over the combination of Kondo and Chu. *See* Pet. 82–86.

For these claims, Patent Owner contends only that Petitioner fails to show that an ordinarily skilled artisan would have been motivated to combine Kondo and Chu for the reasons presented for claim 1. PO Resp. 23–26.

Having considered the record, we are persuaded by Petitioner’s showing that claims 22–26 and 29 would have been obvious over the proposed Kondo-Chu combination. For claims 22 and 23, Petitioner relies upon the analysis provided for claim 21, which we find to be persuasive. Pet. 82. For claim 24, Chu discloses that shaft 14 acts as a conductive lead. Ex. 1004 ¶¶ 41–62, Fig. 4. For claim 25, Chu discloses that its probe pad 30 has a conductive surface that contacts a region of the touchscreen when pressed. *See, e.g., id.* at ¶ 19. For claim 26, Kondo discloses that a touch event would be in the central region of the touchscreen as shown in Kondo. *See, e.g.,* Ex. 1003, Figs. 3, 4. For claim 29, Chu discloses that its contact element may comprise, for instance, rubber to which an additive may be added to enhance its electric charge transfer performance. *See, e.g.,* Ex. 1004 ¶¶ 11, 19, 49. As discussed for claim 1, we do not find that Patent Owner’s arguments that an ordinarily skilled artisan would not have been motivated to combine Kondo and Chu serve to undermine Petitioner’s showing for claims 22–26 and 29. Additionally, for the reasons discussed for claim 1, that is, that Patent Owner fails to establish that the objective indicia asserted should be afforded weight, Petitioner’s evidence of

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obviousness is not outweighed by Patent Owner's evidence that is asserted to show to show nonobviousness.

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 22–26 and 29 would have been obvious over Kondo and Chu.

III. MOTION TO EXCLUDE

Petitioner filed a motion to exclude Exhibits 2017, 2020, and 2035; portions of Exhibits 2023; and certain associated portions of the Preliminary Response (Paper 13) and Patent Owner's Sur-reply in Support of Its Preliminary Response (Paper 20). Paper 66. Patent Owner opposed this motion (Paper 68), and Petitioner filed a reply in support (Paper 70).

We dismiss this motion as moot. The identified evidence was introduced pre-institution by Patent Owner to support its argument that institution should be denied for failure to name all real parties in interest. We disagreed, and we instituted trial. *See* Dec. 30–39. This issue was not raised at trial, and none of this evidence was cited or relied upon in the merits papers. We also have not considered this evidence in this Decision. As a result, Petitioner's motion to exclude this evidence is dismissed as moot. *See* Trial Practice Guide 79–80 (“In the Board's experience, consideration of the objected-to evidence is often unnecessary to resolve the patentability of the challenged claims, and the motion to exclude is moot.”).

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IV. CONCLUSION¹⁸

The outcome for the challenged claims of this Final Written Decision follows. In summary:

Claims	35 U.S.C. §	References/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–30	103	Kondo, Chu	1–26, 29, 30	27, 28
Overall Outcome			1–26, 29, 30	27, 28

V. ORDER

It is, therefore,

ORDERED that Petitioner has demonstrated by a preponderance of the evidence that claims 1–26, 29, and 30 of the '001 patent are unpatentable

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*, 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).

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and Petitioner has not demonstrated by a preponderance of the evidence that claims 27 and 28 of the '001 patent are unpatentable;

FURTHER ORDERED that the Motion to Exclude is *dismissed* as moot;

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; and

FURTHER ORDERED that the parties shall jointly email a proposed redacted version of this paper no later than 14 days from the entry of this Decision to Trials@uspto.gov, and if no redacted version is received within that time period, this Decision shall be made public.

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