

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner

v.

THL HOLDING COMPANY, LLC,

Patent Owner

Case No. IPR2024-00398

Patent No. 11,265,680

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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I. INTRODUCTION

The Board made two errors in its Institution Decision (“ID”) (Paper 6). First, the Board failed to consider whether the **combination** of Kalliola-Vauclair taught “the pairing signal generated by the graphical user interface” requirement of limitation 1(d)(v) as mapped in the Petition. Paper 1 (*Petition*), 33-36; Ex. 1003 (*Buehrer Dec.*), ¶¶ 168-176. Instead, the Board considered whether Vauclair alone taught limitation 1(d)(v) without considering the entirety of Claim 1’s mapping. Second, the Board overlooked that Vauclair’s “user input 28” is an input element, not an action of a user. *See* Paper 6, 47 (“It is the *action* of user input that selects and sends a signal”) (emphasis added). THL’s Response simply repeats the Board’s analysis. Paper 12, 14-19.

The question that THL’s Response should have addressed—and the question before the Board now—is whether the GUI of Kalliola’s wireless communication device (WCD), as modified by Vauclair, generates a pairing signal that satisfies limitation 1(d)(v).

Kalliola and Vauclair teach that user input is provided in two different input-element forms, both familiar to a POSITA. Vauclair’s input-element form is user input 28 that is a keypad or scroll button that generates a pairing signal upon selection of a pairing menu item. *Vauclair*, (Ex. 1005), [0030], [0036]. *See also* Paper 6, 47 (Board agreeing); Paper 12, 16 (THL agreeing); Ex. 2002, ¶ 52 (THL’s

expert, Dr. Feuerstein, agreeing). Kalliola's input-element form is a touchscreen-based graphical user interface ("GUI") presenting user-selectable menu options. In the Kalliola-Vauclair combination, users interact with Kalliola's WCD through menu options of the GUI displayed on the WCD's touchscreen. A POSITA would have applied Vauclair's teaching that user input 28 (a form of user input element) generates a pairing signal upon selection of a pairing menu option, to Kalliola's input element. Kalliola's GUI provided on a touchscreen and presenting menu options is simply another form of an input element. In the combination, Kalliola's GUI generates a signal, where the generation of a signal by an input element is otherwise taught by Vauclair.

II. THE PETITION MAPS KALLIOLA AS MODIFIED BY VAUCLAIR TO CLAIM 1

The Petition does not rely on Vauclair alone to satisfy the requirement "the pairing signal¹ [is] generated by the graphical user interface[.]" Rather, the Kalliola-Vauclair *combination* presented in the Petition teaches limitation 1(d)(v).

A. An Overview of the Petition's Mapping for 1(d)(v)

A POSITA would have applied Vauclair's teaching that user input 28 generates a pairing signal to the user input of Kalliola's WCD (i.e., Kalliola's

¹ The Petition applies THL's construction of "generate a pairing signal" as a "processor signal to initiate a wireless device pairing sequence." *Petition*, 29.

touchscreen-based GUI displaying menu options). Kalliola's GUI already presents user-selectable menu options. *Petition*, 23-25 (discussing "SEEKER" application); *Kalliola*, (Ex. 1004), Fig. 5, [0071] (identifying the "keys" target as "currently selected"). Vauclair teaches a pairing menu option and that user input 28 generates a signal. *Petition*, 31-34; *Vauclair*, [0030], [0036]. In the combination, Kalliola's touchscreen-based GUI presenting menu options is the user input element. *Petition*, 34-36. The combination applies 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. Therefore, the combination comprises Kalliola's WCD, which includes (1) user input that is a GUI presented on a touchscreen and presenting menu options (as taught by Kalliola), (2) where the GUI presents a pairing menu option (as taught by Vauclair), and (3) upon the user selecting the GUI's pairing menu option, Kalliola's user input (i.e., a GUI presenting menu options), generates a signal. *Petition*, 34-36; Ex. 1003, ¶¶ 171-176.

Because Patent Owner's Response focuses on limitation 1(d)(v), this Response is likewise focused on that limitation. But it should be noted that claim 1's recited GUI generating a pairing signal is referring to a GUI that is presented by a processor on a touchscreen. '680 Patent, claim 1(d)(ii). This is exactly what is mapped in the Petition.

In greater detail, the Petition’s mapping of the Kalliola-Vauclair combination is as follows:

First, Kalliola teaches a WCD that includes a touch screen. *Petition*, 20 (citing *Kalliola*, [0051]). Kalliola’s touch screen is coupled to a processor. *Petition*, 22 (citing, *inter alia*, *Kalliola*, [0054]). The processor executes operational instructions that cause the processor to present a GUI via the touch screen. *Petition*, 23-25 (citing *Kalliola*, [0044], [0046]).

Second, Kalliola teaches that a user interacts with the WCD through a GUI displayed on the WCD’s touch screen. *Petition*, 23-25 (citing *Kalliola*, [0042], [0044]). For example, Kalliola discloses a “seeker application utilized to determine the relative direction towards a target[,]” and illustrates the “SEEKER” application’s GUI in Figure 5. *Id.* (citing *Kalliola*, [0080], [0026]). Kalliola’s GUI includes menu options selectable by the user. *Petition*, 23-25.

Third, in Vauclair, the user interacts with the electronic device through “user input 28,” which may, for example, include a keypad and one or more scroll buttons. *Petition*, 31-34; *Vauclair*, [0030]. Through user input 28, the user can select a pairing option on a menu to generate a pairing signal. *Petition*, 31-34; *Vauclair*, [0030], [0036]. The user input 28 is not the *action* of user input (i.e., making a selection) but rather the *input element* itself (i.e., a keypad or scroll button). Notably, it is not disputed that Vauclair teaches that user input 28 generates a pairing signal. *ID*, 47

(Board agreeing); Paper 12, 16 (THL agreeing); Ex. 2002, ¶ 52 (Dr. Feuerstein agreeing).

Fourth, in the combination, the user input is a GUI provided on a touchscreen and presenting a menu option, as otherwise taught by Kalliola. Per Vauclair, user input 28 generates a signal responsive to selection of the pairing menu option. Therefore, in the Kalliola-Vauclair combination, the Kalliola GUI—which is a form of a user input element—generates a pairing signal in response to user selection of a pairing menu option on the GUI. The combination applies Vauclair’s teaching that a user input element, such as user input 28, generates a signal, to Kalliola’s user input element that is a GUI. In the Kalliola-Vauclair combination, Kalliola’s touchscreen displays a GUI including selectable menu options. *Petition*, 34-36; Ex. 1003, ¶¶ 171-176. The GUI’s selectable menu options include (1) a pairing menu option as taught by Vauclair, where (2) upon selection of the pairing menu option, the GUI presenting the pairing menu option generates a pairing signal. *Id.*

In the resulting combination, Kalliola’s input element (i.e., the GUI of a touchscreen displaying menu options) generates a pairing signal and limitation 1(d)(v)’s requirement that “the pairing signal [is] generated by the graphical user interface” is satisfied.

B. The Petition Explains that Limitation 1(d)(v) Is Obvious over Kalliola-Vauclair

The Petition repeatedly explains that the “pairing signal” requirements (e.g., “generate a pairing signal in response to a first indication from a user...” where the pairing signal is “generated by the graphical user interface”) are met when a pairing signal is generated by the GUI of Kalliola’s WCD. The Petition further explains that the pairing signal is generated in response to the user selecting the GUI’s pairing menu option on Kalliola’s touch screen. Accordingly, the Petition’s mapping of the “pairing signal” is based on Kalliola as modified by Vauclair, not Vauclair standing alone. The Petition explains:

“A POSITA 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.” *Petition*, 34 (citing Ex. 1003, ¶ 172) (emphasis added).

“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.” *Petition*, 35 (citing Ex. 1003, ¶ 173) (emphasis added).

“A POSITA 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.” *Petition*, 35 (citing Ex. 1003, ¶ 173) (emphasis added).

The accompanying declaration of Dr. Buehrer is likewise based on this combination of Kalliola and Vauclair:

“Kalliola modified by Vauclair teaches a mobile communication device (i.e., WCD) with **a graphical user interface that displays a menu from which a user selects, via the touch screen**, at least one remote device (i.e., signal emitter 500) to pair with.” Ex. 1003, ¶ 171 (emphasis added).

“Accordingly, it would have been obvious, and a POSITA 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 (emphasis added).

“It would have been obvious to a POSITA 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.” Ex. 1003, ¶ 173.

Therefore, the *Petition* relies on the Kalliola-Vauclair combination, and not Vauclair’s stand-alone teachings, for limitation 1(d)(v).

C. A POSITA Would Have Found It Obvious to Modify Kalliola Based on Vauclair's Teachings

It would have been obvious to apply Vauclair's teaching that user input 28 generates a pairing signal in response to user selection of a pairing option to the user input of Kalliola's WCD. *Petition*, 23-25; Ex. 1003, ¶¶ 171-176. Kalliola's touchscreen already displays a GUI that includes menu options through which a user can interact with Kalliola's WCD. Therefore, the modification to present a user input (GUI including a pairing menu option) that generates a pairing signal (per Vauclair) is straightforward. The user continues to interact with the WCD through menu options displayed on the touchscreen. *Petition*, 34 (citing Ex. 1003, ¶ 172). The menu options are part of the GUI, just as the menu options in the '680 Patent's embodiments are part of the GUI. '680 *Patent*, 17:64-67 ("As shown, 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 such as devices 70 or 72, or devices 80-85."); Ex. 1041, 65:25–66:5 (THL's expert agreeing '680 Patent's menu options are part of the GUI).

A POSITA would have been motivated to make the combination because, as Dr. Buehrer explains, a POSITA would have recognized that Kalliola already teaches a WCD that allows a user to locate signal emitters 500, but "Kalliola does not describe the initial pairing process between the WCD 100 and the signal emitter 500." Ex. 1003, ¶ 164. "A POSITA would have looked to other references, such as

Vauclair, describing wireless pairing procedures when implementing Kalliola's object-finding system." *Id.* Bluetooth pairing menus, such as described by Vauclair, were already well-known at the time. Ex. 1003, ¶¶ 71-75, 176.

Implementing Vauclair's teaching of pairing signal generation to Kalliola's touchscreen-based GUI would also have been obvious to a POSITA. *Petition*, 34-36; Ex. 1003, ¶¶ 171-176. A POSITA would have been motivated to retain the existing touchscreen-based GUI user input and would therefore have applied Vauclair's teachings to the existing touchscreen-based GUI of Kalliola's WCD. Ex. 1003, ¶ 68 (explaining prevalence of touch screens); ¶ 154 (identifying the advantages of using a touch screen).

It further would have been obvious to apply Vauclair's teaching of pairing signal generation to Kalliola's touchscreen-based GUI because a POSITA would have understood that Vauclair's user input 28 and Kalliola's touchscreen-based GUI are each an "input device" that "converts data from the form in which it has been received into electronic signals that can be interpreted by a computer." Ex. 1003, ¶ 173 (citing *Graf* (Ex. 1037) at 376); Ex. 1041 at 72:8–73:9. That an input device generates signals was well-understood, and specifically, "[g]enerating processor signals in response to receiving user input via the device's user interface (e.g., a graphical user interface) was a fundamental concept well before the '680 Patent." Ex. 1003, ¶¶ 174, 71-75. A POSITA would have been familiar with commercially

available examples where pairing was initiated by selection of a menu option presented on a GUI. Ex. 1003, ¶¶ 71-75, 174 (discussing Ericsson T39).

A POSITA also would have been familiar with how touchscreens and GUIs operated. Touch screens operate through touch sensors that detect a voltage change to determine the location of the touch on the screen and the graphical input element corresponding to the location of the touch. Ex. 1003, ¶¶ 67 (citing iPhone GUI input elements displayed on touch screen); 70 (citing Ex. 1024 (*Kolokowsky*) at 2). Accordingly, touch screens “allowed the user to interact directly with the graphical user interface displayed on the touch screen.” Ex. 1003, ¶¶ 66, 70. Based on these fundamental characteristics of touch screens, a POSITA would have understood that in the Kalliola-Vauclair combination, there would be “signals generated by the graphical user interface from the user’s interaction at the touch screen,” which “would be sent to the WCD’s processor so that the processor can interpret the user’s input and initiate the wireless device pairing sequence[.]” Ex. 1003, ¶ 173.

The proposed combination of Kalliola and Vauclair is also consistent with the embodiments described in the ’680 Patent. In some embodiments, the user input that generates a signal is a physical button akin to Vauclair’s keypad and scroll buttons and a signal is generated responsive to the user selecting the physical button. ’680 *Patent*, 5:19-22 (“**The user interface** of the wireless device 120 **generates a** location request **signal** in response to an indication from a user by for instance,

pushing one of the push buttons 10.”). In other embodiments, the user input is a graphical element (menu option) on a GUI of a touchscreen that generates a signal responsive to the user selecting the menu option. *Id.* (explaining that “user interfaces 132 and 142 each can contain...a touch screen” (8:28-32) and “a user interface, such as user interface 132 or 142 generates a pairing signal in response to an indication from a user to pair the devices” (15:62-64)). Therefore the ’680 Patent’s descriptions are consistent with the Kalliola-Vauclair combination presented in the Petition.

The ’680 Patent’s limited teachings regarding generating a “pairing signal” are commensurate in detail and disclosure with the teachings of Vauclair relied on in the Petition. *Cf. Vauclair*, [0036] (“For example, to initiate the [pairing] process, the user may select a pairing option from a menu, using the user input 28.”); [0030] (“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.”). In this regard, the ’680 Patent and Vauclair rely on the ordinary skill of the POSITA in the same way. *Google LLC v. Cywee Grp. Ltd.*, IPR2018-01258, Paper 90 at 38-39 (PTAB Jan. 9, 2020) (where the challenged patent does not explain how to implement a facet of the technology, it “acts as an admission that such details were within the knowledge of one of ordinary skill”); *In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994) (“[T]he Board’s observation that appellant did not provide the type

of detail in his specification that he now argues is necessary in prior art references supports the Board’s finding that one skilled in the art would have known how to implement the features of the references[.]”).

III. THE INSTITUTION DECISION ERRED IN CONSIDERING VAUCLAIR IN ISOLATION

By considering Vauclair’s teachings in isolation, the Board and THL rebut a mapping not presented in the Petition and commit legal error. It is well-established that where, as here, the validity challenge is based on a combination of references, arguments that “attack the disclosures of the two references individually” lack merit. *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed. Cir. 2019). “The question in an obviousness inquiry is whether it would have been obvious to a person of ordinary skill in the art to combine the relevant disclosures of the two references, not whether each individual reference discloses all of the necessary elements.” *Game & Tech. Co., Ltd. v. Wargaming Grp. Ltd.*, 942 F.3d 1343, 1352 (Fed. Cir. 2019). The Petition’s showing that the ’680 Patent is unpatentable cannot be overcome “by attacking [Kalliola and Vauclair] individually where the [Petition] is based upon the teachings of a combination of references.” *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

The Federal Circuit recently vacated and remanded a PTAB decision for exactly this legal error. *Palo Alto Networks, Inc. v. Centripetal Networks, LLC*, 122 F.4th 1378, 1386 (Fed. Cir. 2024). The facts of that case are instructive because they

bear many similarities to the situation here. In *Palo Alto Networks*, the Federal Circuit focused on the final requirements of claim 1 of U.S. Patent No. 10,530,903 (“the ’903 Patent”), shown below. They require, in relevant part, performing a “correlating” step and then “responsive to the correlating,” “generating...an indication,” and “transmitting...the indication”:

correlating, based on the differences and by comparing the first data and the second data, at least a portion of the plurality of first packets and at least a portion of the plurality of second packets; and

responsive to the correlating:

generating, by the computing system, an indication of the first host; and

transmitting, by the computing system, the indication of the first host.

Palo Alto Networks, Inc., 122 F.4th at 1386 (citing ’903 Patent, claim 1) (emphasis added).

The IPR Petition relied on a base reference (Paxton) for every limitation except the final “transmitting” step. For the “transmitting” step, the Petition relied on a secondary reference (Sutton), which the Board agreed disclosed a “transmission[.]” However, the Board reasoned (and it was undisputed) that Sutton’s transmission was “unrelated to any correlation[.]” *Palo Alto Networks*, 122 F.4th at 1383. The Board further reasoned that the Petition did not identify “the necessary

bridge showing that one of ordinary skill in the art would have appreciated that the transmission would be responsive to the correlation.” *Id.* at 1383-84.

The Federal Circuit vacated and remanded for two reasons, and both are instructive to the facts of this case as well. First, the Federal Circuit faulted the PTAB’s decision for failing to make a clear finding on whether a POSITA “would have been motivated to modify Paxton by adding Sutton’s step of transmitting a notification of malicious activity **after Paxton’s correlation step** as proposed by PAN.” *Id.* at 1385. Here, the motivation to combine Kalliola and Vauclair presented in the Petition has not been challenged by THL, nor was it considered by the Board in the Institution Decision.

Second, the PTAB “erred by looking at the references individually” and evaluating only whether either reference **individually** taught “transmitting” “responsive to the correlating[.]” *Id.* at 1386. The Federal Circuit directed the Board to “consider whether the particular combination argued by the Petitioner—modifying Paxton by adding Sutton’s notification step after Paxton’s correlation step—would meet the claim limitations at issue.” *Id.* It did not matter that neither Patton nor Sutton alone taught “transmitting” that was “responsive to the correlating[.]” *Id.* Likewise, here, it is irrelevant whether Kalliola or Vauclair alone teaches a GUI that generates a pairing signal so long as, **in combination**, the claim limitation is met. When Vauclair’s teaching that user input 28 generates a pairing

signal is applied to Kalliola's user input (which is a GUI provided on a touchscreen and presenting a menu options), Kalliola's GUI generates a signal per Vauclair's teachings, and limitation 1(d)(v) is met.

IV. THE INSTITUTION DECISION OVERLOOKED THE ROLE OF USER INPUT 28 IN THE PROPOSED COMBINATION

In addition, the Board appears to misunderstand Vauclair's user input 28 as an action of user input as opposed to a user input element that is identified by the nomenclature "user input." In the ID, the Board stated that "[w]hile 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." *ID*, 47 (emphasis added). To the extent that the Board's reference to "action of user input" treated "user input" as referring to actions of the user, Petitioner respectfully submits that the Board overlooked Vauclair's teachings.

Vauclair's user input 28 refers specifically to a keypad and scroll buttons. *Vauclair*, [0030]. THL's expert agrees. Ex. 1041, 69:4-16. Vauclair teaches that user input 28 is used to select a menu option and generate a pairing signal. *Petition*, 33-34 (citing *Vauclair*, [0030]). The Board and THL agree that user input 28 generates a pairing signal per Vauclair's teachings. *ID*, 47 (Board agreeing); Paper 12, 16 (THL agreeing); Ex. 2002, ¶ 52 (Dr. Feuerstein agreeing). Because Vauclair's user input 28 generates a signal, when the teachings of Vauclair are applied to the user

input of Kalliola— a GUI provided on a touchscreen and presenting menu options—the GUI (which includes the menu option) generates the signal.

By misunderstanding Vauclair’s user input to be an *action* as opposed to a user input element, the Board’s opinion erred in fairly considering Vauclair’s mapping and the combination.

V. THL’S RESPONSE ERRONEOUSLY ATTACKS VAUCLAIR AS A STAND-ALONE REFERENCE

Neither THL’s Response nor the supporting declaration of its expert provide an analysis of or rebuttal to the Petition’s (1) explanation of the state of the art, (2) explanation of what Kalliola teaches, (3) mapping of any limitation other than the phrase “the pairing signal generated by the graphical user interface” in 1(d)(v), (4) motivations to combine, or (5) any dependent claim. THL’s expert admits that he did not provide any analysis of these issues, and claimed he chose not to “in the interest of brevity.” (Ex. 1041, 26:18-24; 37:1-4). His complaints about the need for “brevity” fall flat, given the lack of word limits in declarations and given that THL’s Response was a mere 3,726 words. Accordingly, the opinions of Petitioner’s expert on the state of the art, Kalliola’s disclosures, motivations to combine, and every claim and limitation other than 1(d)(v) are unrebutted.

A. THL's Response Does Not Address the Kalliola-Vauclair Combination

Likewise, THL's Response does not address the Kalliola-Vauclair combination presented in the Petition. In fact, Dr. Feuerstein's declaration goes so far as to claim that Dr. Buehrer relies exclusively on Vauclair's teachings and "does not propose modifying any other prior art reference to arrive at this claim limitation, or explain why a POSITA would have had a reason to do so." Ex. 2002, ¶ 56. The word "Kalliola" does not appear in any substantive argument made by THL in its Response because neither THL nor Dr. Feuerstein considered the disclosures of Kalliola, or how the Petition maps the **combination** of Kalliola and Vauclair for limitations 1(d)(iii), 1(d)(iv) and 1(d)(v), even though those limitations provide antecedent basis for relevant claim limitations. *See* Paper 12, 14-20. Dr. Feuerstein does not address the combination presented in the Petition; therefore, his opinions are unreliable and unhelpful to the Board as the trier of fact. *In re Keller*, 642 F.2d at 426 ("one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.").

The sole argument presented in THL's Response considers the disclosures of Vauclair in isolation and concludes that Vauclair standing alone does not teach "the pairing signal generated by the graphical user interface" limitation of 1(d)(v). *Response*, 14-20. THL errs in considering the disclosures of Vauclair in isolation

rather than in combination with primary reference Kalliola's WCD and touchscreen-based GUI, including user-selectable menu options.

1. The Petition Does Not Support Reading Vauclair's Teachings in Isolation

Moreover, THL's reading is not supported by the Petition. The Petition relies on Kalliola to satisfy the hardware requirements preceding 1(d)(v), explaining that the **touch screen** is Kalliola's touch screen that presents a GUI. *Petition*, 20-21, 23-25. Likewise, the **processor** is Kalliola's processor, which is coupled to the touch screen and configured to execute operational instructions to cause a GUI to be displayed via the touch screen. *Petition*, 22-29. The **graphical user interface** is Kalliola's GUI, modified to include **a selectable pairing menu option** as taught by Vauclair. *Petition*, 34-36. Therefore, any critique of whether Vauclair's GUI generates a signal based on Vauclair's user input 28 misses the heart of the Kalliola-Vauclair combination.

The Petition's mapping for limitation 1(d)(iii) further confirms that the Petition relies on the Kalliola-Vauclair combination to satisfy limitations 1(d)(iv) and 1(d)(v). Limitation 1(d)(iii) requires **the processor to operate in association with the graphical user interface** to perform the following claim steps, including "generate a pairing signal" as required by 1(d)(iv). The Petition explains that for each claimed step, including 1(d)(iv), "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.” *Petition*, 25. The *Petition*’s mapping for 1(d)(iii) precludes the possibility that Vauclair standing alone is relied upon for any of the claim limitations that follow.

2. It Would Be Improper to Consider Limitation 1(d)(v) in Isolation from Prior Limitations that Provide Antecedent Basis

To the extent THL argues that only the arguments under heading 1(d)(v) of the *Petition* should be considered, that argument also carries no weight. The terms “the pairing signal” and “the graphical user interface” derive antecedent basis from earlier claim limitations, including 1(d)(iv), and are discussed in the *Petition* when they first appear in the claims. In fact, the *Petition* expressly discusses the limitation “the pairing signal [is] generated by the graphical user interface” in its analysis of 1(d)(iv). *See e.g., Petition*, 33 (referring specifically to Claim 1(d)(v)); 34-36 (discussing how “the GUI presented on Kalliola WCD’s touchscreen... would have generated [pairing] signals”). Considering limitation 1(d)(v) in isolation and apart from the prior limitations that provide antecedent basis is improper and does not fairly reflect the Ground 1 combination of Kalliola and Vauclair presented in the *Petition*.

Against this backdrop, THL errs in considering whether Vauclair’s disclosures, standing alone, satisfy 1(d)(v) or any other claim limitation.

B. The Conclusory Declaration of THL’s Expert Adds Nothing to THL’s Response

THL’s expert provided a brief declaration in support of THL’s Response. While Dr. Feuerstein claims to have drafted the declaration himself, nearly every paragraph parrots exactly the same language in THL’s Responsive brief. Such opinions, which “merely repeat[], *verbatim*, the conclusory assertion for which it is offered to support...is entitled to little weight.” *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022) (precedential) (citing 37 C.F.R. § 42.65(a)). As noted above, Dr. Feuerstein provided no analysis or opinion whatsoever on any claim limitation (other than 1(d)(v)), the Kalliola-Vauclair combination, or motivations to combine, despite ample opportunity to do so.

VI. DR. FEUERSTEIN’S UNTIMELY NEW OPINIONS

At his deposition, Dr. Feuerstein presented several new opinions that go outside the scope of the arguments presented in the Petition and THL’s Response. Though untimely and improper for that reason alone, each is easily disposed of on the merits for the reasons below.

A. Dr. Feuerstein’s New Deposition Opinions Confirm He Did Not Consider the Kalliola-Vauclair Combination

At his deposition, Dr. Feuerstein acknowledged that he considered Vauclair alone for limitation 1(d)(v), but he stated that his “interpretations are the same” if limitation 1(d)(v) relies on a combination of Kalliola and Vauclair. (Ex. 1041, 52:19–53:8). The only way his interpretation could be “the same” is if he

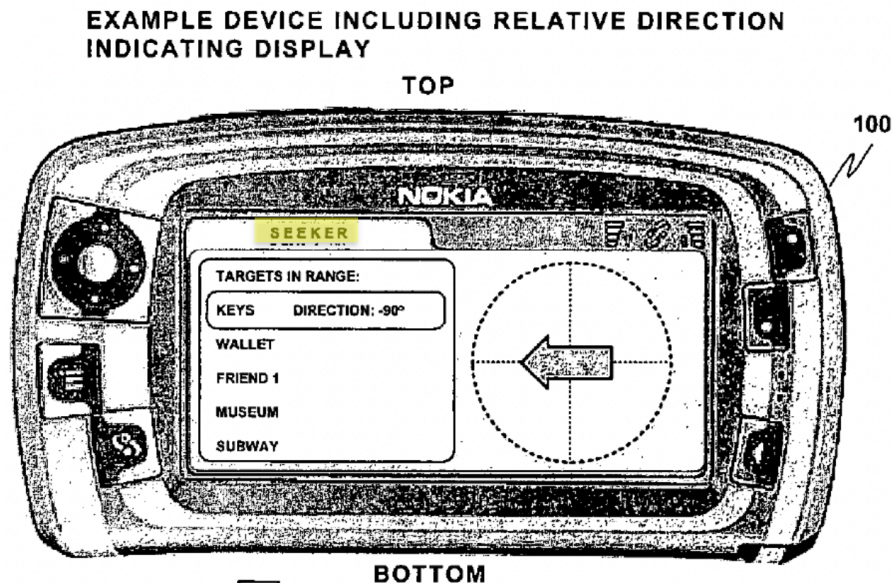
misunderstands the proposed Kalliola-Vauclair combination. Indeed, he assumed that if you combine Kalliola and Vauclair, a keypad would have been used, rather than Kalliola's touchscreen. *Id.*, 53:9–54:12 (“Vauclair’s pairing in relation to Kalliola’s WCD, a POSITA would understand and perform that based on Vauclair’s teachings in relation to pairing **using the keypad.**”) (emphasis added). There is no support for such an interpretation in the Petition or in Dr. Feuerstein’s declaration.

Dr. Feuerstein has not considered whether implementing the teachings of Vauclair to Kalliola’s WCD to give effect to a ***combined graphical user interface including a selectable pairing menu option*** would satisfy the “pairing signal” limitations of claim 1. He considered only what would happen if Vauclair is bodily incorporated into Kalliola, which is the wrong analysis. “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference[.]” *Allied Erecting & Dismantling Co., Inc. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (quoting *In re Keller*, 642 at 425); *see also In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements.”). Because in the Kalliola-Vauclair combination Vauclair’s keypad would not be used, Dr. Feuerstein’s opinions are off-point.

B. Dr. Feuerstein's New Opinion on What Constitutes a Graphical User Interface Is Beyond the Scope of the Response and Contrary to the '680 Patent's Specification

Dr. Feuerstein next questioned whether Vauclair or Kalliola disclose a GUI. (Ex. 1041, 38:12–39:5; 66:19-24). He speculated that a menu item could be purely text, and “a pure text space display **might not** be considered a graphical user interface.” *Id.* at 66:25–67:13 (emphasis added). No such attacks can be found in THL's Response or Dr. Feuerstein's declaration.

In any event, the Petition and Dr. Buehrer's declaration foreclose Dr. Feuerstein's position. *Petition*, 23-25; Ex. 1003, ¶¶ 158-160. Kalliola discloses a GUI including selectable menu options in, for example, Kalliola's SEEKER application. *Kalliola*, [0026], [0042], [0044], [0051], [0071].



Kalliola, Fig. 5 (annotation added). The Petition relies on Kalliola’s GUI, modified to include a pairing menu option as taught by Vauclair. *See e.g.*, Petition, 23-25, 34-36. That Kalliola teaches a GUI is un rebutted. Ex. 1041, 36:5-37:4 (Dr. Feuerstein admitting that he provided no rebuttal in his report). Because the Petition shows with un rebutted expert testimony that a limitation is taught by a prior art reference, “the only conclusion supported by the evidence is that [the reference] teaches the disputed limitation”). *Google LLC v. Ji-Soo Lee*, 759 F. App’x 992, 997 (Fed. Cir. 2019).

Dr. Feuerstein’s new opinion is also inconsistent with the ’680 Patent’s specification. Figure 18 shows a GUI with text-based menu options.

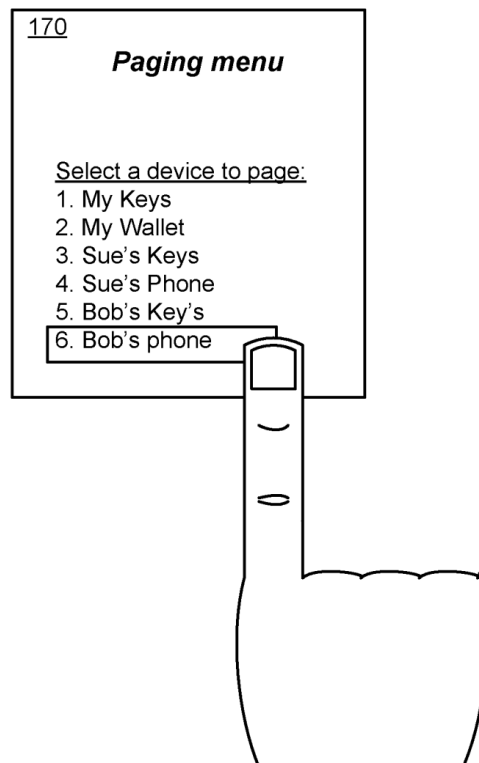


FIG. 18

'680 Patent, FIG. 18. According to Dr. Feuerstein, Figure 18 only shows a GUI because there is “a box showing around the menu item number six, Bob’s phone” therefore, the image shows “more than text being displayed.” (Ex. 1041, 67:25–68:12). The '680 specification makes no such distinction. '680 Patent, 17:64-65 (“As shown [in Fig. 18.], the graphical user interface includes a menu”). Compare *Kalliola*, Fig. 5, [0071] (identifying the “keys” target as “currently selected”). Accordingly, Dr. Feuerstein’s testimony on this new theory is also unreliable.

C. Dr. Feuerstein Misunderstands the Role of Kalliola’s Touchscreen in the Kalliola-Vauclair Combination

Dr. Feuerstein’s final novel position doubles down on a misunderstanding of how the Kalliola-Vauclair combination would function. As a reminder, Dr. Feuerstein’s declaration argues that Vauclair’s user input 28 generates a pairing signal but display 26, and any GUI displayed thereon, does not. This is the wrong analysis for the reasons discussed above.

Attempting to pivot during his deposition, Dr. Feuerstein instead began claiming that Vauclair and Kalliola both have “distinct separate” input and output and therefore in his view, Kalliola, like Vauclair, does not satisfy the “pairing signal” limitation of 1(d)(v). See Ex. 1041, 32:7-35:3. Dr. Feuerstein’s declaration does not discuss the teachings of Kalliola, it does not mention Kalliola’s user input or user output, and it does not cite Figure 3 of Kalliola, which is the only support he identified for his on-the-fly opinion. In fact, it is not clear why Dr. Feuerstein

believes that the division of user input and user output is relevant at all; he admits that the input and output do not need to be the same to meet claim 1. (Ex. 1041, 74:14-19).

Once again, the Petition and Dr. Buehrer's declaration foreclose Dr. Feuerstein's new arguments, which once again misunderstand the role of Kalliola's touchscreen in the Kalliola-Vauclair combination. Kalliola's touchscreen is both how the WCD displays information to the user and how the user provides input to the WCD by, for example, selecting menu options. *Kalliola*, [0042] (the WCD's user interface "includes visual, audible and tactile elements which allow the user 110 to receive data from, and enter data into, the device."); *Petition*, 24-25; Ex. 1003, ¶¶ 160, 171-176. Thus, Dr. Feuerstein's claim that the input and output of Vauclair, which uses a keypad or scroll buttons for user input, is "analogous" to the touchscreen-based input and output of Kalliola is based on a misunderstanding of the Kalliola-Vauclair combination. Even if this argument had been presented in THL's Response (it was not), it is of no moment.

VII. CONCLUSION

Petitioner respectfully requests the Board find all remaining Challenged Claims (Nos. 1-9) unpatentable.

Dated: January 23, 2025

Respectfully submitted,

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COUNSEL FOR PETITIONER

UPDATED EXHIBIT LIST

Previously Filed by Petitioner:

Exhibit 1001	U.S. Patent No. 11,265,680 to Howard et al.
Exhibit 1002	File History of U.S. Patent No. 11,265,680
Exhibit 1003	Declaration of R. Michael Buehrer, Ph.D.
Exhibit 1004	U.S. Patent Publication No. 2008/0197229A1 to Kalliola et al.
Exhibit 1007	U.S. Patent Publication No. 2008/0320587A1 to Vauclair et al.
Exhibit 1008	U.S. Patent Publication No. 2008/0125040A1 to Kalayjian
Exhibit 1009	U.S. Patent No. 6,487,595 to Turunen et al.
Exhibit 1010	U.S. Patent Publication No. 2004/0252030A1 to Trimble et al.
Exhibit 1011	THL's Opening Claim Construction Brief dated September 14, 2023
Exhibit 1014	ISO/IEC 24730-2:2006(E) Information technology – Real-time locating systems (RTLS) – Part 2: 2,4 GHz air interface protocol. International Organization for Standardization and the International Electrotechnical Commission (2006)
Exhibit 1015	Hui Liu, Houshang Darabi, Pat Banerjee, and Jing Liu, Survey of Wireless Indoor Positioning Techniques and Systems, IEEE Transactions on Systems, Man, and Cybernetics-Part C: Applications and Reviews, Vol. 37, No. 6 (November 2007)
Exhibit 1016	A Comprehensive Look into the RTLS System, https://www.mokosmart.com/look-into-rtls-system/ (August 2021, retrieved August 25, 2023)
Exhibit 1017	Roy Want, Andy Hopper, Veronica Falcão, and Jonathan Gibbons, The Active Badge Location System, ACM Transactions on Information Systems, Vol. 10, No. 1 (January 1992)
Exhibit 1018	Paramvir Bahl and Venkata N. Padmanabhan, RADAR: An In-Building RF-based User Location and Tracking System, Proceedings IEEE INFOCOM 2000. Conference on Computer Communications. Nineteenth Annual Joint Conference of the IEEE Computer and Communications Societies pp. 775-784 vol.2, (March 2000)
Exhibit 1019	Bob Paddock, A Guide to online information about: Radio Frequency Identification (RFID), https://web.archive.org/web/20060513161655/http://archive.chipcenter.com/circuitcellar/october00/c1000rp52.htm (August 2001, retrieved September 7, 2023)
Exhibit 1021	IEEE Standard for Information technology– Local and metropolitan area networks– Specific requirements– Part 15.4: Wireless Medium

	Access Control (MAC) and Physical Layer (PHY) Specifications for Low-Rate Wireless Personal Area Networks (WPANs): Amendment 1: Add Alternate PHYs, IEEE Std 802.15.4a-2007 (Amendment to IEEE Std 802.15.4-2006) (2007)
Exhibit 1018	Kaveh Pahlavan, Xinrong Li, and Juha-Pekka Mäkelä, Indoor Geolocation Science and Technology, IEEE Communications Magazine (March 2002)
Exhibit 1019	Jeffrey Hightower and Gaetano Borriello, A Survey and Taxonomy of Location Systems for Ubiquitous Computing, Technical Report UW-CSE 01-08-03 (August 2001)
Exhibit 1020	PARC History – A Legacy of Innovation and Inventing the Future, https://www.parc.com/about-parc/parc-history/ (retrieved June 26, 2023)
Exhibit 1021	Guifx, Touchscreens That Changed the World, https://www.guifx.com/touchscreens-that-changed-the-world/ (retrieved June 26, 2023)
Exhibit 1022	iPhone User’s Guide, Apple Inc. (2007)
Exhibit 1023	Majority of smart phones now have touch screens, https://www.canalys.com/newsroom/majority-smart-phones-now-have-touch-screens 2/7 (February 8, 2010, retrieved October 11, 2023)
Exhibit 1024	Steve Kolokowsky and Trevor Davis, Touchscreens 101: Understanding Touchscreen Technology and Design, Cypress Semiconductor Corp. (June 2009)
Exhibit 1025	U.S. Patent Publication No. 2006/0026521A1 to Hotelling et al.
Exhibit 1026	The History of Bluetooth, The History of Bluetooth - Auris, Inc (theauris.com) Auris, Inc. (retrieved June 26, 2023)
Exhibit 1027	Ericsson T39 User’s Guide First Edition, Ericsson Mobile Communications AB (March 2001)
Exhibit 1028	How does Bluetooth work?, Scientific American https://www.scientificamerican.com/article/experts-how-does-bluetooth-work/#:~:text=Bluetooth%20technology%20uses%20the%20principles,devices%20that%20are%20actively%20inquiring , (November 5, 2007, retrieved September 8, 2023)
Exhibit 1029	IEEE Std. 802.15.1-2005, entitled “IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific

	requirements—Part 15.1: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Wireless Personal Area Networks (WPANs)”
Exhibit 1030	Specification of the Bluetooth System, Bluetooth Core Specification version 1.2 (05 November 2003) (“Bluetooth Specification)
Exhibit 1031	Varun Almaulu and David Cheng, Bluetooth Triangulator, Department of Computer Science and Engineering, University of California, San Diego, (2006)
Exhibit 1032	Josef Hallberg, Marcus Nilsson, Kåre Synnes, Positioning with Bluetooth, 10th International Conference on Telecommunications (April 2003)
Exhibit 1033	Julie A. Kientz, Shwetak N. Patel, Arwa Z. Tyebkhan, Brian Gane, Jennifer Wiley, and Gregory D. Abowd, Where’s My Stuff? Design and Evaluation of a Mobile System for Locating Lost Items for the Visually Impaired, Proceedings of the 8th international ACM SIGACCESS conference on Computers and accessibility (October 2006)
Exhibit 1034	Harry Newton, Newton’s Telecom Dictionary (20th updated and expanded edition ed. 2004)
Exhibit 1035	P. Orsatti, F. Piazza & Q. Huang, A 20-mA-Receive, 55-mA-Transmit, Single-Chip GSM Transceiver in 0.25-/Spl Mu/m CMOS, 34 IEEE Journal of Solid-State Circuits 1869 (1999)
Exhibit 1036	Christian Gehrman, Joakim Persson & Ben Smeets, Bluetooth Security (2004)
Exhibit 1037	Rudolf F. Graf, Modern Dictionary of Electronics, Newnes (7 th edition, 1999)
Exhibit 1038	WO 2009/130509A2 to Elsom-Cook
Exhibit 1039	Aaron Beach, Mike Gartrell & Richard Han, Solutions to Security and Privacy Issues in Mobile Social Networking, 4 in 2009 International Conference on Computational Science and Engineering 1036 (2009)
Exhibit 1040	Christian Bettstetter, Hans-Jorg Vogel & Jorg Eberspacher, GSM Phase 2+ General Packet Radio Service GPRS: Architecture, Protocols, and Air Interface, 2 IEEE Communications Surveys 2 (1999)

Currently Filed by Petitioner:

Exhibit 1041	Deposition Transcript of Dr. Martin Feuerstein dated December 10, 2024
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CERTIFICATION OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24 that the foregoing *Petitioner's Reply to Patent Owner's Response*, excluding any table of contents, certificates of service or word count, or appendix of exhibits, contains 5,549 words according to the word-processing program used to prepare this document (Microsoft Word) and is within the 5,600 word limit for replies to patent owner responses to petitions.

Dated: January 23, 2025

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CERTIFICATE OF SERVICE ON PATENT OWNER

UNDER 37 C.F.R. § 42.6

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(b), the undersigned certifies that on January 23, 2025, a complete and entire copy of *Petitioner's Reply to Patent Owner's Response* and Exhibits were provided via Federal Express to the Patent Owner by serving the correspondence address of record for the '680 Patent:

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