

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

THL HOLDING COMPANY, LLC,
Patent Owner.

IPR2024-00398
Patent 11,265,680 B2

Before CHRISTOPHER M. KAISER, SHEILA F. McSHANE, and
ELIZABETH J. REAGAN, *Administrative Patent Judges*.

REAGAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–12 and 15–20 (“the challenged claims”) of U.S. Patent No. 11,265,680 B2 (Ex. 1001, “the ’680 patent”). Paper 1 (“Pet.”). Petitioner filed a Declaration of Dr. R. Michael Buehrer (Ex. 1003, “the Buehrer Declaration”) in support of the Petition. THL Holding Company (“Patent Owner”) did not file a Preliminary Response.

We are statutorily authorized to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023). Institution of an *inter partes* review requires that “the information presented in the petition and . . . any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least [one] 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we determine that there is a reasonable likelihood that Petitioner will prevail with respect to at least one challenged claim. Accordingly, we institute an *inter partes* review on all of the challenged claims of the ’680 patent based on all of the asserted grounds of unpatentability identified in the Petition.

II. BACKGROUND

A. *Real Parties in Interest*

Apple Inc. identifies itself as the real party in interest for Petitioner. Pet. 80. THL Holding Company identifies itself as the real party in interest for Patent Owner. Paper 5, 1 (Patent Owner Mandatory Notice).

B. *Related Matters*

Petitioner states that “[t]he ’680 patent is presently the subject of a patent infringement lawsuit . . . in the United States District Court for the

Western District of Texas Waco Division. *THL Holding Company, LLC v. Apple, Inc.*, Case No. 6:23-cv-0077.” Pet. 80.

Patent Owner identifies “the following related judicial or administrative matter: *THL Holding Company, LLC v. Apple, Inc.*, Case No. 1:23-cv-0058-OLG, filed February 9, 2023 in the Western District of Texas.” Paper 5, 1.¹

Patent Owner also identifies that “[c]oncurrently filed related petitions include: IPR2024-00397, IPR2024-00399, and IPR2024-00400.” Paper 5, 1.

C. The ’680 Patent

The ’680 patent, titled “Wireless Device and Methods for Use in a Paging Network,” issued March 1, 2022, from U.S. Patent Application No. 17/036,535, filed September 29, 2020, as a continuation of U.S. Patent Application No. 16/837,481, filed April 1, 2020 (now U.S. Patent No. 10,834,539 (“the ’539 patent”)), which was filed as a continuation of U.S. Patent Application No. 16/540,665, filed August 14, 2019 (now U.S. Patent No. 10,645,537 (“the ’537 patent”)), which was filed as a continuation of U.S. Patent Application No. 16/150,498, filed October 3, 2018 (now U.S. Patent No. 10,440,501 (“the ’501 patent”)), which was filed as a continuation of U.S. Patent Application No. 15/910,654, filed March 2,

¹ We note that the parties both identify *THL Holding Company, LLC v. Apple, Inc.* (W.D. Tex.) as a related matter; however, the parties provide different case numbers for this matter. As indicated, Petitioner identifies the related matter by Case No. 6:23-cv-00077; and Patent Owner identifies the related matter by Case No. 1:23-cv-0058-OLG. Pet. 80; Paper 5, 1. According to district court records, the district court case was transferred from the Waco Division (Case No. 6:23-cv-00077) to the Austin Division (Case No. 1:23-cv-00548) in the United States District Court for the Western District of Texas in May 2023. *See THL Holding Company, LLC v. Apple, Inc.*, No. 1:23-cv-00548, Doc. 19 (W.D. Tex. May 8, 2023).

2018 (now U.S. Patent No. 10,123,161 (“the ’161 patent)), which was filed as a continuation of U.S. Patent Application No. 15/000,903, filed January 19, 2016 (now U.S. Patent No. 9,942,700 (“the ’700 patent)), which was filed as a continuation of U.S. Patent Application No. 14/281,077, filed September 19, 2014 (now U.S. Patent No. 9,295,024 (“the ’024 patent)), which was filed as a continuation of U.S. Patent Application No. 14/044,202, filed October 2, 2013 (now U.S. Patent No. 8,768,381 (“the ’381 patent)), which was in turn a continuation of U.S. Patent Application No. 12/713,346, filed February 26, 2010 (now U.S. Patent No. 8,588,806 (“the ’806 patent)). Ex. 1001, codes (21), (22), (45), (54), (63).

The ’680 patent discloses that a “wireless device includes a user interface that generates a pairing signal in response to an indication from a user to pair the wireless device to at least one remote device” and “generates a first location request signal in response to a second indication from a user to locate the at least one remote device.” Ex. 1001, code (57). Further, the ’680 patent describes that a “short-range wireless transceiver communicates RF signals to pair the wireless device to the at least one remote device” and “transmits a first RF paging signal to the at least one remote device in response to the location request signal.” *Id.*

Figure 1, reproduced below, is a pictorial representation of a location system for use with handheld wireless communication device 110 in accordance with an embodiment. Ex. 1001, 2:61–64.

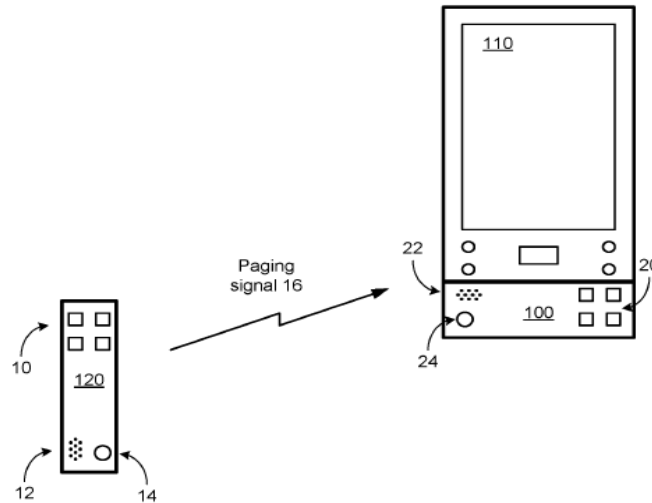


FIG. 1

Figure 1, above, shows wireless device 120 transmitting paging signal 16 to locate handheld wireless communication device 110, in which handheld wireless communication device 110 is coupled, or attached, to adjunct device 100. *Id.* at 5:31–34; 5:54–59. With reference to Figure 1, the '680 patent describes that a user can locate handheld wireless communication device 110 by activating a paging button on wireless device 120 that causes paging signal 16 to be broadcast. *Id.* at 5:54–59. Adjunct device 100 is shown as including a user interface with push buttons 20, sound emitter 22, and light emitter 24, in which sound emitter 22 and light emitter 24 can emit audio and/or visual alert signals in response to paging signal 16 to assist a user in locating handheld wireless communication device 110. *Id.* at 5:45–49.

The '680 patent describes that handheld wireless communication device 110 may be a “smart phone, digital book, netbook, personal computer with wireless data communication or other wireless communication device that includes a wireless transceiver for communicating over a long range wireless network . . . and/or a short-range wireless network.” Ex. 1001,

4:52–62. With reference to Figure 1, handheld wireless communication device 110 has a user interface that includes “buttons, a display screen such as a touch screen, a speaker, a microphone, a camera . . . and/or other user interface devices.” *Id.* at 5:4–10. Adjunct device 100 is coupled, through a communication port (not shown), to an end portion of handheld wireless communication device 110. *Id.* at 5:31–34. Adjunct device 100 includes a short-range wireless receiver (not shown) that can receive an RF paging signal, such as paging signal 16, in which paging signal 16 in Figure 1 is shown as an arrow between wireless device 120 and adjunct device 100, with the head of the arrow pointing to adjunct device 100. *Id.* at 5:34–36. Wireless device 120 includes a user interface with push buttons 10, light emitter 14, and sound emitter 12, such as a beeper, buzzer, speaker, or other audio device. *Id.* at 5:11–15. Wireless device 120 includes a short-range wireless transmitter (not shown) for transmitting an RF paging signal, such as paging signal 16, in response to a location request signal. *Id.* at 5:23–25.

Figure 4, reproduced below, shows a pictorial representation of a location system for use with handheld wireless communication device 110, in which a paging signal may be sent from adjunct device 100 to locate wireless device 120, in accordance with an embodiment. Ex. 1001, 3:4–7, 7:35–40.

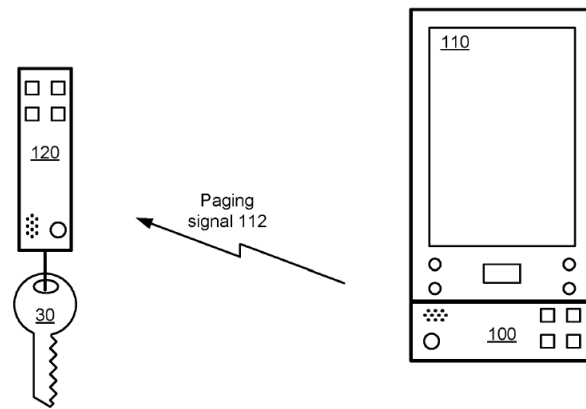


FIG. 4

Figure 4, above, shows adjunct device 100 and wireless device 120 operating in a “reciprocal fashion,” as compared to Figure 1, for example, to locate wireless device 120. *Id.* at 7:35–40. With reference to Figure 4, wireless device 120 includes a housing that is “attachable to or includes a ring, clip or other fastener that can be coupled to key 30 as shown or to another personal object.” *Id.* at 7:40–43. Wireless device 120 includes a short-range wireless receiver (not shown) that receives paging signal 112 transmitted by adjunct device 100. *Id.* at 7:47–49. Paging signal 112 is shown in Figure 4 as an arrow between wireless device 120 and adjunct device 100 (which is coupled to handheld wireless communication device 110), in which the head of the arrow points to wireless device 120. In response to paging signal 112, a light or sound emitter of wireless device 120 emits an alert signal to assist the user in locating the personal object. *Id.* at 7:49–52.

Figure 5, reproduced below, presents a schematic block diagram of wireless device 120 and adjunct device 100 in accordance with an embodiment. Ex. 1001, 3:8–10.

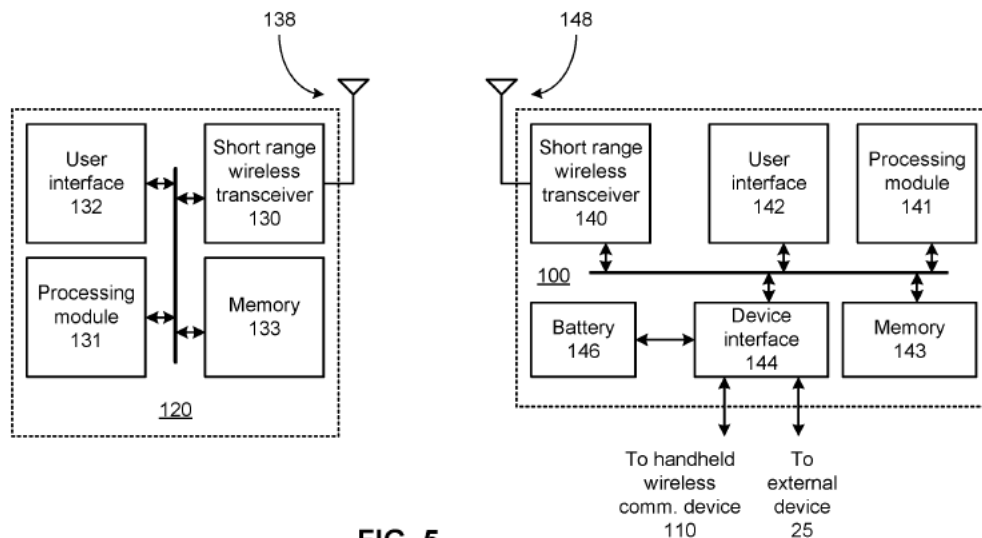


FIG. 5

Figure 5, above, shows that wireless device 120 includes short-range wireless transceiver 130 coupled to antenna 138, processing module 131, user interface 132, and memory 133. *Id.* at 8:3–8. Each of these components, except for antenna 138, is shown as a block within wireless device 120. Adjunct device 100 includes short-range wireless transceiver 140 coupled to antenna 148, processing module 141, user interface 142, memory 143, device interface 144, and battery 146. *Id.* at 8:13–16. Each of these components, except for antenna 148, is shown as a block within adjunct device 100. Two sets of bi-directional arrows, labeled “To handheld wireless comm. device 110” and “To external device 25,” extend from adjunct device 100. The ‘680 patent describes that “device interface 144 includes one or more signal paths, buffers, or other circuitry . . . to pass through communications between the handheld wireless communication device 110

and external device 25.” *Id.* at 10:26–32. Further, the ’680 patent describes that “processing modules 131 and 141 control the operation of the wireless device 120 and adjunct device 100, respectively and provide further functionality described in conjunction with, and as a supplement to, the functions provided by the other components of wireless device 120 and adjunct device 100.” *Id.* at 8:16–22.

Figure 6, reproduced below, is a pictorial representation of a location system for use with handheld wireless communication device 110 in accordance with an embodiment. Ex. 1001, 3:11–13.

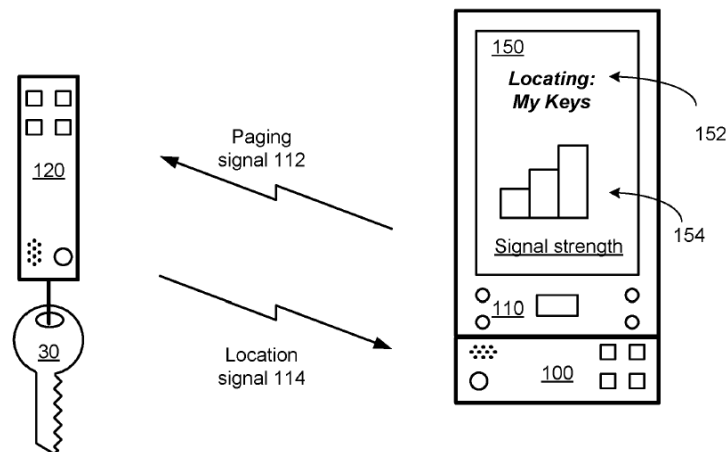


FIG. 6

Figure 6, above, shows adjunct device 100 attached, or coupled, to handheld wireless communication device 110 which includes display screen 150. *Id.* at 10:37–40. Adjunct device 100 is shown as transmitting paging signal 112, and wireless device 120 is shown as transmitting location signal 114 (via short-range wireless transceiver 130 (not shown)). With reference to Figure 6, the ’680 patent describes that “[a]djunct device 100 aids the user of

handheld wireless communication device 110 in homing in on the location signal 114 based on the signal strength of the location signal 114 as received by short-range wireless transceiver 140.” *Id.* at 10:44–48. Paging signal 112 is shown as an arrow pointing from adjunct device 100 and handheld wireless communication device 110 to wireless device 120, with location signal 114 shown as an arrow pointing in the opposite direction from wireless device 120 to adjunct device 100. Wireless device 120 is attached to key 30. *Id.* at 10:65. Display screen 150, on handheld wireless communication device 110, shows an indication 152 of the object being located, i.e., “Locating: My Keys,” above signal strength indication 154, in which indication 154 is shown as vertical rectangular bars in increasing height with the label “Signal strength.” *Id.* at 10:59–63. Referring to Figure 6, the ’680 patent describes that “the user can move around with the handheld wireless communication device 110 and hunt for the key or keys 30, guided by changes in the visual signal strength indication 154.” *Id.* at 10:63–67.

Figure 8, reproduced below, is a pictorial representation of handheld wireless communication device 110 and adjunct device 100 in accordance with an embodiment. Ex. 1001, 3:19–21.

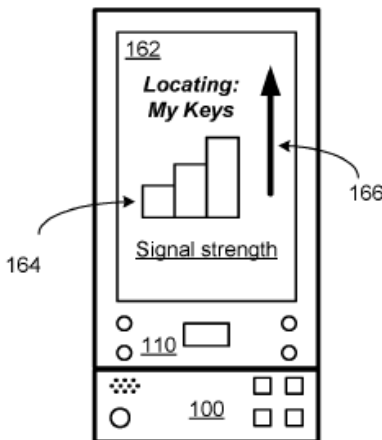


FIG. 8

Figure 8, above, shows handheld wireless communication device 110 with a display screen 162 that includes signal strength indication 164 and indication of direction 166. *Id.* at 12:4–9. Handheld wireless communication device 110 is coupled, or attached, to adjunct device 100. Indication of direction 166 in display screen 162 is shown as an arrow pointing to the top of display screen 162. “Locating: My Keys” is shown near the top of display screen 162. Signal strength indication 164 is shown in display screen 162 as vertical rectangular bars in increasing height with the label “Signal strength.”

Figure 16, reproduced below, shows a schematic block diagram of the pairing of wireless devices 70 and 72, in which devices 70 and 72 can be either wireless device 120 or adjunct device 100, in accordance with an embodiment. Ex. 1001, 3:44–46; 15:53–60.

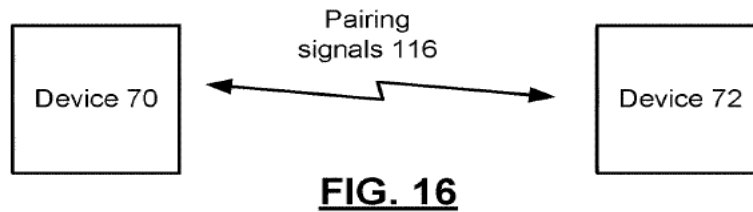


Figure 16, above, shows wireless devices 70 and 72 with pairing signals 116 shown as two connected arrows between the devices with one arrow head pointing to device 70 and the other arrow head pointing to device 72. *Id.* at 15:53–55. According to the ‘680 patent, “the devices 70 and 72 can each be either a wireless device 120 or an adjunct device 100,” *id.* at 15:55–57, and “[a] short-range wireless transceiver . . . communicates RF signals, such as pairing signals 116 to pair the devices 70 and 72.” *Id.* at 15:64–67.

Figure 18 is a pictorial representation of screen display 170 in accordance with an embodiment. Ex. 1001, 3:50–52.

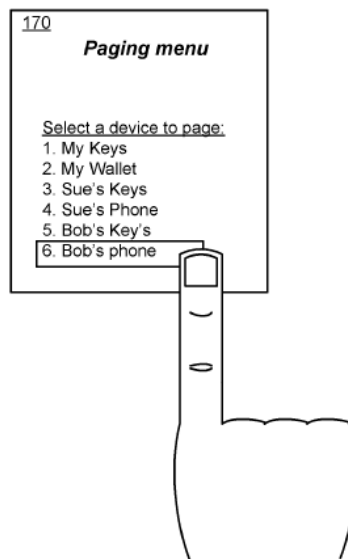


FIG. 18

In Figure 18, above, “a screen display 170 is shown for display via a graphical user interface generated by a location application of handheld wireless communication device 110.” *Id.* at 17:59–64. Figure 18 shows that the “graphical user interface includes a menu that indicates the plurality of personal objects, that each correspond to one of a plurality of remote device[s] such as devices 70 or 72.” *Id.* at 17:64–67. Screen display 170 shows “Paging menu,” “Select a device to page:,” and lists “1. My Keys,” “2. My Wallet,” “3. Sue’s Keys,” “4. Sue’s Phone,” “5. Bob’s Key’s,” and “6. Bob’s phone.” A human hand with a finger selecting “6. Bob’s phone” is shown. *Id.* at Fig. 18.

Figure 37, reproduced below, shows a flowchart representation of a method for locating an object in accordance with an embodiment. Ex. 1001, 4:40–41.

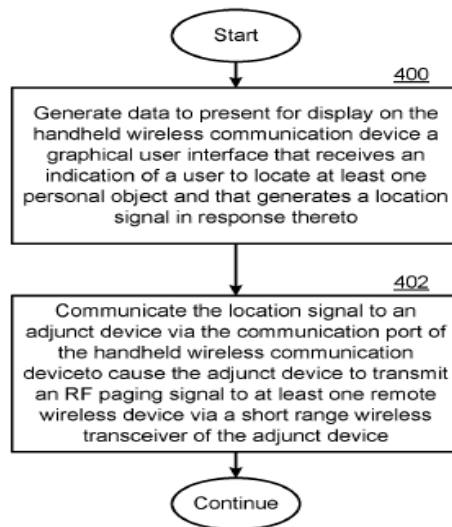


FIG. 37

Figure 37, above, beginning with “Start” and ending with “Continue,” shows Steps 400 and 402. *Id.* at Fig. 37. In Step 400, “data is generated to present for display on a handheld wireless communication device a graphical user interface that receives an indication of a user to locate at least one personal object and generates a location signal in response thereto.” *Id.* at 33:60–34:1. In Step 402, “the location signal is communicated to an adjunct device via the communication port of the handheld wireless communication device to cause the adjunct device to transmit an RF paging signal to at least one remote wireless device via a short-range wireless transceiver of the adjunct device.” *Id.* at 34:1–6.

D. Illustrative Claims

Of the challenged claims, claims 1 and 10 are independent claims and are reproduced below with bracketed alphanumeric reference identifiers provided by Petitioner:

1. [1[P]] A mobile communication device comprising:
 - [1(a)] a plurality of wireless transceivers;
 - [1(b)] a memory that stores operational instructions;
 - [1(c)] a touch screen; and
 - [1(d)(i)] a processor coupled to the memory and to the touch screen,
 - [1(d)(ii)] wherein the processor executes the operational instructions that cause the processor to present a graphical user interface via the touch screen and
 - [1(d)(iii)] wherein the processor operates in association with the graphical user interface to:
 - [1(d)(iv)] generate a pairing signal in response to a first indication from a user to pair the mobile communication device to at least one remote device,
 - [1(d)(v)] wherein the at least one of the plurality of wireless transceivers, responds to the pairing signal generated by the graphical user interface by

communicating RF signals to pair the mobile communication device to the at least one remote device;

[1(d)(vi)] generate a first location request signal in response to a second indication from the user to locate the at least one remote device,

[1(d)(vii)] wherein at least one of the plurality of wireless transceivers transmits a first RF signal to the at least one remote device in response to the first location request signal; and

[1(d)(viii)] present a display that visually assists the user to determine a location of the at least one remote device,

[1(d)(ix)] wherein at least one of the plurality of wireless transceivers receives a second RF signal from the at least one remote device that facilitates determining the location of the at least one remote device,

[1(d)(x)] wherein the display visually assists the user to determine the location of the at least one remote device via an arrow pointing in a direction to the at least one remote device.

10. [10[P]] A mobile communication device comprising:

[10(a)] a plurality of wireless transceivers;

[10(b)] a touchscreen;

[10(c)] a memory that stores operational instructions; and

[10(d)(i)] a processor configured to execute operational instructions, wherein the operational instructions cause the processor to present a graphical user interface via the touch screen and

[10(d)(ii)] wherein the processor operates in association with the graphical user interface to:

[10(d)(iii)] respond to a first user interaction with the touchscreen by pairing, via at least one of the plurality of wireless transceivers, the mobile communication device with at least one remote device,

[10(d)(iv)] the at least one remote device including a sound emitter configured to generate an audio alert;

[10(d)(v)] facilitate, via a second interaction with the touchscreen, selection of the at least one remote device from a plurality of remote devices;

[10(d)(vi)] respond to a third interaction with the touchscreen by transmitting, via at least one of the plurality of wireless transceivers, a first paging signal to the at least one remote device, wherein the first paging signal causes the at least one remote device to generate the audio alert; and

[10(d)(vii)] present a display on the touchscreen, based on a signal received via at least one of the plurality of wireless transceivers from the at least one remote device, wherein the display visually assists a user to determine a location of the at least one remote device.

Ex. 1001, 37:52–38:19, 38:53–39:14 (alphanumeric identifiers added).

E. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §²	Reference(s)/Basis
1, 4, 7, 8	103(a)	Kalliola, ³ Vauclair ⁴

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102 and 103 effective March 16, 2013. The ’680 patent claims priority to an application filed before that date, so we refer to the pre-AIA version of the statute, but our findings and analysis would be the same under the current version of the statute.

³ Kalliola et al., US 2007/0197229 A1, published Aug. 23, 2007 (Ex. 1004). Petitioner contends that Kalliola qualifies as prior art to the ’680 patent under 35 U.S.C. § 102(b). Pet. 7.

⁴ Vauclair et al., US 2008/0320587 A1, published Dec. 25, 2008 (Ex. 1005). Petitioner contends that Vauclair qualifies as prior art to the ’680 patent under 35 U.S.C. § 102(b). Pet. 9.

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
2, 3, 6, 10, 11, 15–17, 20	103(a)	Kalliola, Vauclair, Kalayjian ⁵
5	103(a)	Kalliola, Vauclair, Turunen ⁶
18, 19	103(a)	Kalliola, Vauclair, Kalayjian, Turunen
9	103(a)	Kalliola, Vauclair, Trimble ⁷
12	103(a)	Kalliola, Vauclair, Kalayjian, Trimble

Pet. 5–78.

III. ANALYSIS

A. Legal Standards

In an *inter partes* review, the petitioner has the burden from the onset to demonstrate, with particularity, the unpatentability of the challenged claim(s). *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (2012) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). At this stage of the proceeding, we determine whether the information provided in the Petition demonstrates a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of the challenged claims based on obviousness over the proposed combinations of prior art.

⁵ Kalayjian, US 2008/0125040 A1, published May 29, 2008 (Ex. 1006). Petitioner contends that Kalayjian qualifies as prior art to the ’680 patent under 35 U.S.C. § 102(b). Pet. 10.

⁶ Turunen et al., US 6,487,595 B1, issued Nov. 26, 2002 (Ex. 1007). Petitioner contends that Turunen qualifies as prior art to the ’680 patent under 35 U.S.C. § 102(b). Pet. 11.

⁷ Trimble et al., US 2004/0252030 A1, published Dec. 16, 2004 (Ex. 1008). Petitioner contends that Trimble qualifies as prior art to the ’680 patent under 35 U.S.C. § 102(b). Pet. 12.

A patent claim is obvious, and therefore unpatentable, if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a). The ascertainment of obviousness requires consideration of four 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).⁸

In addition, the obviousness analysis typically requires determining “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)). The obviousness of a patent claim is not proved “merely by demonstrating that each of its elements was, independently, known in the prior art.” See *KSR*, 550 U.S. at 418. Further, a determination of obviousness based on a combination of references requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and

⁸ At this stage of the proceeding, because Patent Owner did not file a Preliminary Response, and therefore has not addressed objective evidence of non-obviousness, we focus solely on the first three *Graham* factors.

that the skilled artisan would have had a reasonable expectation of success in doing so.” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418.

In proving obviousness, Petitioner cannot satisfy its burden by employing “mere conclusory statements,” but “must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016); *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

B. Level of Ordinary Skill in the Art

Under 35 U.S.C. § 103(a), a determination of whether an invention would have been obvious requires ascertaining the level of ordinary skill in the art at the time of the claimed invention. *Graham*, 383 U.S. at 17. The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). 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); *see also Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983). The level of ordinary skill in the art may also be reflected by the

prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Petitioner contends that a “POSITA,” or person of ordinary skill in the art, “at the time of the ’680 Patent would have been a person having a bachelor’s degree in computer science, computer engineering, electrical engineering, or a similar technical field and 2–4 years of experience with wireless ranging and positioning systems, wireless communication devices, and associated computer programming” but that “[a]dditional industry experience or technical training may offset less formal education, while advanced degrees or additional formal education may offset lesser levels of industry experience.” Pet. 4–5 (citing Ex. 1003 ¶ 35).

We find that Petitioner’s proposal is consistent with the evidence of record, including the asserted prior art of the ’680 patent. This proposal is also supported by the Buehrer Declaration. *See* Ex. 1003 ¶ 35. Accordingly, we adopt Petitioner’s proposed level of ordinary skill in the art for purposes of this Decision.⁹

C. Claim Construction

In an *inter partes* review, the Board applies the same claim construction standard as would be used by a district court in construing a patent claim in a civil action involving the validity or infringement of a

⁹ If Patent Owner disagrees with this formulation of the level of skill in the art, it must raise that disagreement in its Response. If a different level of skill would affect the outcome in this case, the parties must brief that issue as well. The failure of Patent Owner to describe how a different level of skill in the art is determinative will constitute a forfeiture of that argument. If there is a dispute regarding the level of ordinary skill in the art, then the parties are also encouraged to submit evidence, other than conclusory expert testimony, that supports their position.

patent, in which the terms of a patent claim are construed “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). In accordance with this standard, claim terms generally are given their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and within the context of the entire patent disclosure. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “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); *see also Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012).

Petitioner proposes a claim construction,¹⁰ based on Patent Owner’s construction in a parallel proceeding,¹¹ for the following term: “[a] pairing signal.” Pet. 6 (emphasis omitted) (citing Ex. 1009, 15–16). Petitioner proposes that we construe “[a] pairing signal” as “[p]rocessor signal to initiate a wireless device pairing sequence.” *Id.* (emphasis omitted) (quoting Ex. 1009, 15–16). On the present record, Patent Owner does not dispute this proposed construction.

¹⁰ Petitioner states that it is applying Patent Owner’s construction “[f]or purposes of this proceeding only.” Pet. 6.

¹¹ Petitioner states that it is applying Patent Owner’s construction in the “parallel litigation” and cites “*THL’s Proposed Constructions* (Ex. 1009).” Pet. 6 (citing Ex. 1009 (Plaintiff THL Holding Company, LLC’s Opening Claim Construction Brief, *THL Holding Company, LLC v. Apple, Inc.*, Case No. 1:23-cv-548-OLG (W.D. Tex.))).

For purposes of this Decision, we adopt the construction for “[a] pairing signal” proposed by Petitioner. *See* Pet. 6. This construction was originally proposed by Patent Owner in the parallel district court case, as shown by the briefing related thereto. *See* Ex. 1009, 15–16.

Further, after reviewing Petitioner’s arguments and evidence, we determine that we do not need to expressly construe any additional claim terms to resolve any controversy at this stage of the proceeding. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (noting that “[t]he Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

If either party intends to further argue claim construction at trial, including what the plain and ordinary meaning of a term is, they should do so in a clearly designated section of their briefing, so as to expressly identify such arguments. *See, e.g.*, 37 C.F.R. § 42.104(b)(3) (content of petition); *see also* Patent Trial and Appeal Board Consolidated Trial Practice Guide, 84 Fed. Reg. 64,280, at 46, 48–45 (Nov. 2019) (available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>). Claim construction arguments should not be relegated to patentability arguments on the facts. Failure to do so will result in forfeiture of all implicit claim construction arguments.

D. Obviousness of Claims 2, 3, 6, 10, 11, 15–17, and 20 Over Kalliola, Vauclair, and Kalayjian

Petitioner alleges claims 2, 3, 6, 10, 11, 15–17, and 20 of the ’680 patent would have been obvious over Kalliola, Vauclair, and Kalayjian. Pet. 56–73. In support, Petitioner relies upon the Buehrer Declaration. *See id.*; Ex. 1003. As noted *supra*, Patent Owner did not file a Preliminary

Response. Having considered the arguments and evidence before us, we find, for the reasons explained below, that the record establishes a reasonable likelihood that Petitioner would prevail on at least one claim in this asserted ground of unpatentability.

We begin our discussion with brief summaries of Kalliola, Vauclair, and Kalayjian and then address the evidence and arguments presented by Petitioner.

1. Kalliola (Ex. 1004)

Kalliola is titled “System and Methods for Direction Finding Using a Handheld Device” and is generally directed to a “system for indicating the relative direction of a target object or location as determined from the current position of a wireless communication device.” Ex. 1004, codes (54), (57). Kalliola describes that the system includes “facilities to activate a location-indicating transmission in a target device, the ability to request that a location-indicating transmission be activated in a remote target device, relevant information reception from a target device and the display of all potential target devices” that are “within effective transmission range of the wireless communication device.” *Id.* at code (57).

Kalliola discloses that wireless communication device 100 “may be anything from a basic cellular handset to a more complex device such as a wirelessly enabled palmtop or laptop computer.” Ex. 1004 ¶ 35. Figure 3, reproduced below, shows an exemplary structural layout of wireless communication device 100, according to an embodiment. *Id.* ¶ 44.

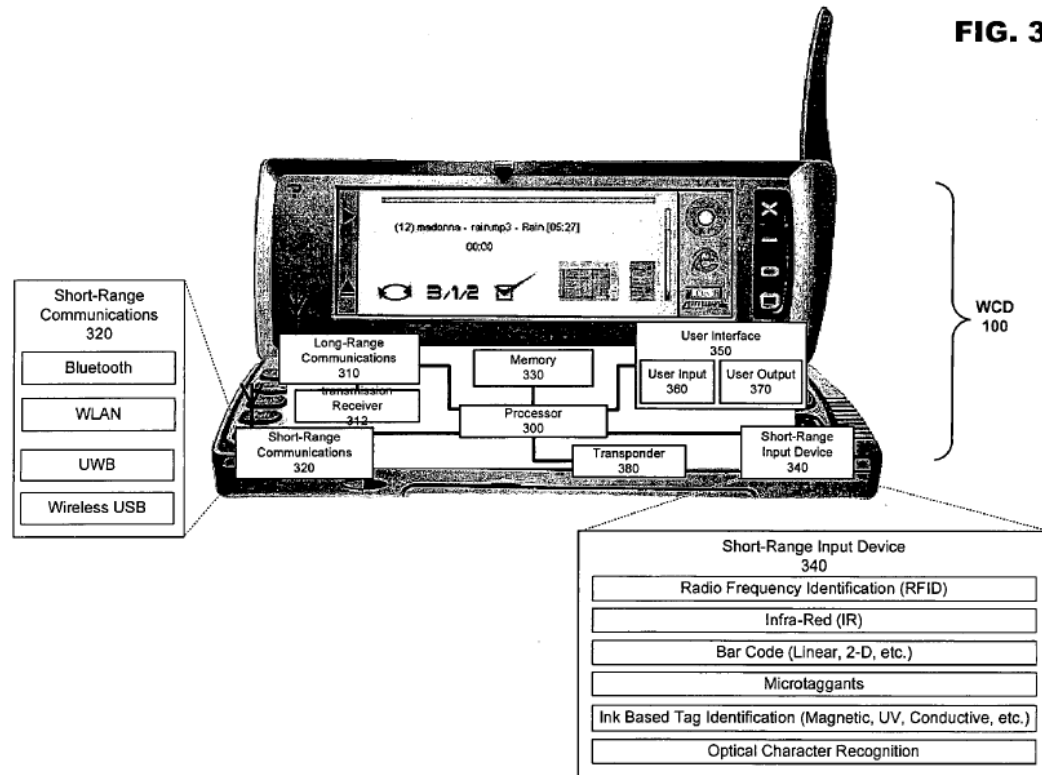


Figure 3, above, shows wireless communication device (WCD) 100, including blocks listing various components, including: Processor 300, Long-Range Communications 310, Transmission Receiver 312, Short-Range Communications 320 (listing Bluetooth, WLAN, UWB, Wireless USB), Memory 330, Short-Range Input Device 340 (listing Radio Frequency Identification (RFID), Infra-Red (IR), Bar Code (Linear, 2-D, etc.), Microtaggants, Ink Based Tag Identification (Magnetic, UV, Conductive, etc.), Optical Character Recognition), User Interface 350 (including User Input 360, User Output 370), and Transponder 380. *Id.* ¶¶ 45–55. With reference to Figure 3, Kalliola describes that short-range communications 320, including Bluetooth, WLAN, UWB, and wireless USB connections, exchange information across short-range wireless networks. *Id.* ¶ 49. Kalliola describes that short-range communications 320 performs functions for establishing short-range connections and processing related to the

transmission and reception of information through such connections. *Id.*

Figure 3 shows processor 300 coupled to user interface 350, in which user interface includes user input 360 and user output 370. *Id.* ¶ 51. According to Kalliola, “[u]ser input 360 may include one or more components that allow a user to input information.” *Id.* Examples of user input components may include keypads, touch screens, and microphones. *Id.* User output 370 “allows a user to receive information from the device” and “may include various components, such as a display, light emitting diodes (LED), tactile emitters and one or more audio speakers.” *Id.* Figure 3 also shows memory 330, in which Kalliola describes that memory 330 stores software components, including instructions that can be executed by processor 300. *Id.* ¶ 46.

Figure 5, reproduced below, shows exemplary wireless communication device 100, including “integrated direction-finding features in the form of an antenna array,” in accordance with an embodiment. Ex. 1004 ¶ 22.

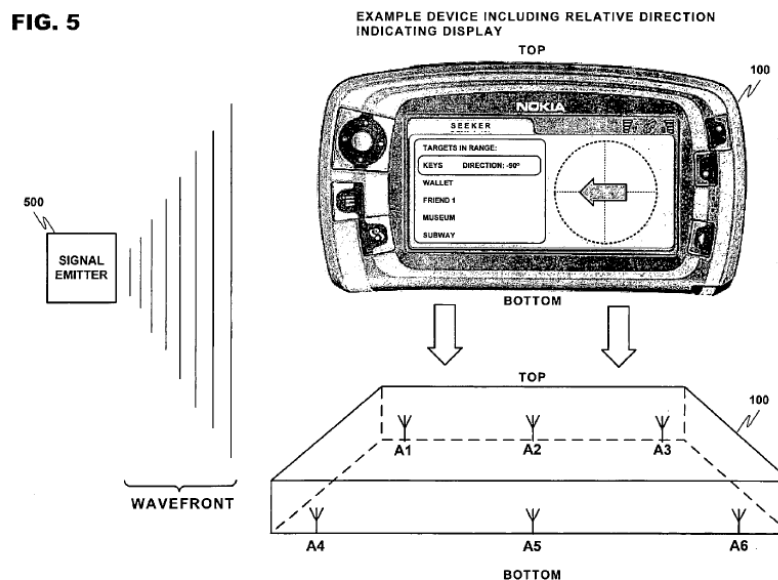


Figure 5 shows an example display on wireless communication device 100, in which the display lists possible target objects and a directional arrow pointer. *Id.* ¶ 71. The display shows the “Seeker” application and a list titled, “Targets in Range,” in which the list includes: “Keys,” “Wallet,” “Friend 1,” “Museum,” and “Subway.” The “Keys” target object is shown as being selected, and “Direction: -90°” is listed next to “Keys.” *Id.* The directional arrow pointer is shown as pointing in the direction of signal emitter 500, i.e., the target object. *Id.* According to Kalliola, “[t]here can be one or multiple active signal emitters 500 within one area at the same time,” and “[m]ultiple beacons can share the same communications medium.” *Id.* An array of lines, labeled “Wavefront,” is shown as being emitted from signal emitter 500 to wireless communication device 100. *Id.* The antenna array is shown as a “transparent three-dimensional view of antennas A1-A6.” *Id.* ¶ 69.

2. *Vauclair (Ex. 1005)*

Vauclair is titled “Secure Pairing for Wired or Wireless Communications Devices” and is generally directed to “[p]airing . . . between a host communications device and a peripheral communications device.” Ex. 1005, codes (54), (57). Vauclair describes that a “device identification, relating uniquely to the peripheral device, is displayed on the host device,” in which “to accept the pairing, the user confirms that . . . [the] device identification displayed on the host device matches that printed on the peripheral [device], and then completes the pairing procedure by pressing a key on the peripheral device” or “if Near Field Communication (NFC) techniques are implemented in the devices, by placing the peripheral device in contact with, or sufficiently close to, the host device.” *Id.* at code (57). Vauclair explains “secure pairing is achieved, without requiring a complex user interface on the peripheral device.” *Id.*

Figure 1, reproduced below, is a block schematic diagram of an ad hoc wireless communications network that includes wireless communications devices, in accordance with an aspect of the invention. Ex. 1005 ¶ 13.

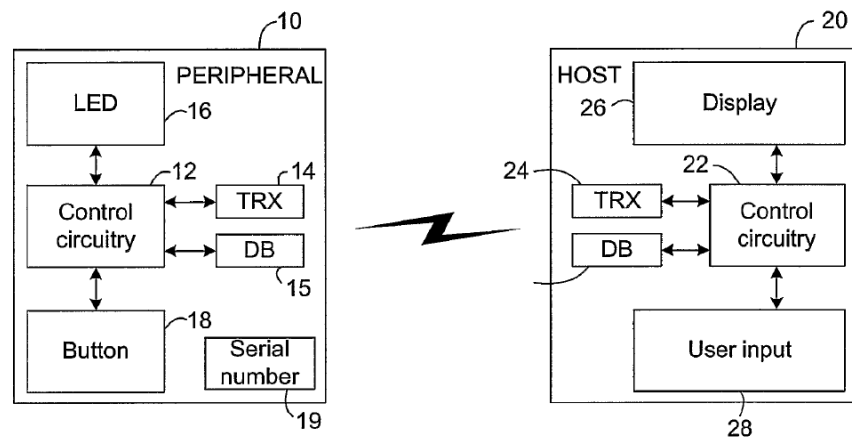


FIG. 1

Figure 1 shows “first electronic device 10,” which may be a “peripheral device,” and “second electronic device 20,” which may be a “host device.” *Id.* ¶ 22. According to Vauclair, first electronic device 10 may be a “portable memory device, a mobile telephone handsfree kit or a wireless network access point,” and second electronic device 20 may be a “camera, mobile telephone or personal computer.” *Id.* Vauclair describes that the “ad hoc wireless network is formed by allowing the first device 10 and the second device 20 to communicate according to the Wireless USB (Universal Serial Bus) (WUSB) protocol,” but that the first and second electronic devices “could communicate according to any wireless or wired protocol, for example such as . . . Bluetooth.” *Id.*

Figure 1 shows that peripheral first electronic device 10 has control circuitry 12, in which Vauclair describes that control circuitry 12 is “in the

form of a suitably programmed processor.” Ex. 1005 ¶ 24. Control circuitry 12 is connected to transceiver (TRX) circuitry 14, in which Vauclair describes that transceiver (TRX) circuitry 14 “handles radio frequency communications with other electronic devices able to use the same wireless protocol.” *Id.* Control circuitry 12 is also shown as being connected to database (DB) 15. In addition, Figure 1 shows “an LED 16, which operates under the control of the control circuitry 12, and a single button 18, which can be pressed by the user to send a signal to the control circuitry 12.” *Id.* ¶ 26.

As shown in Figure 1, host second electronic device 20 has control circuitry 22 that is connected to transceiver (TRX) circuitry 24. Ex. 1005 ¶ 28. Second electronic device 20 includes display 26 (operating under the control of control circuitry 22) for displaying menu options, for example, to the user, and user input 28 for allowing the user to make a selection and send a signal to control circuitry 22. *Id.* ¶ 30.

Figures 2 to 7 of Vauclair describe methods for pairing first communication device 10 (a peripheral device) and second communication device 20 (a host device). Ex. 1005 ¶ 32. Figure 2, reproduced below, shows a method performed in the network of Figure 1 for pairing first communications device 10 (peripheral device) and second communications device 20 (host device), according to a second aspect of the invention. *Id.* ¶¶ 14, 32.

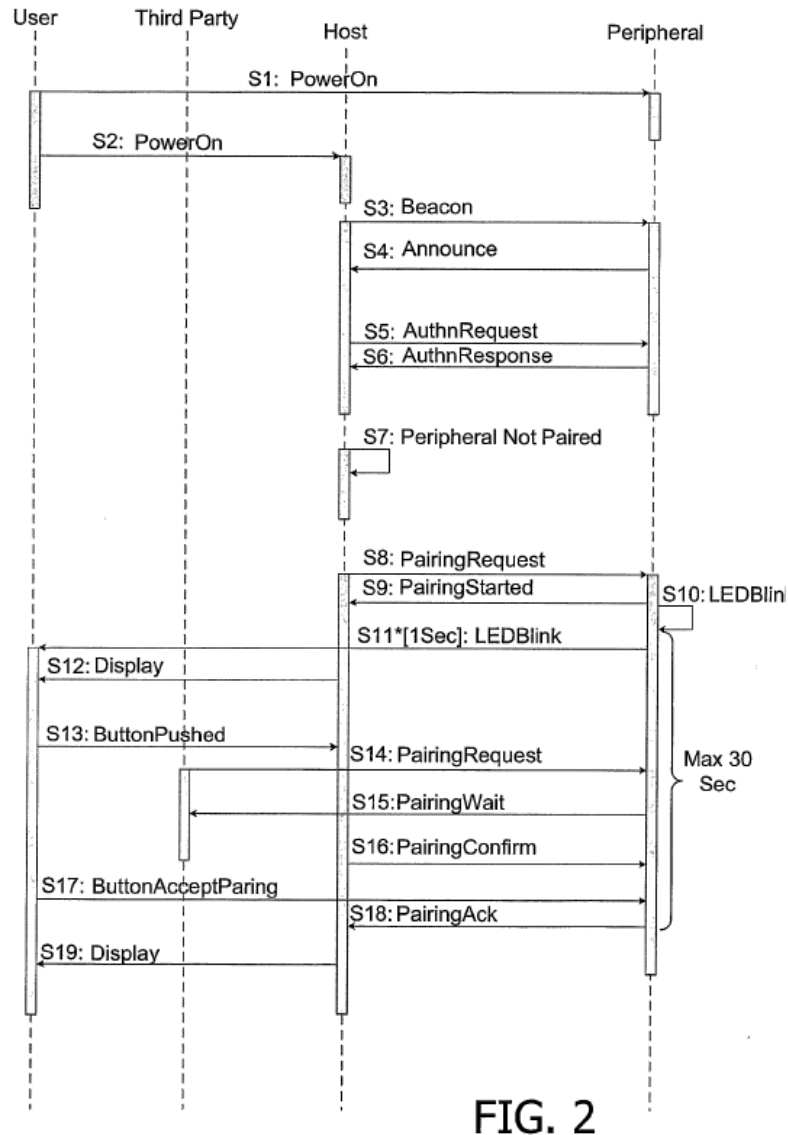


Figure 2, above, shows a pairing process for first electronic device 10 (peripheral device) and second electronic device 20 (host device), in which signals S1–S19 are sent between the devices. *Id.* ¶ 34. According to Vaclair, “[w]hen the user wishes to establish an ad hoc wireless network between the first and second electronic devices 10, 20 . . . he operates the host device 20 as required in order to control this process.” *Id.* ¶ 36. As an example, Vaclair describes that “to initiate the process, the user may select a pairing option from a menu, using the user input 28.” *Id.* As shown in

Figure 2, host device 20 seeks a nearby peripheral device by sending a beacon signal (S3) with its identification. *Id.* ¶ 37. Following an authentication procedure of host device 20 and peripheral device 10, *id.* ¶¶ 39–46, host device 20 requests the initiation of a pairing procedure with peripheral device 20 by sending pairing request signal S8 to peripheral device 10, and peripheral device 10 returns pairing started signal S9 to host device 20. *Id.* ¶ 49. When the pairing process is completed, host device 20 confirms on its display 26 that it is paired with peripheral device 10 (S19). *Id.* ¶ 56.

3. *Kalayjian (Ex. 1006)*

Kalayjian is titled “Location Discovery Using Bluetooth” and is generally directed to a “method and system for locating objects using a Bluetooth communications protocol,” in which a “first device can be paired, using a Bluetooth protocol, with one or more second devices.” Ex. 1006, codes (54), (57). Kalayjian explains that “the first device is referred to as the master device and the one or more second devices are referred to as the slave devices.” *Id.* at code (57). Kalayjian discloses that “[w]hen prompted by a user, the master device can transmit a signal to one of the slave devices,” and the “slave device can then take a predetermined action to attempt to guide a user to its location.” *Id.* As an example, Kalayjian describes that “the slave device can transmit a return signal to the master device or emit auditory or visual alerts itself.” *Id.*

With reference to Figures 3a and 3b, Kalayjian discloses location discovery system 300, which includes first device 310 and second device 320. Ex. 1006 ¶ 32; Figs. 3a, 3b. According to Kalayjian, “[first] [d]evice 310 can be, for example, a Bluetooth capable cellular phone,” and “[s]econd device 320 can be, for example, a Bluetooth enabled wireless phone

headset.” *Id.* ¶¶ 33–34; Figs. 3a, 3b. “Headset 320 can have speaker 324 to emit sounds operable to guide a user to its location.” *Id.* ¶ 34; Figs. 3a, 3b.

Kalayjian discloses that “[w]hen a user wants to locate one of the slave devices 320, 400 and 500, the user can initiate the location discovery process through master device 310,” in which “[m]aster device 310 can transmit a signal to a slave device” and “[u]pon receiving the signal, the slave device can guide a user to its location and/or notify a user of the distance from master device 310 to the slave device.” Ex. 1006 ¶ 38. In an embodiment, “slave devices 320, 400, and 500 can guide a user to their location by emitting auditory or visual signals,” in which a user can “follow the sound or light to the misplaced object.” *Id.* ¶ 39.

Figure 8, reproduced below, illustrates “master device 800” showing a screenshot of a user interface of the device operated in accordance with the principles of the invention. Ex. 1006 ¶¶ 16, 49.

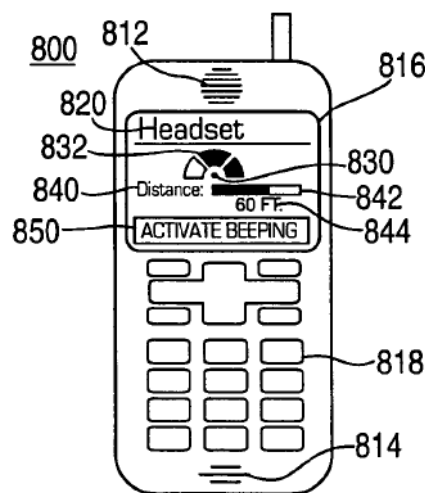


FIG. 8

Figure 8 shows “a screenshot of the user interface of master device 800 when the master device is attempting to locate a slave device.” *Id.* ¶ 49. Screen 816 includes title 820, shown as “Headset” in Figure 8, to identify

the “selected slave device,” and screen 816 includes directional graphic 830 which includes quadrants 832 that represent “different areas in front of master device 800.” *Id.* Screen 816 also includes distance graphic 840 for identifying the “distance between the selected slave device and master device 800,” in which “[d]istance graphic 840 can include a symbolic representation 842 of distance . . . a horizontal bar graphic or a numeric representation of distance 844.” *Id.* Graphical button 850 enables a user to “prompt the slave device to beep, flash or perform a combination of both, or provide some other indication.” *Id.*

With reference to Figure 10, Kalayjian provides a flowchart of method 1000 for locating an object, in which “a master device is paired with one or more slave devices using a Bluetooth communication protocol.” Ex. 1006 ¶¶ 18, 54, Fig. 10. Method 1000 in Figure 10 provides Steps 1010, 1020, and 1030, in which Step 1010 describes “[p]airing a master device with one or more slave device[s] using a Bluetooth® communication protocol.” *Id.* at Fig. 10. Next, Kalayjian describes that “the master device transmits a signal to a slave device” (Step 1020), and “the slave device takes a predetermined action to guide a user to its location” (Step 1030). *Id.* ¶ 54. “The predetermined action could be, for example, turning on a light, emitting a sound, or transmitting a signal back to the master device with information about the slave device’s location.” *Id.*

4. Analysis of Independent Claim 10

Petitioner contends that Kalliola, Vauclair, and Kalayjian teach the limitations of independent claim 10.¹² As support for this contention,

¹² Petitioner relies on the arguments and evidence presented for limitations 1[P]–1(d)(v) for teaching limitations 10[P]–10(d)(iii). Pet. 56, 66–72; *see also id.* at 13–40 (discussing limitations 1[P]–1(d)(v)). In addition, Petitioner

Petitioner identifies certain passages and figures in the references and explains their significance with respect to the corresponding claim limitations, with additional support from the Buehrer Declaration, as detailed below. *See* Pet. 56, 63–72; *see also id.* at 13–40, 48–53.

a. Preamble [10(P)]

The preamble of claim 10 [10(P)] recites “[a] mobile communication device.” Ex. 1001, 38:53.

Petitioner argues that Kalliola teaches the preamble. Pet. 13, 66. For example, Petitioner asserts that Kalliola teaches a “‘wireless **communication device**’ (WCD) 100 that ‘may be anything from a basic cellular handset to a more complex device such as a wirelessly enabled palmtop or laptop computer.’” *Id.* at 13 (quoting Ex. 1004 ¶¶ 2, 35 (emphasis added)). Petitioner contends that “WCD may be a ‘cellular telephone or other handheld wireless device[].’” *Id.* (quoting Ex. 1004 ¶ 38) (citing Ex. 1004, code (54), Fig. 1; Ex. 1003 ¶¶ 132–133) (alteration in original).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches the preamble of claim 10 [10(P)] for purposes of institution.¹³

relies on the arguments and evidence presented for claim 6 for teaching limitation 10(d)(iv). *See id.* at 67; *see also id.* at 63–65 (discussing claim 6). Further, Petitioner relies on the arguments and evidence presented for limitations 1(d)(viii)–(ix) for teaching limitation 10(d)(vii). *See id.* at 72; *see also id.* at 48–53 (discussing limitations 1(d)(viii)–(ix)).

¹³ Petitioner does not take a position as to whether the preamble is limiting. *See generally* Pet. For purposes of this Decision, we make no finding as to whether the preamble is limiting because, regardless of whether the preamble is limiting, Petitioner shows sufficiently, for purposes of institution, that the prior art meets the recitation in the preamble.

b. Limitation 10(a)

Limitation 10(a) recites “a plurality of wireless transceivers.”
Ex. 1001, 38:54.

Petitioner contends that Kalliola teaches this limitation. Pet. 14–19, 66 (citing Ex. 1003 ¶¶ 134–149). For example, Petitioner cites Figure 3 of Kalliola for teaching long-range communications 310 and short-range communications 320. *Id.* at 14–15 (citing Ex. 1004, Fig. 3; ¶¶ 44, 46–47, 49, 53). With reference to Figure 3, Petitioner cites to Kalliola for teaching that “[h]ardware corresponding to communication sections 310, 312, 320 and 340 provide for the **transmission** and **reception** of signals.” *Id.* at 15 (quoting Ex. 1004 ¶ 53 (emphasis added)) (citing Ex. 1004, Fig. 3) (alteration in original). Petitioner also cites to Figure 2 for disclosing long-range communications module 232 and short-range communications module 234, and to Kalliola at paragraph 41 for teaching that “[c]ommunications module 230 utilizes at least these submodules to **receive** a multitude of different types of communication from both local and long distance sources, and to **transmit** data to recipient devices within the transmission range of WCD 100.” *Id.* at 15–16 (quoting Ex. 1004 ¶ 41 (emphasis added), Fig. 2). Petitioner also cites to Figure 1 and paragraph 34 of Kalliola for teaching that “WCD may both **transmit and receive information** over a wide array of **wireless** communication networks.” *Id.* at 16 (quoting Ex. 1004 ¶ 34 (emphasis added)).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(a) for purposes of institution.

c. Limitation 10(b)

Limitation 10(b) recites “a touchscreen.” Ex. 1001, 38:55.

Petitioner argues that Kalliola teaches this limitation. Pet. 19–21, 66 (citing Ex. 1003 ¶¶ 153–154). For example, Petitioner cites to user interface 350 and user input 360 of Figure 3 of Kalliola for teaching that “[u]ser input 360 may include one or more components that allow a user to input information,” including ‘keypads, **touch screens**, and microphones.’” *Id.* at 20–21 (quoting Ex. 1004 ¶ 51 (emphasis added)) (citing Ex. 1004, Fig. 3). Petitioner also contends that it would have been obvious to a person of ordinary skill in the art to “include a touchscreen as a user input 360 as expressly suggested by Kalliola.” *Id.* at 21 (citing Ex. 1003 ¶ 154).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(b) for purposes of institution.

d. Limitation 10(c)

Limitation 10(c) recites “a memory that stores operational instructions.” Ex. 1001, 38:56.

Petitioner contends that Kalliola teaches this limitation. Pet. 19–20, 66 (citing Ex. 1003 ¶¶ 150–152). For example, Petitioner cites to memory 330 of Figure 3 of Kalliola for teaching “software components stored by **memory 330** [that] include **instructions** that can be executed by processor 300.” *Id.* at 19–20 (quoting Ex. 1004 ¶ 46 (emphasis added)) (citing Ex. 1004, Fig. 3; Ex. 1003 ¶ 150) (alteration in original). Petitioner contends that an example of “a software component” is Kalliola’s “seeker application,” and Petitioner cites Kalliola for teaching: “[M]emory 330 may store software components that control the operation of communication sections 310, 320 and 340’ and software components including ‘user interface manager.’” *Id.* at 19–20 (quoting Ex. 1004 ¶ 45) (citing Ex. 1004, Figs. 3, 5; Ex. 1003 ¶¶ 151–152) (alteration in original).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(c) for purposes of institution.

e. Limitation 10(d)(i)

Limitation 10(d)(i) recites “a processor configured to execute operational instructions, wherein the operational instructions cause the processor to present a graphical user interface via the touch screen.” Ex. 1001, 38:57–60.

Petitioner argues that Kalliola teaches this limitation. Pet. 22–25, 66 (citing Ex. 1003 ¶¶ 155–160). For example, Petitioner cites to processor 300 in Figure 3 and to Kalliola for teaching that “[p]rocessor 300 may be implemented with one or more microprocessors that are each capable of **executing software instructions** stored in memory 330.” *Id.* at 23 (quoting Ex. 1004 ¶ 44 (emphasis added)). Petitioner also points to Kalliola for disclosing that “[t]he software components stored by memory 330 include **instructions that can be executed by processor 300.**” *Id.* (quoting Ex. 1004 ¶ 46 (emphasis added)). Further, Petitioner cites Figure 3 for showing that “user interface 350 is also **coupled** to processor 300,” *id.* at 22 (quoting Ex. 1004 ¶ 51) (emphasis added)), in which “user interface 350 includes user input 360, including a touch screen.” *Id.* at 22–23 (citing Ex. 1004 ¶¶ 44, 46, 51, 54, Fig. 3; Ex. 1003 ¶¶ 155–157).

Petitioner also cites Figure 5 of Kalliola as illustrating “the ‘SEEKER’ application’s graphical user interface.” Pet. 23–24 (citing Ex. 1004 ¶¶ 26, 51, 71, 80, Fig. 5; Ex. 1003 ¶¶ 158–160). Petitioner argues that a person of ordinary skill in the art “would have understood the touchscreen to present the seeker application’s GUI [graphical user interface], such as depicted in Fig. 5.” *Id.* at 24–25 (citing Ex. 1003 ¶¶ 158–160).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(d)(i) for purposes of institution.

f. Limitation 10(d)(ii)

Limitation 10(d)(ii) recites “wherein the processor operates in association with the graphical user interface.” Ex. 1001, 38:60–61.

Petitioner contends that Kalliola teaches this limitation. Pet. 25–29, 66 (citing Ex. 1003 ¶¶ 123–128, 130–131). For example, Petitioner argues that “Kalliola’s processor 300 executes ‘software instructions’ stored in memory,” and “[p]rocessor 300 controls overall device operation’ and WCD (which includes processor 300) ‘implements the functionality’ of the disclosed system.” *Id.* at 25 (quoting Ex. 1004 ¶¶ 44, 46). Petitioner asserts that “Kalliola discloses memory 330 stores various software instructions for WCD operation, including ‘software components that control the operation of communication sections 310, 320, and 340,’ a ‘user interface manager, and any communications utilities modules required to support WCD 100.’” *Id.* at 25 (quoting Ex. 1004 ¶ 46). Petitioner also asserts that Kalliola teaches that “WCD’s memory stores software components for performing numerous actions ‘required to support WCD 100,’ such actions include the seeker application.” *Id.* at 27–28 (quoting Ex. 1004 ¶ 46) (citing Ex. 1003 ¶ 127).

Further, Petitioner cites Figure 2 and points to Kalliola for teaching that “[c]ontrol module 210 regulates the operation of the device. Inputs may be received from various other modules included within WCD 100 Control module 210 interprets these data inputs, and in response, may issue control commands to the other modules in WCD.” Pet. 25–27 (quoting Ex. 1004 ¶ 40) (citing Ex. 1004 ¶¶ 19–20, 39, 44–45, Fig. 2) (alteration in original). Petitioner also points to Kalliola for teaching: “‘User interface

module 240 . . . allow[s] the user 110 to receive data from, and enter data into, the device. The data entered by user 110 may be interpreted by control module 210 to affect the behavior of WCD 100.” *Id.* at 27 (quoting Ex. 1004 ¶¶ 42, 51) (alterations in original).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(d)(ii) for purposes of institution.

g. Limitation 10(d)(iii)

Limitation 10(d)(iii) recites “respond to a first user interaction with the touchscreen by pairing, via at least one of the plurality of wireless transceivers, the mobile communication device with at least one remote device.” Ex. 1001, 38:62–65.

Petitioner argues that Kalliola and Vauclair teach this limitation. Pet. 29–32, 36, 66 (citing Ex. 1003 ¶¶ 163–170, 172–176). For example, Petitioner asserts that Vauclair teaches a pairing process between first electronic device 10 (peripheral device, including a mobile telephone handsfree kit) and second electronic device 20 (host device, including a mobile telephone), in which devices 10 and 20 communicate according to a wireless protocol, including Bluetooth, and in which devices 10 and 20 include processors connected to transceiver circuitry 14, 24. *Id.* at 31 (citing Ex. 1005 ¶¶ 22, 24, 28, Fig. 1; Ex. 1003 ¶¶ 165–166). Petitioner points to Vauclair for disclosing that “**to initiate the [pairing] process, the user may select a pairing option from a menu, using the user input 28.**” *Id.* at 32 (quoting Ex. 1005 ¶ 36 (emphasis added)) (citing Ex. 1005 ¶ 30; Ex. 1003 ¶ 167) (alteration in original). In addition, Petitioner cites to Kalliola for teaching signal emitter 500 in Figure 5 as a target object to be located through communications via Bluetooth with wireless communication device

100. *Id.* at 29–31 (citing Ex. 1004 ¶¶ 73–75, 77; Figs. 5, 6; Ex. 1003 ¶¶ 163–164).

Petitioner contends that it would have been obvious to a person of ordinary skill in the art to “combine the prior art elements of Kalliola’s WCD communicating with a signal emitter via Bluetooth with Vauclair’s pairing menu and processor signals to yield the predictable result of a pairing signal in response to a first indication from a user to pair the WCD to the signal emitter” because “Bluetooth pairing and pairing menus were conventional well prior to the invention of the ’680 patent” and “there would have been a reasonable expectation of success.” Pet. 36 (citing Ex. 1003 ¶ 175; Ex. 1004 ¶ 4).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola and Vauclair teach limitation 10(d)(iii) for purposes of institution.

h. Limitation 10(d)(iv)

Limitation 10(d)(iv) recites “the at least one remote device including a sound emitter configured to generate an audio alert.” Ex. 1001, 38:65–67.

Petitioner contends that Kalliola and Kalayjian teach this limitation. Pet. 63–65, 67 (citing Ex. 1003 ¶¶ 239–247). For example, Petitioner asserts that Kalayjian discloses that “in response to the signal sent from the first device to the second device, ‘the slave device can guide a user to its location.’” *Id.* at 63 (quoting Ex. 1006 ¶ 38). Petitioner cites to Kalayjian for teaching that “slave devices 320, 400 and 500 can guide a user to their location by **emitting auditory or visual signals.**” *Id.* at 63–64 (quoting Ex. 1006 ¶ 39 (emphasis added)). Further, Petitioner contends that a person of ordinary skill in the art would have been motivated to “configure Kalliola’s signal emitter . . . to include a speaker and emit an audible signal”

because “causing the signal emitter to emit an audible alert, as taught by Kalayjian, would have allowed the user to locate the lost item using his or her auditory senses, which would have allowed the user to more easily locate objects hidden from view.” *Id.* at 64–65 (citing Ex. 1003 ¶¶ 243–246; Ex. 1006 ¶ 39).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola and Kalayjian teach limitation 10(d)(iv) for purposes of institution.

i. Limitation 10(d)(v)

Limitation 10(d)(v) recites “facilitate, via a second interaction with the touchscreen, selection of the at least one remote device from a plurality of remote devices.” Ex. 1001, 39:1–3.

Petitioner argues that Kalliola teaches this limitation. Pet. 67–68 (citing Ex. 1003 ¶¶ 260). For example, Petitioner cites Figure 5 of Kalliola which shows a display on wireless communication device 100, and in which the “SEEKER” application allows a user to select a target object to be located. *Id.* (citing Ex. 1004 ¶ 71, Fig. 5). Petitioner points to Kalliola for teaching that “[t]he ‘KEYS’ target object is **currently selected**.” *Id.* (quoting Ex. 1004 ¶ 71 (emphasis added)) (alteration in original).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(d)(v) for purposes of institution.

j. Limitation 10(d)(vi)

Limitation 10(d)(vi) recites “respond to a third interaction with the touchscreen by transmitting, via at least one of the plurality of wireless transceivers, a first paging signal to the at least one remote device, wherein

the first paging signal causes the at least one remote device to generate the audio alert.” Ex. 1001, 39:4–9.

Petitioner contends that Kalliola, Vauclair,¹⁴ and Kalayjian teach this limitation. Pet. 68–72 (citing Ex. 1003 ¶¶ 261–270). For example, Petitioner cites Figure 8 of Kalayjian and asserts that Kalayjian teaches that “[s]creen 816 can include **graphical button 850 to enable the user to prompt the slave device to beep.**” *Id.* at 68 (quoting Ex. 1006 ¶ 49 (emphasis added)) (citing Ex. 1006, Fig. 8) (alteration in original). Petitioner also points to Kalayjian for teaching the transmission of signals using a “Bluetooth communications protocol” and that “[w]hen **prompted by a user**, the **master device can transmit a signal** to one of the slave devices,” and the “slave device can then take a predetermined action to attempt to guide a user to its location. For example, the slave device can . . . emit **auditory** or visual **alerts** itself.” *Id.* at 69 (quoting Ex. 1006 ¶ 54 (emphasis added)) (citing Ex. 1006, Fig. 10, code (57); Ex. 1003 ¶ 262) (second alteration in original). Petitioner argues that “[t]he signal transmitted from the first device to the second device via Bluetooth communications protocol is a *paging signal*” and points to the Specification of the ’680 patent for support, stating: “[t]he ’680 Patent states ‘paging signals . . . sent by a single device are received by all other devices and cause each of the receiving devices to generate a detectable alert signal.’” *Id.* at 69–70 (quoting Ex. 1001, 16:3–6; Ex. 1003 ¶¶ 263–264); *see also id.* at 70 (citing Ex. 1001, 7:47–53) (alteration in

¹⁴ Petitioner relies primarily on Kalayjian for teaching limitation 10(d)(vi) and discusses Kalliola and Vauclair in the context of Petitioner’s arguments for modifying “Kalliola-Vauclair” to include Kalayjian’s teachings and for providing a motivation to combine the references. *See* Pet. 70–72 (citing Ex. 1003 ¶¶ 265–270).

original). Petitioner further contends that “[b]ecause Kalayjian teaches the first device transmits a signal . . . that causes the second device to generate a detectable alert signal, Kalayjian teaches a *paging signal* within the context of the ’680 Patent.”¹⁵ *Id.* at 70 (citing Ex. 1003 ¶¶ 263–264).

Further, Petitioner argues that it would have been obvious to a person of ordinary skill in the art to modify Kalliola-Vauclair with Kalayjian because “there would have been a reasonable expectation of success modifying Kalliola’s seeker application to generate audible alerts in response to a user interaction, as taught by Kalayjian.” Pet. 70–72 (citing Ex. 1003 ¶¶ 265–270).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola, Vauclair, and Kalayjian teach limitation 10(d)(vi) for purposes of institution.

k. Limitation 10(d)(vii)

Limitation 10(d)(vii) recites “present a display on the touchscreen, based on a signal received via at least one of the plurality of wireless transceivers from the at least one remote device, wherein the display visually

¹⁵ We note that Petitioner’s arguments regarding a “paging signal” potentially raise an interpretation issue with respect to this claim term. *See* Pet. 69–70 (citing Ex. 1001, 16:3–6). For example, is a “paging signal”: (1) a signal that is sent to multiple devices; (2) a signal that causes a receiving device to generate a detectable alert signal; (3) a signal that is sent to multiple devices and that causes the receiving devices to generate a detectable alert signal; and/or (4) another type of signal(s). As noted, on the present record, Patent Owner does not dispute the interpretation of “paging signal” in the context of Petitioner’s arguments. However, we invite the parties to provide briefing on this issue for trial to provide clarification regarding the meaning of this claim term.

assists a user to determine a location of the at least one remote device.”

Ex. 1001, 39:10–14.

Petitioner argues that Kalliola teaches this limitation. Pet. 48–53, 72 (citing Ex. 1003 ¶¶ 204–208, 211–212, 214–276). For example, Petitioner cites Figure 5 of Kalliola and asserts that “Figure 5 shows a screenshot of the seeker application where ‘the display shows both a list of possible target objects and an arrow pointer’ pointing in the direction of the selected KEYS signal emitter.” *Id.* at 48 (quoting Ex. 1004 ¶ 71) (citing Ex. 1004, Fig. 5); *see also id.* at 48–49 (citing Ex. 1004 ¶ 44, 51, 83, Fig. 6; Ex. 1003 ¶¶ 204–208). Petitioner also points to Figure 9 of Kalliola at Step 942 for describing: “Receiving transmission including specific preamble, service field and ID.” *Id.* at 50–51 (citing Ex. 1004 ¶¶ 72–73, 82, Fig. 9; Ex. 1003 ¶¶ 210–212).

Based on our review and consideration of the current record, we determine that Petitioner has sufficiently shown that Kalliola teaches limitation 10(d)(vii) for purposes of institution.

l. Conclusion Regarding Independent Claim 10

Based on the current record, and for the reasons set forth above, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in its challenge to at least claim 10 as unpatentable based on obviousness over Kalliola, Vauclair, and Kalayjian, which is sufficient for institution. *See* 35 U.S.C. § 314(a).

5. Analysis of Claims 11, 15–17, and 20

Claims 11, 15–17, and 20 depend from independent claim 10. Because we preliminarily determine above that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 10 of the ’680 patent, we institute *inter partes* review on all claims and grounds. *See* 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will

authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”). At this stage of the proceeding, it is therefore not necessary for us to provide an assessment of every challenge raised by Petitioner as to dependent claims 11, 15–17, and 20, especially when, as in this case, Patent Owner did not file a Preliminary Response. Such challenges, in our view, are best resolved at trial following full development of the record.

6. Analysis of Claims 1, 2, 3, and 6

With respect to claim 1, we provide the following preliminary findings to provide guidance to the parties and potentially streamline issues for trial. We specifically address the claim language “the pairing signal generated by the graphical user interface” in limitation 1(d)(v).

Limitations 1(d)(ii), 1(d)(iii), and 1(d)(iv), in conjunction with limitation 1(d)(v), recite:

[1(d)(ii)] wherein the processor executes the operational instructions that cause the processor to present a graphical user interface via the touch screen and

[1(d)(iii)] wherein the processor operates in association with the graphical user interface to:

[1(d)(iv)] generate a pairing signal in response to a first indication from a user to pair the mobile communication device to at least one remote device,

[1(d)(v)] wherein the at least one of the plurality of wireless transceivers, responds to the pairing signal generated by the graphical user interface by communicating RF signals to pair the mobile communication device to the at least one remote device;

Ex. 1001, 37:57–38:2 (emphasis added).

Petitioner asserts that the combination of Kalliola and Vauclair teaches all of the limitations of claim 1, and we focus on the arguments and

evidence presented for limitations 1(d)(iv) and 1(d)(v). *See* Pet. 29–40 (citing Ex. 1003 ¶¶ 167–186). Specifically, for limitation 1(d)(v), Petitioner relies on Vauclair for teaching the pairing process. *Id.* at 37–38 (citing Ex. 1005 ¶¶ 24, 28, 40, 36–37, 56, Fig. 2; Ex. 1003 ¶¶ 179–180). Petitioner further argues that it would have been obvious to a person of ordinary skill in the art to “configure Kalliola’s Bluetooth transceiver with Vauclair’s teachings regarding communicating RF signals to pair devices.” *Id.* at 39 (citing Ex. 1003 ¶¶ 183–185).

Petitioner also argues, with respect to limitation 1(d)(iv), that Vauclair teaches “*generate a . . . signal . . . where the signal [is] generated by the graphical user interface . . .*” Pet. 33 (citing Ex. 1005 ¶ 30; Ex. 1003 ¶ 168). Specifically, Petitioner contends:

Vauclair teaches that the selection of a menu option sends a signal to control circuitry: ‘user input 28...allow[s] the user **to select from available menu options, to send a signal to the control circuitry.**’ *Vauclair*, [0030]. Vauclair thus teaches *generate a...signal* (i.e., the signal sent to the control circuitry responsive to the user selection of a menu option), where the *signal [is] generated by the graphical user interface* (i.e., the signal is generated at the GUI because the signal is responsive to user selection of the pairing option).

Id. (citing Ex. 1005 ¶ 30; Ex. 1003 ¶ 168) (alterations in original).

In support, the Buehrer Declaration states:

Vauclair also teaches *generat[ing] a pairing signal*, where the *pairing signal [is] generated by the graphical user interface* (as recited in Claim 1(d)(v)). As discussed above, Vauclair teaches the user’s selection of the pairing option from the menu via user input 28, thus teaching *a first indication...to pair*. *Vauclair* at [0036]. Vauclair further teaches that “user input 28...allow[s] the user **to select from available menu options, to send a signal to the control circuitry.**” *Id.* at [0030] (emphasis added). Therefore, Vauclair teaches *generat[ing] a...signal*

(i.e., the signal sent to the control circuitry responsive to the user selection of a menu option), where the *signal [is] generated by the graphical user interface* (i.e., the signal is generated at the GUI because the signal is responsive to user selection of the pairing option).

Ex. 1003 ¶ 168 (alterations in original).

As noted above, for purposes of this Decision, we adopt the following construction for “[a] pairing signal” proposed by Petitioner: “[p]rocessor signal to initiate a wireless device pairing sequence.” Pet. 6 (quoting Ex. 1009, 15–16).

Limitation 1(d)(v) requires that “the pairing signal” is “generated by the graphical user interface.” Ex. 1001, 37:66–67. With respect to a “graphical user interface,” Petitioner asserts that “Vauclair . . . teaches a display 26 displaying a GUI (pairing menu) and a user input 28 that allows the user to select a menu option at the GUI.” Pet. 32 (citing Ex. 1005 ¶ 30; Ex. 1003 ¶ 167). In asserting that Vauclair teaches limitation 1(d)(v), Petitioner relies, in part, on paragraph 30 of Vauclair, *see* Pet. 31–33, in which Vauclair discloses that

the second electronic device . . . is provided with a display 26, which operates under the control of the control circuitry 22, and can for example display detailed messages, or menu options, to the user. The second electronic device is also provided with *user input 28*, which may for example include a keypad, and one or more scroll buttons, allowing *the user to select from available menu options, to send a signal to the control circuitry 22*.

Ex. 1005 ¶ 30 (emphasis added).

Our emphasis above underscores that Vauclair discloses that it is “user input 28” that allows the user “to select from available menu options, *to send a signal to the control circuitry 22*.” Ex. 1005 ¶ 30 (emphasis added). It is thus the “user input 28” that “send[s] a signal to the control

circuitry 22.” *Id.* While Vauclair discloses that display 26 can present menu options, *id.*, it does not disclose anything more than that it is the action of user input that selects and sends a signal. *See id.* While the Buehrer Declaration states that “the signal [is] generated by the graphical user interface (i.e., the signal is generated at the GUI *because the signal is responsive to user selection* of the pairing option),” Ex. 1003 ¶ 168 (emphasis added) (alteration in original), we preliminarily find that this testimony is conclusory because there is no explanation as to why the presentation of menu options on the display in Vauclair, with selection by user input, teaches that it is the *graphical user interface* that *generates the signal*. Instead, as discussed above, Vauclair teaches that it is user input 28 that “send[s] a signal to the control circuitry 22.” Ex. 1005 ¶ 30.

Claims 2, 3, and 6 depend directly from claim 1, and because Petitioner’s arguments and evidence for the dependent claims do not appear to cure the shortcomings as to claim 1, the showing for the dependent claims also appears to be deficient.

E. Remaining Grounds

As set forth in Section II.E. *supra*, Petitioner additionally challenges claims 1, 4, 7, and 8 as unpatentable over Kalliola and Vauclair; claim 5 as unpatentable over Kalliola, Vauclair, and Turunen; claims 18 and 19 as unpatentable over Kalliola, Vauclair, Kalayjian, and Turunen; claim 9 as unpatentable over Kalliola, Vauclair, and Trimble; and claim 12 as unpatentable over Kalliola, Vauclair, Kalayjian, and Trimble (*see* Pet. 5–56, 73–78), which contentions are unchallenged on the record before us. As noted *supra*, because Petitioner demonstrates a reasonable likelihood of success in demonstrating that at least one claim of the ’680 patent is

unpatentable, we institute review on all grounds and all claims raised in the Petition. *See* 37 C.F.R. § 42.108(a).

IV. CONCLUSION

For the above reasons, we determine that there is a reasonable likelihood that Petitioner would prevail with respect to at least one of claims 1–12 and 15–20 of the ’680 patent challenged in the Petition. Accordingly, we institute an *inter partes* review of all challenged claims based on all asserted grounds of unpatentability set forth in the Petition. *See* 35 U.S.C. § 314(a)(1) (2018); 37 C.F.R. § 42.108(a); *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019)¹⁶ at 5 (“The Board will not institute on fewer than all claims or all challenges in a petition.”).

Our factual findings, conclusions of law, and determinations at this stage of the proceeding are preliminary, and based on the evidentiary record developed thus far. Petitioner bears the burden to demonstrate unpatentability, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). This is not a final decision as to the patentability of claims for which *inter partes* review is instituted. Our final decision will be based on the record as fully developed during trial.

V. ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314, an *inter partes* review of claims 1–12 and 15–20 of the ’680 patent is hereby instituted based on all grounds of unpatentability set forth in the Petition; and

¹⁶ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), an *inter partes* review of claims 1–12 and 15–20 of the '680 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of trial.

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