

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
GARTH D. BAER, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

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) in support of the Petition. THL Holding Company (“Patent Owner”) did not file a Preliminary Response.

On July 25, 2024, the Board instituted an *inter partes* review of the challenged claims pursuant to 35 U.S.C. § 314. Paper 6 (“Dec.”). Patent Owner filed a Request for Rehearing (Paper 8), which states that Patent Owner disclaimed claims 10–12 and 15–20 (*id.* at 2; Ex. 2001) and sought denial of institution. The Request for Rehearing was denied (Paper 9).

Patent Owner filed a Patent Owner Response (Paper 12, “PO Resp.”), along with a Declaration of Dr. Martin J. Feuerstein (Ex. 2002). Petitioner filed a Reply (Paper 16, “Pet. Reply”). Patent Owner filed a Sur-reply (Paper 17, “PO Sur-reply”). The parties presented oral arguments at an April 29, 2025 hearing, and a hearing transcript has been entered into the record (Paper 23, “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 preponderance of the evidence, that claims 1–9 of the ’680 patent are unpatentable.

B. Real Party 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).

C. Related Matters

Petitioner identifies *THL Holding Company, LLC v. Apple, Inc.*, Case No. 6:23-cv-00077, filed in the Western District of Texas, as a related matter. Pet. 80. Patent Owner also identifies *THL Holding Company, LLC v. Apple, Inc.*, Case No. 1:23-cv-0058-OLG, filed in the Western District of Texas as a related matter. Paper 5, 1.

D. The '680 Patent (Ex. 1001)

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. Ex. 1001, codes (21), (22), (45), (54). The '680 patent application is the continuation of several other applications. *Id.* at code (63).

The '680 patent is directed to a "wireless device [that] 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 includes a "short-range wireless transceiver [that] 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.

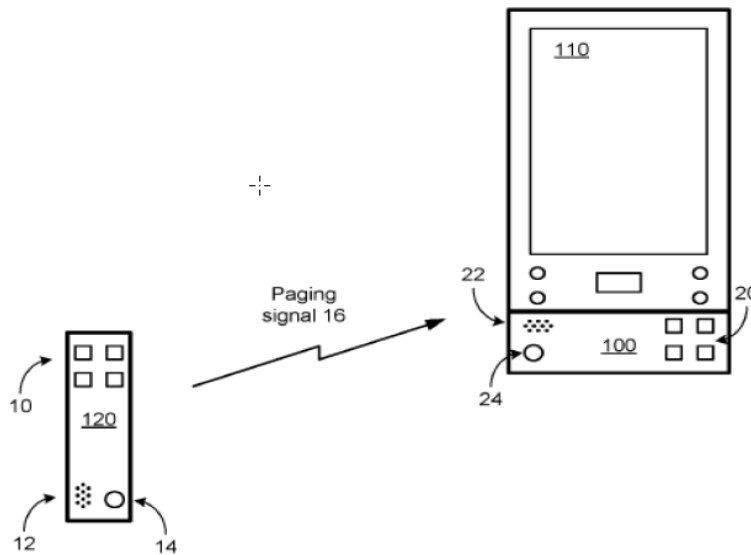


FIG. 1

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. Ex. 1001, 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 includes 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. Handheld wireless communication device 110, shown in Figure 1 above, 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. *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.

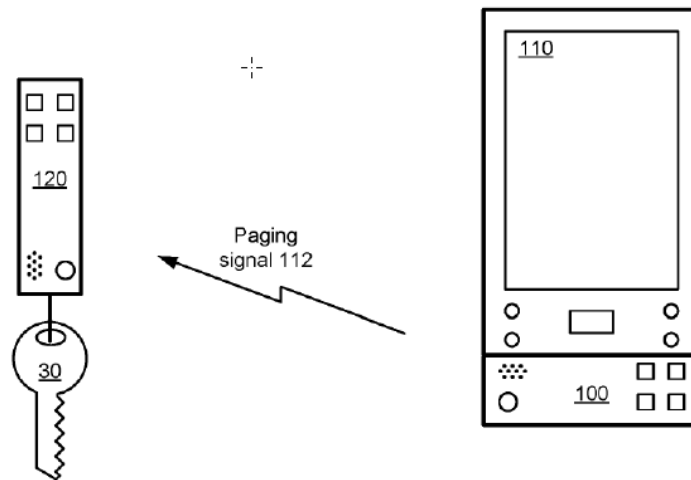


FIG. 4

Figure 4, above, shows adjunct device 100 and wireless device 120 operating in a “reciprocal fashion” to locate wireless device 120. Ex. 1001, 7:35–40. As shown in 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 that receives paging signal 112 transmitted by adjunct device 100. *Id.* at 7:47–49. 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.

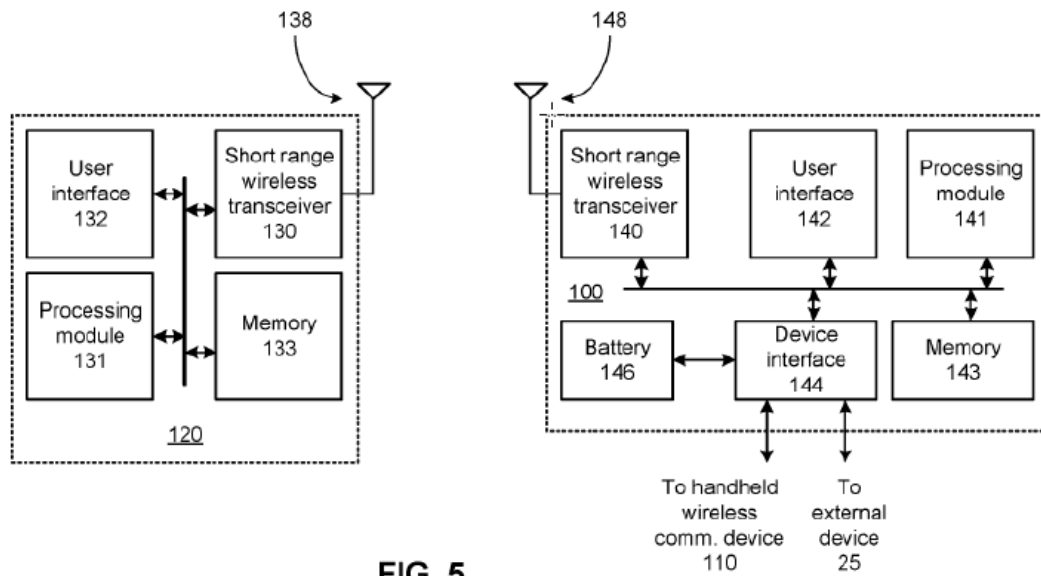


FIG. 5

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. Ex. 1001, 8:3–8. 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. 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.

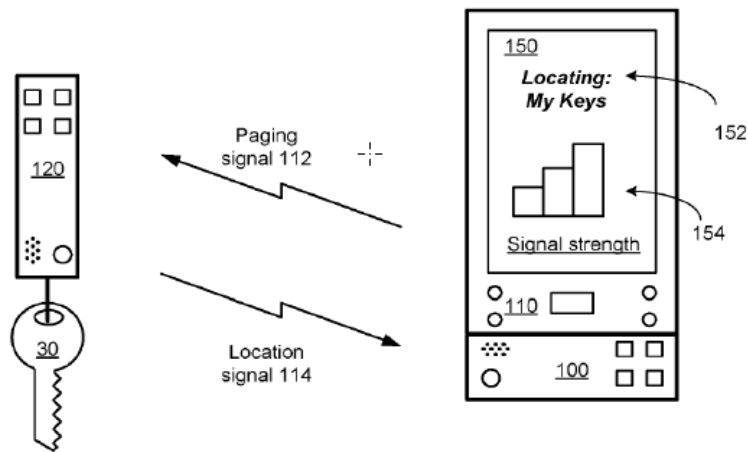


FIG. 6

Figure 6, above, shows adjunct device 100 attached, or coupled, to handheld wireless communication device 110 which includes display screen 150. Ex. 1001, 10:37–40. 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. 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. The '680 patent states 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 10:63–66.

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.

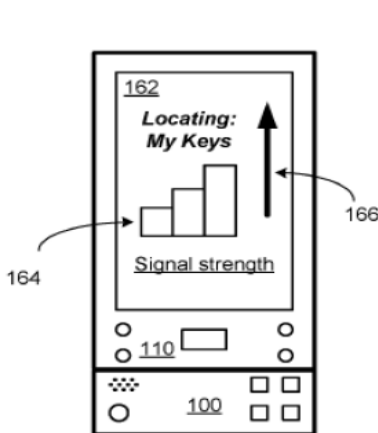


FIG. 8

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. Ex. 1001, 12:4–9. 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 18, reproduced below, is a pictorial representation of screen display 170 in accordance with an embodiment. Ex. 1001, 3:50–52.

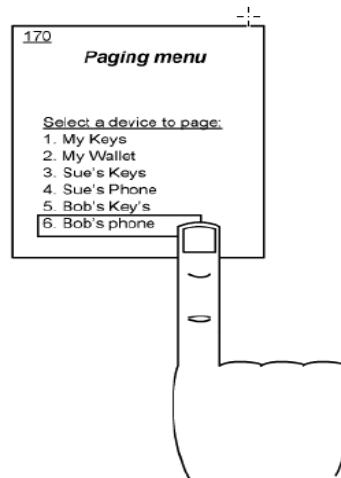


FIG. 18

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.” Ex. 1001, 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.

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.

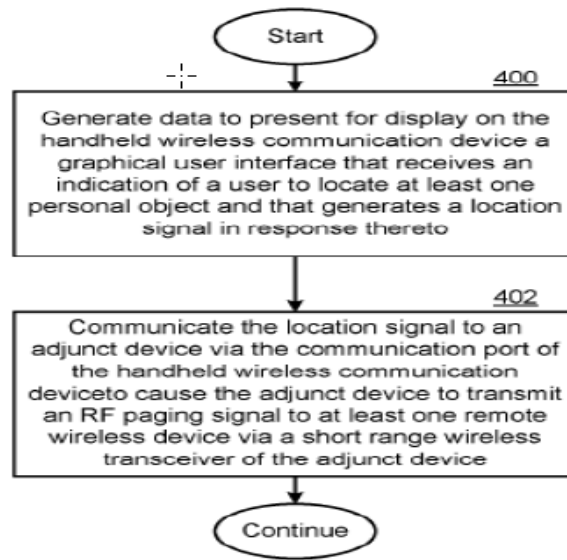


FIG. 37

Figure 37, above, shows Step 400, in which “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.” Ex. 1001, 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.

E. Claims

As discussed above, Patent Owner has disclaimed claims 10–12 and 15–20 of the ’680 patent. Ex. 2001. Claim 1 is the only remaining

challenged independent claim and is reproduced below, with bracketed letters provided by Petitioner added to limitations for reference purposes:

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.

Ex. 1001, 37:52–38:19.

F. Asserted Grounds of Unpatentability

Claim(s) Challenged¹	35 U.S.C. §²	Reference(s)/Basis
1, 4, 7, 8	103(a)	Kalliola, ³ Vauclair ⁴
2, 3, 6	103(a)	Kalliola, Vauclair, Kalayjian ⁵
5	103(a)	Kalliola, Vauclair, Turunen ⁶
9	103(a)	Kalliola, Vauclair, Trimble ⁷

Pet. 5.

¹ We omit claims 10–12 and 15–20, and the grounds associated with only these disclaimed claims, from the listing of claims challenged because Patent Owner has disclaimed these claims. *See* Ex. 2001.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 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.

³ 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 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.

⁵ 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 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 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.

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Relying on the Buehrer Declaration, Petitioner contends that a 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).

Patent Owner agrees with the qualifications proposed by Petitioner: “this description reasonably represents the level of ordinary skill necessary to understand and implement the teachings of the ’680 Patent, as well as the prior art cited in this proceeding.” PO Resp. 13–14 (citing Ex. 2002 ¶ 22).

For the purposes of this Decision, we adopt the assessment offered by Petitioner as it is consistent with the ’680 patent and the prior art before us. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

B. Claim Construction

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).

“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).

Petitioner proposes that, based on Patent Owner’s proposed construction in the parallel litigation, we construe “pairing signal” as “[p]rocessor signal to initiate a wireless device pairing sequence.” Pet. 6 (quoting Ex. 1009, 15–16⁸). In Response, Patent Owner adopts Petitioner’s interpretation of this term. PO Resp. 14. We adopt the parties’ proposed construction for this term.

We determine that we need not construe any other 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.’”) (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(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art;

⁸ Petitioner refers to page 4 of Exhibit 1009, but in context, the correct citation is pages 15 to 16.

(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.⁹ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

D. Obviousness of Claims 1, 4, 7 and 8 over Kalliola and Vauclair

Petitioner contends that claims 1, 4, 7, and 8 would have been obvious over Kalliola and Vauclair in the view of one of ordinary skill in the art. Pet. 13–56. Petitioner also relies upon the Buehrer Declaration (Ex. 1003) to support its positions.

Patent Owner contends that Kalliola and Vauclair fail to teach certain limitations of the claims. PO Resp. 14–19; PO Sur-reply 2–13. Patent Owner also relies upon the Feuerstein Declaration (Ex. 2002) to support its positions.

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

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

⁹ No evidence of objective indicia of nonobviousness has been presented in the record. *See generally* Pet.; PO Resp.

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.

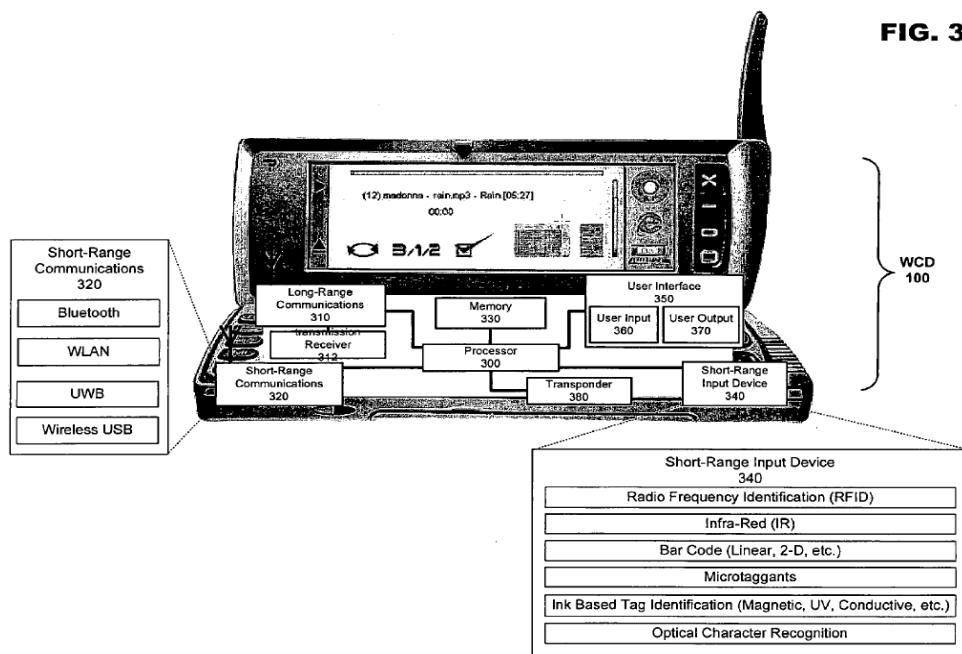


Figure 3, above, shows wireless communication device (WCD) 100, including blocks listing various components. Ex. 1004 ¶¶ 45–55. Kalliola describes that short-range communications 320, including Bluetooth, WLAN, UWB, and wireless USB connections, exchange information across short-range wireless networks. *Id.* ¶ 49. Kalliola describes that short-range communications 320 perform 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 350 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.

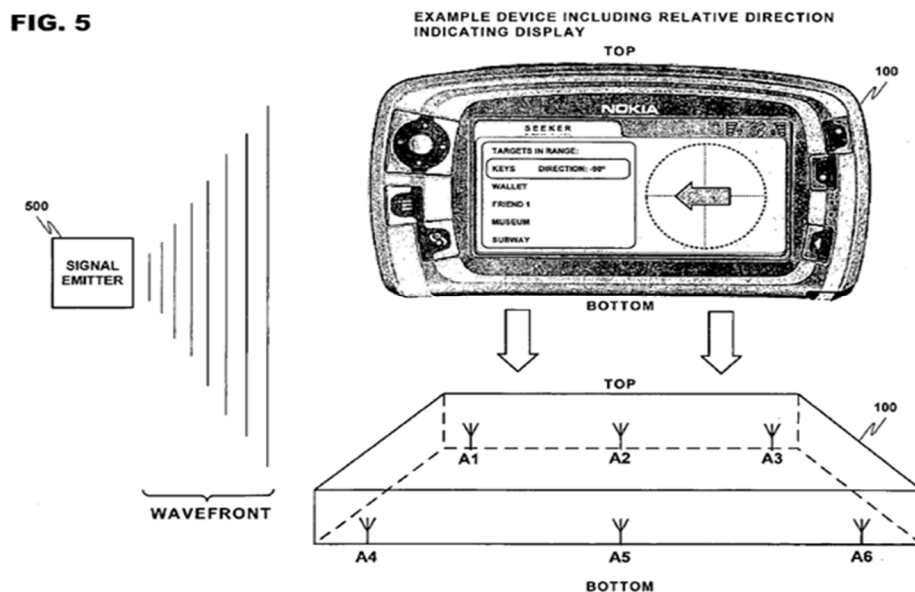


Figure 5, above, shows an example display on wireless communication device 100, in which the display lists possible target objects and a directional

arrow pointer. Ex. 1004 ¶ 71. The display shows the “Seeker” application and a list titled, “Targets in Range,” in which the list includes various target objects, 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.*

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.

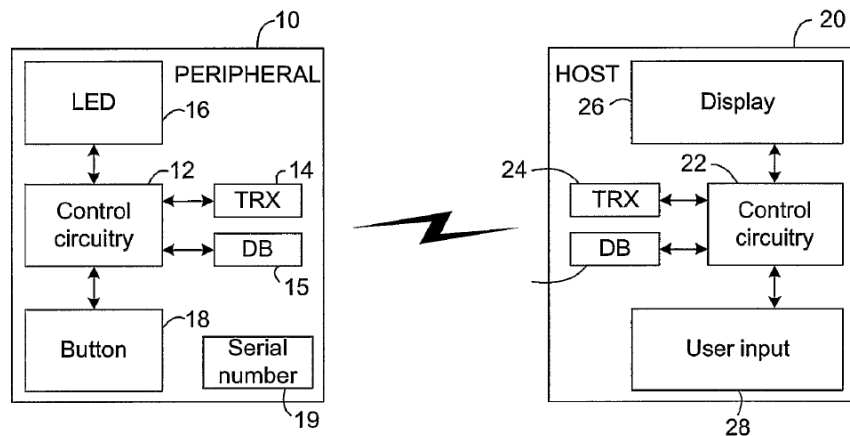


FIG. 1

Figure 1, above, shows “first electronic device 10,” which may be a “peripheral device,” and “second electronic device 20,” which may be a “host device.” Ex. 1005 ¶ 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 the first and second electronic devices “could communicate according to any wireless or wired protocol, for example such as . . . Bluetooth.” *Id.*

Figure 1 also 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.

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.

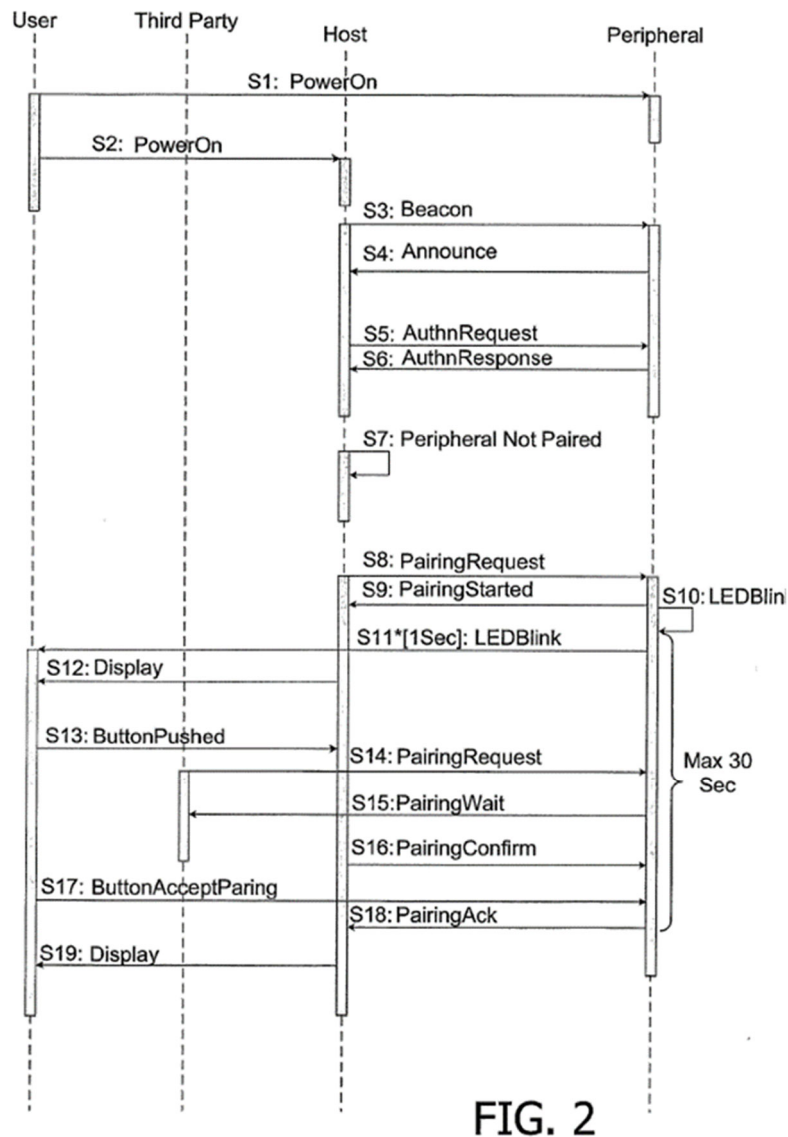


Figure 2, above, shows a pairing process for first electronic device 10 (peripheral device) and second electronic device 20 (host device), in which signals S1–S19 are sent between the devices. Ex. 1005 ¶ 34. According to Vauclair, “[w]hen the user wishes to establish an ad hoc wireless network between 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, Vauclair 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. Discussion

a. Claim 1

Below we address the claim 1 limitations in turn.

i. Preamble 1[P]

The preamble of claim 1 (1[P]) recites “[a]mobile communication device.” Ex. 1001, 37:52. Petitioner argues that Kalliola teaches the preamble. Pet. 13–14. 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 omitted). Petitioner further 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).

Patent Owner does not present any arguments specifically related to the preamble. *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of the preamble. On this complete record, we agree with Petitioner that Kalliola teaches the preamble of claim 1.¹⁰

ii. Limitation 1(a)

Limitation 1(a) recites “a plurality of wireless transceivers.”
Ex. 1001, 37:53.

Petitioner contends that Kalliola teaches this limitation. Pet. 14–19 (citing Ex. 1003 ¶¶ 134–149). Petitioner refers to Figure 3 of Kalliola, which depicts long-range communications 310 and short-range communications 320 hardware, as well as the disclosure of “[h]ardware corresponding to communication sections 310, 312, 320 and 340 provide for the transmission and reception of signals.” *Id.* at 14–15 (citing Ex. 1004 ¶¶ 44, 46–47, 49, 53, Fig. 3). Petitioner also refers to Figure 2 for disclosure of long range communications module 232 and short-range communications module 234, and to Kalliola’s disclosure that the “[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 (citing Ex. 1004 ¶ 41, Fig. 2) (emphasis omitted). Petitioner further refers to Figure 1 and Kalliola’s disclosure that “WCD may both transmit and receive information over a wide array of wireless communication networks.” *Id.* at 16 (citing Ex. 1004 ¶ 34, Fig. 1).

Patent Owner does not present any arguments specifically related to limitation 1(a). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

¹⁰ We need not determine whether the preamble of claim 1 is limiting because Petitioner has shown that the prior art teaches the preamble.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(a). On this complete record, we agree with Petitioner that Kalliola teaches limitation 1(a).

iii. Limitation 1(b)

Limitation 1(b) recites “a memory that stores operational instructions.” Ex. 1001, 37:54. Petitioner contends that Kalliola teaches this limitation by its memory 330, as shown in Figure 3, and its disclosure of “software components stored by memory 330 [that] include instructions that can be executed by processor 300.” Pet. 19–20 (citing Ex. 1004 ¶ 46, Fig. 3; Ex. 1003 ¶ 152). Petitioner contends that an example of “a software component” is Kalliola’s “seeker application,” and refers to Kalliola’s disclosure of “‘memory 330 [that] 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 (quoting Ex. 1004 ¶ 45) (citing Ex. 1004, Figs. 3, 5; Ex. 1003 ¶¶ 151–152).

Patent Owner does not present any arguments specifically related to limitation 1(b). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(b). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

iv. Limitation 1(c)

Limitation 1(c) recites “a touch screen.” Ex. 1001, 37:55. Petitioner argues that Kalliola’s WCD includes a user interface that includes user input 360, wherein the “[u]ser interface is ‘coupled to the processor’ and ‘facilitates the exchange of information with a user.’” Pet. 20 (citing Ex. 1004 ¶ 51). Petitioner asserts Kalliola discloses that “[u]ser input 360 may

include one or more components that allow a user to input information,’ including ‘keypads, touch screens, and microphones,’” so “user input 360 includes the claimed touch screen.” *Id.* at 20–21 (citing Ex. 1004 ¶ 51, Fig. 3; Ex. 1003 ¶ 153) (emphasis omitted).

Patent Owner does not present any arguments specifically related to limitation 1(c). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(c). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

v. Limitation 1(d)(i)

Limitation 1(d)(i) recites “a processor coupled to the memory and to the touch screen.” Ex. 1001, 37:56–57. Petitioner contends Kalliola includes processor 300 that “controls overall device operation” of the WCD. Pet. 22 (citing Ex. 1004 ¶ 44). Petitioner asserts that “Kalliola expressly teaches ‘coupling separate hardware components corresponding to processor 300, . . . memory 330, . . . user interface 350.’” *Id.* (citing Ex. 1004 ¶ 54).

Patent Owner does not present any arguments specifically related to limitation 1(d)(i). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(i). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

vi. Limitation 1(d)(ii)

Limitation 1(d)(ii) recites “wherein the processor executes the operational instructions that cause the processor to present a graphical user interface via the touch screen.” Ex. 1001, 37:57–59. Petitioner asserts that Kalliola discloses a “processor [that] executes the operational instructions”

by its disclosure of a “[p]rocessor 300 [that] may be implemented with one or more microprocessors that are each capable of executing software instructions stored in memory 330.” Pet. 23 (citing Ex. 1004 ¶¶ 44, 46) (emphasis omitted). Petitioner also contends Kalliola teaches software instructions that cause the processor to present a graphical user interface via the touch screen by its disclosure, for instance, of the “seeker” application graphical interface, as shown in Figure 5, and the disclosure that it includes “an example display shown on WCD 100 that is viewable by user 110.” *Id.* at 24 (citing Ex. 1004 ¶¶ 26, 51, 71, 80, Fig. 5; Ex. 1003 ¶¶ 158–159) (emphasis omitted). Petitioner argues that “[u]ser interface module 240, which represents the functionality performed by the user interface 350 discloses visual and tactile elements that allow the user to enter/receive data to WCD,” where a person of ordinary skill in the art “would have understood the touchscreen to present the seeker application’s GUI, such as depicted in Fig. 5.” *Id.* at 24–25 (citing Ex. 1003 ¶ 160).

Patent Owner does not present any arguments specifically related to limitation 1(d)(ii). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(ii). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

vii. Limitation 1(d)(iii)

Limitation 1(d)(iii) recites “wherein the processor operates in association with the graphical user interface to:”. Ex. 1001, 37:60–61. Petitioner asserts that Kalliola teaches a processor executing operational instructions, and, more specifically, that its processor 300 executes software instructions stored in memory. Pet. 25 (citing Ex. 1004 ¶¶ 44, 46).

Petitioner contends that Kalliola teaches software modules implemented by control module 210, user interface module 230, and applications module 250, as shown in Figures 2 and 3. *Id.* at 25–26 (citing Ex. 1004 ¶¶ 19, 20, 44, 45, Figs. 2, 3). Petitioner cites Kalliola’s disclosure 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.” *Id.* at 26–27 (citing Ex. 1004 ¶ 40). Petitioner also cites Kalliola’s disclosure that “[u]ser 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 (citing Ex. 1004 ¶¶ 42, 51).

Petitioner further cites Kalliola’s disclosures that user interface 350 “is . . . coupled to processor 300” and “may interact with a communication utilities software component, also contained in memory.” Pet. 27 (citing Ex. 1004 ¶¶ 51, 55). Petitioner asserts that “[a]pplications module 250 ‘incorporates all other hardware and/or software applications on WCD 100,’ which may include ‘data applications’ ‘invoked by a control module 210’ to read and supply information to other modules in WCD 100,” and a disclosed application is a seeker application. *Id.* (citing Ex. 1004 ¶¶ 43, 80).

Petitioner contends that because Kalliola expressly teaches that its memory stores software components for performing numerous actions “required to support WCD 100,” this would include actions for the seeker application relating to communications and a user interface manager that would, for example, manage interactions with the graphical user interface. *Id.* at 27–28

(citing Ex. 1004 ¶ 46; Ex. 1003 ¶ 127). Petitioner further asserts that Kalliola teaches that control module 210 receives user inputs from user interface module 240 and outputs responsive control commands to other modules “to affect the behavior of the WCD,” such as the user interface manager controlling graphical user interface. *Id.* at 28 (citing Ex. 1004 ¶¶ 40, 42, 44; Ex. 1003 ¶ 128). Petitioner contends that a person of ordinary skill in the art would have understood that “Kalliola’s processor alone or Kalliola’s processor as modified (whichever may be the case for the claimed step) operates in association with the graphical user interface to perform the claimed step.” *Id.* at 25 (citing Ex. 1003 ¶¶ 123–128) (emphasis omitted), *see also id.* at 28.

Patent Owner does not present any arguments specifically related to limitation 1(d)(iii). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(iii). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

viii. Limitations 1(d)(iv), 1(d)(v)

Limitation 1(d)(iv), in conjunction with limitation 1(d)(iii), recites “wherein the processor operates in association with the graphical user interface to” “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.” Ex 1001, 37:60–63. Limitation 1(d)(v), again in conjunction with limitation 1(d)(iii), recites: “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.” *Id.* at 37:65–38:2.

As discussed above for limitations 1(c) and 1(d)(ii), Petitioner asserts that Kalliola teaches the claimed “graphical user interface” by its executed operational instructions that cause its processor to present a graphical user interface via the touch screen. Pet. 20–21, 23–25. For limitation 1(d)(iv), the Petition asserts that Kalliola discloses target objects with signal emitters and that its wireless communications device communicates via Bluetooth with the signal emitter. *Id.* at 30–31 (citing Ex. 1004 ¶¶ 73–75, Fig. 6; Ex. 1003 ¶ 164). Petitioner alleges that “Vauclair provides additional specificity regarding the pairing process between two devices.” *Id.* at 31 (citing Ex. 1003 ¶ 164). Petitioner asserts that Vauclair discloses a display with menu options, where a user may select a pairing option from the menu to initiate the pairing process. *Id.* at 32 (citing Ex. 1005 ¶¶ 30, 36). Petitioner contends that “Vauclair thus 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.” *Id.* Petitioner contends that Vauclair teaches that the selection of a menu option sends a signal to control circuitry, which is a teaching 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).” *Id.* at 33 (citing Ex. 1003 ¶ 168) (emphasis omitted). Petitioner further asserts that a person of ordinary skill in the art “would have found it obvious and been motivated to configure Kalliola to execute, via processor 300, a GUI presenting a pairing menu to enable a user to initiate a Bluetooth pairing process between the WCD and the signal emitter by selecting a pairing option via the WCD’s touchscreen.” *Id.* at 34 (citing Ex. 1003 ¶ 172). Petitioner also contends that a person of skill “would have found it obvious that the GUI presented on Kalliola WCD’s touchscreen,

like Vauclair’s user interface would have generated signals corresponding to the user’s inputs at least to carry out designated functions of the WCD, such as the initiation of a pairing process.” *Id.* at 35 (citing Ex. 1003 ¶ 173).

Petitioner additionally argues that a person of ordinary skill in the art would have understood that Kalliola’s processor 300 operated in association with the graphical user interface to perform device operation. *Id.* at 28 (citing Ex. 1003 ¶ 128).

For limitation 1(d)(v), Petitioner further asserts that Vauclair “teaches the host device’s transceiver 24 responds to the pairing signal generated by the graphical user interface by communicating RF signals to pair the host device to the peripheral device.” Pet. 37 (citing Ex. 1003 ¶¶ 177–182) (emphasis omitted). More specifically, Petitioner contends that Vauclair “teaches creation of a wireless network begins with the user selecting a pairing option and, in response, the host device seeking a nearby peripheral device.” *Id.* (citing Ex. 1005 ¶¶ 36–37). Petitioner also contends that in Vauclair “[d]uring an identification and authentication process, the host and peripheral devices send a series of RF signals back and forth.” *Id.* at 37–38 (citing Ex. 1005 ¶¶ 37, 40, 24, 28, 56; citing also *id.* at Fig. 2). Petitioner argues that “[e]ach of signals S3, S5, S8, and S16 is sent from the host device and to the peripheral device to pair the devices, per Vauclair’s teaching that the ‘pairing process is completed’ after the signals are sent (and acknowledged by the peripheral device). *Id.* at 38 (citing Ex. 1003 ¶ 178; Ex. 1005 ¶ 56).

Petitioner asserts that “[i]t would have been obvious to configure Kalliola’s Bluetooth transceiver with Vauclair’s teachings regarding communicating RF signals to pair devices.” Pet. 39 (citing Ex. 1003 ¶ 183).

Petitioner contends that “Vauclair teaches the pairing process requires the host device (which, in the proposed combination, is Kalliola’s WCD), to transmit a series of RF signals to the peripheral device (i.e., Kalliola’s signal emitter).” *Id.* (citing Ex. 1003 ¶ 184). Petitioner asserts that “[i]t would have been obvious for Kalliola’s WCD to be paired with the signal emitters associated with the user’s personal items to recognize the signal emitters during subsequent connections, . . . because Kalliola teaches the WCD performing Bluetooth communications with various signal emitters and the user selecting a desired signal emitter to locate.” *Id.* (citing Ex. 1004 ¶ 71). Petitioner contends that “[a]pplying Vauclair’s known technique of pairing two devices by communicating RF signals between the devices would readily improve Kalliola’s WCD and yield the predictable result of Bluetooth-paired devices.” *Id.* Petitioner argues that one of skill in the art “would have been motivated to combine the prior art elements of Kalliola’s WCD communicating with the signal emitter using a Bluetooth transceiver with Vauclair’s pairing sequence to yield the predictable result of the WCD recognizing the signal emitter for subsequent communications.” *Id.* (citing Ex. 1003 ¶ 185).

The Institution Decision focused on the assertions in the Petition concerning Vauclair and preliminarily noted that this reference was relied upon to teach the pairing process, and, more particularly, to teach the generation of a pairing signal by the graphical user interface. Dec. 45–47. The Decision referred to disclosures in Vauclair and its use of user input 28 (for example, “a keypad” or “one or more scroll buttons”) to select menu items. *Id.* at 46–47. The Decision preliminarily found that there was no explanation in the Petition “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.” *Id.* at 47 (emphasis omitted).

Patent Owner asserts that the combination of Kalliola and Vauclair fails to teach limitation 1(d)(v) because the Petition contends that Vauclair teaches the limitation where it is the user input 28 “that generates the pairing signal in response to user input,” “[b]ut the ‘user input’ 28 in Vauclair does not include the claimed ‘graphical’ component.” PO Resp. 14–17 (citing Pet. 33–34; Ex. 1005 ¶¶ 30, 36, Fig. 1; Ex. 2002 ¶¶ 50–53). Patent Owner refers to paragraph 168 of the Buehrer Declaration, and contends that “Dr. Buehrer acknowledges that ‘Vauclair teaches the user’s selection of the pairing option’ is ‘via user input 28’ and that the ‘signal [is] sent to the control circuitry responsive to the user selection of a menu option[.]’” *Id.* at 17. Patent Owner argues that Dr. Buehrer’s testimony is conclusory and incorrect when he testifies “that Vauclair discloses the claimed pairing ‘signal [is] generated by the graphical user interface.’” *Id.* at 17–18 (citing Ex. 1003 ¶¶ 168, 170; Ex. 2002 ¶ 55). Patent Owner also states that the Board’s observations in the Institution Decision are consistent with its explanation that Vauclair fails to disclose limitation 1(d)(v). *Id.* at 18–19 (citing Dec. 46–47).

In Reply, Petitioner asserts that the Institution Decision erred because the combination of Kalliola and Vauclair was not considered in the assessment of the teaching of the limitation. Pet. Reply 1–15. Petitioner contends that “Kalliola’s GUI already presents user-selectable menu options” and that “[i]n the combination, Kalliola’s touchscreen-based GUI presenting menu options is the user input element.” *Id.* at 3 (citing Pet. 23–

25, 34–35; Ex. 1004 ¶ 71, Fig. 5). Petitioner argues that Vauclair teaches a pairing menu option where user input 28 generates a signal, whereas Kalliola’s touchscreen-based GUI presenting menu options is the user input element, so the combination would apply “Vauclair’s teaching of a user input generating a signal to Kalliola’s user input that is the GUI, such that the GUI generates the signal.” *Id.* (citing Pet. 31–36; Ex. 1005 ¶¶ 30, 36; Ex. 1003 ¶¶ 171–176). Petitioner contends that the Petition asserts that Kalliola teaches a wireless communication device that includes a touch screen, with a user interacting with the device through a GUI displayed on the touch screen. *Id.* at 4 (citing Pet. 22–25; Ex. 1004 ¶¶ 26, 54, 80). Petitioner refers to portions of the Petition that are alleged to support that “the Petition’s mapping of the ‘pairing signal’ is based on Kalliola as modified by Vauclair, not Vauclair standing alone.” *Id.* at 6–7 (citing Pet. 34–35; Ex. 1003 ¶¶ 171–173). Petitioner further asserts that the Board overlooked that Vauclair’s user input 28 is an input element, and not an action of a user. *Id.* at 1 (citing Dec. 47).

In Sur-reply, Patent Owner contends that the Petition relies upon Vauclair alone for the teaching of limitation 1(d)(v). PO Sur-reply 1–5. More specifically, Patent Owner asserts that Petitioner repeatedly stated that Vauclair alone disclosed limitation 1(d)(v). *Id.* at 3–4 (citing Pet. 33–34, 37). Patent Owner argues that Petitioner proposed combining Kalliola with Vauclair’s graphical user interface, which does not exist, to generate the claimed pairing signal. *Id.* at 4 (citing Pet. 35–36). Patent Owner contends that the only modification that the Petition proposes was routing Vauclair’s graphical user interface signals, which do not exist, to the WCD’s processor of Kalliola. *Id.* at 5 (citing Pet. 35–36). Patent Owner asserts that Petitioner

has abandoned the arguments in its Petition and “now admits that Vauclair’s user input is merely a keypad or scroll button that generates a pairing signal,” which is “not the claimed graphical user interface for performing that function.” *Id.* at 6 (citing Pet. Reply 1–2) (emphasis omitted).

Patent Owner also argues that Petitioner improperly introduces a new and unsupported obviousness theory in its Reply “that asserts a theory that ‘applies Vauclair’s teaching of a [non-GUI] user input generating a signal to Kalliola’s user input that is the GUI, such that [Kalliola’s] GUI generates the signal.’” PO Sur-reply 6–7 (quoting Pet. Reply 3). Patent Owner asserts that Petitioner’s argument is new because it depends on a fact that the Petition did not address: “the fact that neither prior art reference teaches a pairing signal generated by a GUI as claimed.” *Id.* at 7. More specifically, Patent Owner asserts that none of the cited passages in Petitioner’s expert declaration address the new theory. *Id.* (citing Pet. 34–36; Ex. 1003 ¶¶ 68, 154, 171–176). Patent Owner contends that Petitioner’s expert declaration addresses the alleged motivation to combine Kalliola and Vauclair, but the portions of the declaration are based on the incorrect assumption that Vauclair alone discloses a graphical user interface. *Id.* at 8 (citing Ex. 1003 ¶¶ 171–176). Patent Owner also alleges that Petitioner’s expert never addressed the physical incompatibility of the new theory and, more specifically, the physical incompatibility of Vauclair’s user input 28 and Kalliola’s GUI (a “touchscreen”). *Id.* at 9. Patent Owner contends that “Kalliola discloses ‘user input 360’ in the form of ‘keypads,’” so a person of ordinary skill in the art “would have used Kalliola’s ‘keypads’ for the pairing procedure as taught by both Kalliola and Vauclair.” *Id.* at 10 (citing Ex. 1041, 28:5–20) (emphasis omitted). Patent Owner contends that in the

Institution Decision, the Board did not consider Vauclair in isolation but rather considered the assertions in the Petition. *Id.* at 10–12. Patent Owner further asserts that Petitioner incorrectly contends that the Institution Decision erred because it “overlooked that Vauclair’s ‘user input 28’ is an input element, not an action of a user,” because the prior sentence in the Decision identifies that it is the user input 28 that is at issue. *Id.* at 12–13 (citing Pet. Reply 15; Dec. 46).

As discussed above for limitation 1(c), which recites a “touch screen,” Petitioner asserts that Kalliola explicitly discloses a touch screen as a component that allows user input. *See* Pet. 20 (citing Ex. 1004 ¶ 51 (wherein Kalliola’s components for user input include touch screens)). For limitation 1(d)(ii), which recites “present[ing] a graphical user interface via the touch screen,” the Petition relies upon Kalliola’s teachings of software instructions to present a graphical user interface on its touch screen. *Id.* at 23–25 (citing Ex. 1004 ¶¶ 26, 42, 44, 51, 71, 80, Fig. 5; Ex. 1003 ¶¶ 158–160). Limitation 1(d)(iii) recites “the processor operates in association with the graphical user interface” to perform subsequent steps, including the “generat[ion] of the pairing signal” and “respond[ing] to the pairing signal” recited in limitations 1(d)(iv) and 1(d)(v), respectively. For limitation 1(d)(iii), Petitioner relies upon the disclosure of “Kalliola’s processor alone or Kalliola’s processor as modified (whichever may be the case for the claimed step) [that] operates in association with the graphical user interface.” *Id.* at 25. In support, Dr. Buehrer testifies that “Kalliola is the primary reference,” wherein Kalliola’s processor 300 “operates in association with the graphical user interface,” to perform the claim steps “because (1) Kalliola expressly teaches the processor 300 and the user

interface 350 being coupled ([0051]); (2) the processor ‘controls overall device operation’ ([0044]); and (3) the user interface 350 includes a user output 370 that includes a ‘display’ to ‘allow[] a user to receive information’ from the WCD ([0051]).” Ex. 1003 ¶ 131. Therefore, for limitations 1(c), 1(d)(ii), and 1(d)(iii), Petitioner relies solely on Kalliola for its teachings of the claimed “touch screen,” with the presentation of the “graphical user interface” on the touch screen, and with Kalliola’s processor operating in association with the graphical user interface to perform the steps of limitations 1(d)(iv) and 1(d)(v), among others.

The parties do not dispute that the generated “pairing signal” recited in limitation 1(d)(iv) is the same “pairing signal” that is recited in limitation 1(d)(v). In the argument and evidence presented for limitation 1(d)(iv), Petitioner relies upon Kalliola as the primary reference and Vauclair is used to “provide[] additional specificity regarding the pairing process between two devices.” *See* Pet. 29–36. The Petition identifies that it is the combination of Kalliola and Vauclair that is relied upon by Petitioner for the teaching of the limitation. *Id.* at 34–36. Petitioner states that a person of ordinary skill in the art “would have found it obvious and been motivated to configure Kalliola to execute, via processor 300, *a GUI presenting a pairing menu* to enable a user to initiate a Bluetooth pairing process between the WCD and the signal emitter *by selecting a pairing option via the WCD’s touchscreen.*” *Id.* at 34 (citing Ex. 1003 ¶ 172) (emphasis added). Accordingly, the Petition asserts that, in the combination, it is Kalliola’s touchscreen with a GUI with pairing menu that is relied on for the teaching of generating a pairing signal; that is, in the combination, it is Kalliola’s GUI on a touch screen that generates the pairing signal. Petitioner further asserts

that a person of skill would have “configure[d] Kalliola’s WCD to generate a processor signal in response to the user selecting a pairing option from the menu, per Vauclair.” *Id.* at 35 (citing Ex. 1003 ¶ 173). The Petition further states that one of skill in the art “would have been motivated to combine the prior art elements of Kalliola’s WCD communicating with the signal emitter using a Bluetooth transceiver with Vauclair’s pairing sequence to yield the predictable result of the WCD recognizing the signal emitter for subsequent communications.” *Id.* at 39 (citing Ex. 1003 ¶ 185).

On the complete record, we determine that the Petition relies on the combination of Kalliola and Vauclair for teaching limitations 1(d)(iv) and 1(d)(v) and that the argument and evidence presented in the Petition sufficiently demonstrates that the combination teaches the claimed generation of a pairing signal by a graphical user interface as claimed.

First, as discussed and cited to above, and particularly in view of the evidence and argument presented at pages 34 to 36 and 39 of the Petition, we agree with Petitioner’s assertion that the Petition relied on the combination of Kalliola and Vauclair to teach a pairing signal generated by a graphical user interface. *See* Pet. Reply 1–7. Further, from the Petition’s discussions of limitations 1(c) to 1(d)(iv), where Kalliola is relied upon for its teachings of the claimed “touch screen,” “graphical user interface” on the touch screen, as well as the processor operating in association with the graphical user interface to perform the steps of limitations 1(d)(iv) and 1(d)(v), it is apparent that Kalliola is the primary reference relied upon for the teaching of these claim limitations in the Petition. *See* Pet. 20–40. Moreover, the Petition asserts that “in the *modified Kalliola WDC*, the *signals generated by the GUI from interaction at the touchscreen* would be

sent to the WCD's processor *so that the processor can interpret the user's inputs and take the appropriate action*, as otherwise taught by Vaclair." *Id.* at 35 (emphasis added). In support, Dr. Buehrer testifies that a person of ordinary skill in the art:

would have been motivated to configure Kalliola's processor 300 to execute operational instructions causing a graphical user interface to present a Bluetooth pairing menu on the touch screen to enable a user to initiate a Bluetooth pairing process between the WCD and the signal emitter by selecting a pairing option via the WCD's touch screen.

Ex. 1003 ¶ 172. The Petition also asserts that, in the combination, there would be no change to the respective functions of either Kalliola's WCD or Vaclair's pairing menu. Pet. 36. Thus, the Petition relies on Kalliola's processor, and its touchscreen, and graphical user interface with Vaclair's teachings for the pairing menu displayed, wherein pairing signals are generated by Kalliola's graphical user interface by interaction with the screen. As we discuss further below, Petitioner includes assertions that Vaclair itself teaches that the pairing signal is generated by its graphical user interface. *See id.* at 33, 37. The Petition, however, also relies on the combination of Kalliola and Vaclair to teach generating a pairing signal by Kalliola's graphical user interface by interaction with its screen, as discussed above. *Id.* at 35. Accordingly, it is not necessary to reach the issue of whether Vaclair alone teaches that its graphical user interface generates the pairing signal. Additionally, we do not find that Petitioner's further arguments in its Reply concerning interaction with Kalliola's wireless communication device through its graphical user interface were impermissibly presented in view of the Petition's specific assertions on the teachings of the combination of Kalliola and Vaclair, as discussed above,

and its reliance on user interaction with Kalliola's graphical user interface for the teaching of generating the pairing signal. *See* 37 C.F.R. § 42.23(b).

Second, Petitioner demonstrates that the combination of Kalliola and Vauclair teaches claim limitations 1(d)(iv) and 1(d)(v). As discussed and cited to above, the Petition identifies that, with Kalliola's touch screen as the claimed "touch screen," Kalliola's processor presents a graphical user interface via its touch screen as set forth for limitation 1(c) and 1(d)(ii), and Kalliola's processor operates in conjunction with its graphical user interface to perform claimed steps as set forth for limitation 1(d)(iii). *See* Pet. 20–29. We agree that the assertions are supported by Kalliola's disclosure of a touch screen with a graphical user interface presented thereon, where "tactile elements" "allow the user . . . to enter data . . . into the device." *See* Ex. 1004 ¶¶ 26, 40, 42, 44, 51, 71, Figs. 3, 5. Petitioner also asserts, and we agree, that Kalliola teaches the use of Bluetooth-enabled emitters in remote devices that communicate with its wireless communication device with a signal emitter. Pet. 29–31 (citing Ex. 104 ¶¶ 9, 71, 73–75, 77, 107, Fig. 5). Petitioner contends, and we agree, that Vauclair provides additional specificity regarding the pairing process between two devices with its disclosures of a pairing process between devices using protocols that include Bluetooth, wherein a user can select a pairing option from a menu on a display. *Id.* at 31–32 (citing Ex. 1005 ¶¶ 22, 24, 28, 30, 34–36, 49, Fig. 1; Ex. 1003 ¶¶ 164–167). Petitioner argues, and we agree, that it would have been obvious to a person of ordinary skill in the art to configure Kalliola to use its processor to present "a pairing menu to enable a user to initiate a Bluetooth pairing process between the WCD and the signal emitter by selecting a pairing option via the WCD's touchscreen," with Vauclair

teaching at least the selection of a pairing option presented on its display, because the presented pairing menu on Kalliola's touch screen would allow the user to pair the WCD with the user's personal item signal emitters and would also allow the devices to recognize each other on subsequent connections. *Id.* at 34–35 (citing Ex. 1003 ¶ 172); *see also* Ex. 1005 ¶¶ 30, 36. Consequently, we also agree with Petitioner's assertion that it would have been obvious to a person of skill of ordinary skill in the art that Kalliola's graphical user interface on its touch screen would have generated signals corresponding to the user's inputs at least to carry out designated functions, like the initiation of a pairing process, and “the signals generated by the GUI from interaction at the touchscreen would be sent to the WCD's processor so that the processor can interpret the user's inputs and take the appropriate action.” Pet. 35; *see also* Pet. Reply 2–7.

Petitioner also asserts, and we agree, that generating processor signals in response to a user indication was a known mechanism for wireless devices, as were Bluetooth pairing and corresponding pairing menus, and there would be no change to the respective functions of Kalliola's wireless communication devices and Vauclair's pairing menu. Pet. 36 (citing Ex. 1003 ¶ 175). The Petition argues, and we agree, that because Bluetooth pairing and pairing menus were conventional prior to time of the invention, there would have been a reasonable expectation of success configuring Kalliola's wireless communication device. *Id.* (citing Ex. 1003 ¶ 176); *see also* Ex. 1003 ¶¶ 71–75 (Dr. Buehrer providing evidence on Bluetooth-connected devices and associated pairing). Accordingly, we determine that Petitioner has provided sufficient evidence of rationale to combine Kalliola

and Vauclair, a reasonable likelihood of success in the combination, and that the prior art teaches limitation 1(d)(iv).

As to limitation 1(d)(v), we also agree with Petitioner that in response to a generation of a pairing signal as discussed in limitation 1(d)(iv), Vauclair discloses that wireless transceivers communicate a series of RF signals back and forth to pair the devices. Pet. 37–38. Petitioner asserts, and we agree, that, in combination, it would have been obvious to configure Kalliola’s Bluetooth transceiver with Vauclair’s teachings for the communication of RF signals to pair devices. *Id.* at 39. Petitioner contends, and we agree, that a person of ordinary skill in the art would have understood that Kalliola teaches that its wireless communication device performs Bluetooth communications with signal emitters, with the user selecting a desired signal emitter for locating objects, and that this pairing would also allow two Bluetooth devices to recognize each other on subsequent connections. *Id.* (Ex. 1003 ¶ 184). Petitioner asserts, and we agree, that applying Vauclair’s known technique of communicating RF signals to pair devices would improve Kalliola’s wireless communication device and yield the predictable result of Bluetooth-paired devices. *Id.* We also agree with Petitioner’s argument that this pairing was an understood and conventional feature of Bluetooth mobile communication devices, so there was a reasonable expectation of success in the combination. *Id.* at 40 (citing Ex. 1003 ¶ 186); *see also* Ex. 1003 ¶¶ 71–72 (Dr. Buehrer providing evidence on Bluetooth-connected devices). Accordingly, we find that Petitioner has provided sufficient evidence of rationale to combine Kalliola and Vauclair, reasonable likelihood of success in the combination, and that the prior art teaches limitation 1(d)(v).

Patent Owner argues that the user input 28 in Vauclair does not include a graphical component, and only Vauclair is relied upon for the teaching of limitation 1(d)(v). *See* PO Resp. 14–17 (citing Pet. 33–34; Ex. 1005 ¶¶ 30, 36, Fig. 1; Ex. 2002 ¶¶ 50–53). We do not agree. When the Petition is considered in view of the complete record, Petitioner has relied on the combination of Kalliola and Vauclair for the teaching of limitation 1(d)(v), as well as limitation 1(d)(iv), as discussed above. *See* Pet. 34–36, 39–40. In particular, the Petition’s discussion of limitation 1(d)(vi) is directed to the argument and evidence for the teaching of the generation of the pairing signal by the graphical user interface, which we find to be sufficient. *Id.* at 34–36. Then, with the teaching of the pairing signal generation addressed in the discussion of limitation 1(d)(iv), the subsequent discussion of limitation 1(d)(v) is primarily directed to responding to the pairing signal to configure Kalliola’s Bluetooth transceiver with Vauclair’s details on for pairing devices by communicating RF signals. *See id.* at 39–40.

Additionally, as discussed above, the majority of Patent Owner’s arguments are related to the Petition’s assertions that Vauclair alone teaches generating a pairing signal generated by its graphical user interface, wherein Patent Owner contends that Vauclair’s disclosures do not teach the related limitations. *See* PO Resp. 14–19. The Institution Decision also discusses the Petition’s assertions based on Vauclair alone, and its use of user input 28 to select menu options on its display. Dec. 45–47. The Decision preliminarily determined that Vauclair, with the supporting expert testimony on Vauclair, did not appear to support a teaching that it was the graphical user input that generates the signal. *Id.* As discussed above, however,

Petitioner’s Reply clarified the arguments and evidence presented in the Petition and highlighted the supporting declaration of Dr. Buehrer in the support of the teaching of limitations 1(d)(iv) and 1(d)(v) based upon the combination of Kalliola and Vauclair. *See* Pet. Reply 1–15. Upon further review of the record and the arguments presented by the parties, we find the portions of the Petition and expert declaration and supporting evidence directed to the combination of references, which we credit, are persuasive of the teaching of limitations 1(d)(iv) and 1(d)(v). We note, as Patent Owner’s arguments and the Institution Decision point out, that the Petition and supporting expert declaration also explicitly assert that Vauclair teaches “generat[ing] a pairing signal where the pairing signal [is] generated by the graphical user interface.” Pet. 33 (emphasis omitted); *see also* PO Resp. 14–19; Dec. 45–47. Although the Petition could have been clearer, it also nonetheless includes the assertion, at least as an alternative, that it is the combination of Kalliola and Vauclair that is relied upon by Petitioner for the teaching, where the pairing option on its menu per Vauclair is used in Kalliola’s graphical user interface. *See* Pet. 35 (“Additionally, it would have been obvious to a POSITA to configure Kalliola’s WCD to generate a processor signal in response to the user selecting a pairing option from the menu, per Vauclair.”); *see also* Ex. 1003, ¶ 173. Again, as discussed above, we find that teachings of the combination of the references sufficiently teaches the generation of a pairing signal by the graphical user interface in response to a user to pair devices.¹¹

¹¹ We also note that although the Institution Decision preliminarily focused on the teachings of Vauclair alone and preliminarily determined that the teachings appeared to be insufficient (Dec. 45–47), we are not bound to

Patent Owner also argues that Petitioner never addressed the physical incompatibility of Vauclair’s user input 28 and Kalliola’s graphical user interface. PO Sur-reply 9. We do not agree. As discussed above, Petitioner at least asserts that it is Vauclair’s *menu* with a pairing option that is used in Kalliola’s touch screen with a graphical user interface. *See* Pet. 35 (a person of skill would have “configure[d] Kalliola’s WCD to generate a processor signal in response to the user selecting a pairing option from the menu, per Vauclair.”). Further, Dr. Buehrer’s testimony, which we credit because it is supported by credible evidence, is that generating processor signals in response to a user indication was a known mechanism for wireless devices, as were Bluetooth pairing and corresponding pairing menus, and there would be no change to the respective functions of Kalliola’s’ wireless communication devices and Vauclair’s pairing menu. Ex. 1003 ¶¶ 71–75, 174–176, *see also* Pet. 36. Patent Owner also contends that “Kalliola discloses ‘user input 360’ in the form of ‘keypads,’” so a person of ordinary skill in the art “would have used Kalliola’s ‘keypads’ for the pairing procedure as taught by both Kalliola and Vauclair.” PO Sur-reply 10 (citing Ex. 1041, 28:5–20) (emphasis omitted). Petitioner, however, relies on Kalliola’s teaching of a *touch screen* with a graphical user interface (Pet. 20, 34–35; Ex. 1003 ¶ 173), which it teaches (*see* Ex. 1005 ¶ 51), in

those preliminary determinations, which we have reconsidered based upon the full trial record. *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (“[T]he Board is not bound by any findings made in its Institution Decision. At that point, the Board is considering the matter preliminarily without the benefit of a full record. The Board is free to change its view of the merits after further development of the record, and should do so if convinced its initial inclinations were wrong.”).

combination with Vauclair’s teaching of a menu with a pairing option. Patent Owner does not provide a reason why that option would not be used by one of ordinary skill in the art (*see* Ex. 1041, 28:5–20; *see also generally* PO Resp.; Ex. 2002). Instead, we credit Dr. Buehrer’s testimony that it would have been obvious to a person of ordinary skill “to configure Kalliola’s WCD to generate a processor signal in response to the user selecting, via the touch screen, a pairing option from the menu displayed on the graphical user interface as taught by Vauclair,” where the person of skill “would have understood that a user input device, such as a touch screen, is a device that converts user inputs into electronic signals that can be interpreted by a computer,” because it is supported by the evidence of record. Ex. 1003 ¶ 173.

Accordingly, on this complete record, Petitioner’s argument and evidence sufficiently demonstrates that the combination of Kalliola and Vauclair teaches limitations 1(d)(iv) and 1(d)(v), with rationale to support the combination, and with a reasonable likelihood of success of the combination.

ix. Limitation 1(d)(vi)

Limitation 1(d)(vi) recites “generate a first location request signal in response to a second indication from the user to locate the at least one remote device.” Ex. 1001, 38:3–5. Petitioner asserts that Kalliola teaches this claim limitation by its disclosure that a user manually activates a target that is currently inactive by its user input, including a touch screen. Pet. 40, 42–43 (citing, *inter alia*, Ex. 1004, code (57) (Kalliola “includes facilities to active[at]e a location-indicating transmission in a target device”), ¶¶ 10, 51, 81). Petitioner asserts that Kalliola teaches that when the target device is

activated it allows the wireless communications device to begin broadcasting its position-indicating location, which allows the target device to be located. *Id.* at 40–41 (citing, *inter alia*, Ex. 1004, code (57) , ¶¶ 80 (“In step 900, user desires to find the location of a target”), 81).

Patent Owner does not present any arguments specifically related to limitation 1(d)(vi). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(vi). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

x. Limitation 1(d)(vii)

Limitation 1(d)(vii) recites “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.” Ex. 1001, 38:5–8. Petitioner asserts that Kalliola teaches this claim limitation by its disclosure of transmission of an activation message to a signal emitter which causes the signal emitter to broadcast a position-indicating transmission. Pet. 45–48 (citing, *inter alia*, Ex. 1004 ¶¶ 69–70, 77, 80–81, Fig. 9).

Patent Owner does not present any arguments specifically related to limitation 1(d)(vii). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(vii). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

xi. Limitation 1(d)(viii)

Limitation 1(d)(viii) recites “present a display that visually assists the user to determine a location of the at least one remote device.” Ex. 1001, 38:9–10. Petitioner asserts that Kalliola teaches this claim limitation by its

display of an arrow pointing in the direction of a target device on the display shown in Figure 5. Pet. 48–49 (citing, *inter alia*, Ex. 1004 ¶ 71, Fig. 5; Ex. 1003 ¶ 205).

Patent Owner does not present any arguments specifically related to limitation 1(d)(vii). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(viii). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

xii. Limitation 1(d)(ix)

Limitation 1(d)(ix) recites “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.” Ex. 1001, 38:11–14. Petitioner asserts that Kalliola teaches this claim limitation by its receipt of a position-indicating transmission from a remote device. Pet. 49–51 (citing, *inter alia*, Ex. 1004 ¶¶ 72–73, 82, Fig. 9; Ex. 1003 ¶ 210). Petitioner also asserts that Kalliola teaches that its wireless communications device receives the position-indicating transmission via Bluetooth, and a person of ordinary skill in the art could have understood that a Bluetooth signal is an RF signal. *Id.* at 51 (citing Ex. 1004 ¶¶ 82, 72–73; Ex. 1003 ¶¶ 211–212).

Patent Owner does not present any arguments specifically related to limitation 1(d)(ix). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(ix). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

xiii. Limitation 1(d)(x)

Limitation 1(d)(x) recites “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.” Ex. 1001, 38:16–19. Petitioner refers to its arguments and evidence presented for limitation 1(d)(viii) and Kalliola’s disclosure of a display of an arrow pointing in the direction of a target device on the display, as discussed above.

Patent Owner does not present any arguments specifically related to limitation 1(d)(x). *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

We have reviewed Petitioner’s arguments and evidence on the teaching of limitation 1(d)(x). On this complete record, we agree with Petitioner that Kalliola teaches this limitation.

xiv. Conclusion

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 claim 1 would have been obvious over the combination of Kalliola and Vauclair.

c. Claims 4, 7, and 8

Claim 4 requires that the mobile communication device is a handheld wireless communication device. Ex. 1001, 38:27–29. Petitioner asserts, and we agree, that Kalliola discloses that its wireless communication device can be a cellular handset, which is a “is a handheld wireless communication device.” Pet. 54 (citing Ex. 1004 ¶ 35; Ex. 1003 ¶ 219).

Claim 7 requires a plurality of remote devices where a graphical user interface allows the selection of a particular mobile device. Ex. 1001, 38:39–43. Petitioner contends, and we agree, that Kalliola discloses that

several remote items can be tracked, and its graphical user interface can present a listing of those items for selection. Pet. 54–55 (citing Ex. 1004 ¶¶ 71, 10, 14, Figs. 5, 6, 8; Ex. 1003 ¶¶ 220–223).

Claim 8 requires that the display visually indicates where the selected one of the remote devices is located. Ex. 1001, 38:44–46. Petitioner asserts, and we agree, that Kalliola teaches this limitation by displaying a border around the selected remote device, the border display being a visual indication of the device location. Pet. 55–56 (citing Ex. 1005, Fig. 5; Ex. 1003 ¶¶ 224–225).

Patent Owner does not present any arguments specifically related to these claims. *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

Accordingly, 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 claims 4, 7, and 8 would have been obvious over the combination of Kalliola and Vauclair.

E. Obviousness of Claims 2, 3, and 6 over Kalliola, Vauclair and Kalayjian

Petitioner contends that claims 2, 3, and 6 would have been obvious over the combination of Kalliola, Vauclair and Kalayjian. Pet. 56–65. Petitioner also relies upon the Buehrer Declaration (Ex. 1003) to support its positions.

Patent Owner does not present any arguments specifically related to these claims. *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

Kalayjian is directed to a location discovery system and method for locating objects using Bluetooth communications. *See* Ex. 1006, code (57).

Claim 2 requires that the display assist the user based on the strength of the RF signal from the remote device. Ex. 1001, 38:20–23. Claim 3 requires that the display visually assists the user by displaying an indication of a distance to the remote device. *Id.* at 38:26–28. Petitioner asserts, and we agree, that Kalayjian teaches calculating a distance to a second device by measuring the strength of the received signal from a second device. Pet. 56–58 (citing, *inter alia*, Ex. 1006 ¶¶ 41, 55, 7, 40, Figs. 8, 11). Petitioner points to Kalayjian’s display of an indication of the distance from its master device to the slave device. *Id.* at 62–63 (citing Ex. 1006 ¶ 49, Fig. 8). Petitioner argues, and we agree, that there is a reasoning with a rational basis to combine Kalayjian with Kalliola-Vauclair because the inclusion of Kalayjian’s signal strength measurement calculation with distance visual assistance would have been a useful improvement to Kalliola’s system, with Kalliola teaching the direction of the remote device and with Kalayjian teaching the distance to the remote device. *Id.* at 58–62 (citing, *inter alia*, Ex. 1003 ¶¶ 230–236). Petitioner also contends, and we agree, that there is a reasonable likelihood of success of the combination. *Id.* at 62.

Claim 6 requires that the remote device emit a detectable alert signal in response to the RF signal in order to assist the user in determining its location. Ex. 1001, 38:35–38. Petitioner asserts that Kalayjian discloses that after a paging signal is sent “the slave device takes a predetermined action to guide a user to its location. The predetermined action could be, for example, turning on a light, [or] emitting a sound.” Pet. 64 (citing Ex. 1006 ¶ 54) (emphasis omitted). Petitioner asserts that there is motivation to combine Kalayjian with Kalliola-Vauclair because a person of ordinary skill in the art “would have understood that a small object, such as the user’s

keys, may be nearby but hidden from view by other objects” and “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 ¶¶ 243–244, 246). Petitioner further contends that “using wireless signals to trigger auditory alerts were well-known” and a person of skill would have understood that including in Kalliola’s signal emitter would have required only minor hardware and software changes, so there was a reasonable expectation of success of the combination. *Id.* at 65 (citing Ex. 1003 ¶ 247).

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 claims 2, 3, and 6 would have been obvious over the combination of Kalliola, Vauclair and Kalayjian.

F. Obviousness of Claim 5 over Kalliola, Vauclair, and Turunen

Petitioner contends that claim 5 would have been obvious over the combination of Kalliola, Vauclair, and Turunen. Pet. 73–74. Petitioner also relies upon the Buehrer Declaration (Ex. 1003) to support its positions.

Patent Owner does not present any arguments specifically related to this claim. *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

Claim 5 requires a long range transceiver for sending and receiving telephone calls by a telephony network and for communicating Internet data. Ex. 1001 38:30–34.

Turunen is directed to methods of transmission of Internet data for a mobile phone using a cellular telephone network. Ex. 1007, code (57).

Petitioner asserts, and we agree, that Kalliola's wireless communication device includes wireless transceivers, including a long range transceiver for exchanging "information over large geographic areas (such as cellular networks) via an antenna," including transmissions via a cellular telephony network such as GSM, so it includes the claimed long range transceiver for sending and receiving telephone calls via a telephone network. Pet. 73 (citing Ex. 1004 ¶¶ 3, 47; Ex. 1003 ¶¶ 283–286). Petitioner refers to Kalliola's disclosures that the data transmission may be via GPRS and/or UMTS. *Id.* (citing Ex. 1004 ¶¶ 47, 36; Ex. 1003 ¶ 287).

Petitioner asserts, and we agree, that Turunen teaches "transmitting Internet data between a mobile host and a remote host coupled via the Internet and a GSM/GPRS cellular telephone network," and a person of ordinary skill would be motivated to configure Kalliola's GSM cellular transceiver to communicate Internet data using a GPRS link. Pet. 73–74 (citing Ex. 1007, code (57), 5:30–32, 5:33–39; Ex. 1003 ¶¶ 288–289). Petitioner contends, and we agree, that "[a]t the time of the '680 Patent, cellular devices that communicated internet data via 3G networks were common in the market," so a person of ordinary skill in the art "would have been motivated to combine these prior art elements according to known methods to yield the predictable result of enabling Kalliola's WCD to wirelessly communicate Internet data using GPRS data communication sessions on the GSM network." *Id.* at 74 (citing Ex. 1003 ¶ 289). Petitioner further asserts, and we agree, that a person of skill "would have [had] a reasonable expectation of success configuring Kalliola's cellular transceiver to wirelessly communicate Internet data using GPRS data communication." *Id.*

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 claim 5 would have been obvious over the combination of Kalliola, Vauclair, and Turunen.

G. Obviousness of Claim 9 over Kalliola, Vauclair, and Trimble

Petitioner contends that claim 9 would have been obvious over the combination of Kalliola, Vauclair, and Trimble. Pet. 74–78. Petitioner also relies upon the Buehrer Declaration (Ex. 1003) to support its positions.

Patent Owner does not present any arguments specifically related to this claim. *See generally* PO Resp. 14–20; PO Sur-reply 1–14.

Claim 9 requires that the remote devices have a paging network wherein the remote devices emit corresponding detectable alert signals in response to a RF signal to assist the user in determining the location of the plurality of remote devices. Ex. 1001 38:47–52.

Trimble is directed to an object location system that includes addressable remote tags. Ex. 1008, code (57).

Petitioner asserts, and we agree, that Kalliola teaches signal emitters that are associated with a personal item, such as a user’s keys and wallet, where the remote signal emitters are paired to the wireless communication devices, and the remote signal emitters paired with the wireless communication devices teach the claimed first paging network. Pet. 75 (citing Ex. 1004 ¶ 77, Fig. 5; Ex. 1003 ¶¶ 292–294). Petitioner asserts, and we agree, that Trimble teaches “[a]n object locating system [that] includes a transmitter unit for activating a plurality of electronic tags to assist in locating keys, remote control devices, cordless phones, eyeglasses, articles of clothing, etc. to which the tags have been attached,” where “[t]he tags are

self-contained, battery powered devices that signal their presence, when activated, by an audible and/or visual indication to get the attention of the user.” *Id.* at 76 (citing Ex. 1008, code (57)). Petitioner contends, and we agree, that Trimble teaches that there can be simultaneous activation of multiple electronic tags. *Id.* at 76 (citing Ex. 1008 ¶¶ 81 (“master transmitter unit 18 . . . causes . . . simultaneous activation of multiple devices”), 68).

Petitioner contends, and we agree, that a person of ordinary skill in the art would have been motivated to configure Kalliola’s object-finding system with Trimble’s teachings to include audible alarm-generation and “to give the user the option of activating multiple signal emitters at the same time via a master activation signal.” Pet. 77 (citing Ex. 1003 ¶ 297). We also agree that because signal emitters capable of emitting audio alerts in response to receiving wireless signals were well-known prior to the time of invention, a person of skill would have also known that including an audible alarm-generation device in Kalliola’s signal emitter. *Id.* at 78 (citing Ex. 1003 ¶ 300).

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 claim 9 would have been obvious over the combination of Kalliola, Vauclair, and Trimble.

III. CONCLUSION¹²

The outcome for the challenged claims of this Final Written Decision

¹² 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*

follows. In summary:

Claim(s)¹³	35 U.S.C. §	Reference(s) /Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1, 4, 7, 8	103(a)	Kalliola, Vauclair	1, 4, 7, 8	
2, 3, 6	103(a)	Kalliola, Vauclair, Kalayjian	2, 3, 6	
5	103(a)	Kalliola, Vauclair, Turunen	5	
9	103(a)	Kalliola, Vauclair, Trimble	9	
Overall Outcome			1–9	

IV. ORDER

It is hereby:

ORDERED that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–9 of the '680 patent are unpatentable; and

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

Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

¹³ We omit claims 10–12 and 15–20, and the grounds associated with only these disclaimed claims, from the listing of claims challenged because Patent Owner has disclaimed these claims. See Ex. 2001.

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