

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

SPEIR TECHNOLOGIES LTD.,  
Patent Owner.

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IPR2023-00151  
Patent 7,110,779 B2

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Before BARBARA A. PARVIS, SHEILA F. McSHANE, and  
SCOTT RAEVSKY, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–34 (the “challenged claims”) of U.S. Patent No. 7,110,779 B2 (Ex. 1001, “the ’779 patent”). Speir Technologies Ltd. (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). With authorization, Petitioner filed a Reply to the Preliminary Response (Paper 7, “Pet. Prelim. Resp. Reply”), and Patent Owner filed a Sur-reply (Paper 8, “PO Prelim. Resp. Sur-reply”).

The Board has authority to determine whether to institute an *inter partes* review. See 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the petition and the preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

For the reasons stated below, we determine that Petitioner has established a reasonable likelihood that it would prevail with respect to at least one claim. We therefore institute *inter partes* review as to all of the challenged claims of the ’779 patent and all of the asserted grounds of unpatentability in the Petition.

## II. BACKGROUND

### A. Related Matters

The ’779 patent is a subject of civil actions *Speir Technologies Ltd. v. Apple Inc.*, No. 6:22-cv-00077-ADA (W.D. Tex.) and *Speir Technologies Ltd. v. Samsung Electronics Co., Ltd.*, No. 2:21-cv-00474 (E.D. Tex.). Pet. 83; Paper 4, 2. *Speir Technologies Ltd. v. Apple Inc.* has been transferred to the Northern District of California, No. 5:23-cv-00095 (“the district court

litigation”). Pet. Prelim. Resp. Reply, 1. This case was stayed on March 30, 2023. *Id.*; PO Prelim. Resp. Sur-reply 1.

The parties also identify IPR2022-01512 (institution granted) and IPR2023-00305 (institution denied) which challenge claims of U.S. Patent No. 7,321,777 B2 (“the ’777 patent), which is the parent of the ’779 patent.

*B. The ’779 Patent*

The ’779 patent is titled “Wireless Communications System Including a Wireless Device Locator and Related Methods” and issued on September 19, 2006 from an application filed on January 29, 2004. Ex. 1001, codes (22), (45), (54).

The ’779 patent is directed to a wireless communication system that includes wireless communication devices and a wireless device locator. Ex. 1001, code (57). Figure 10, reproduced below, depicts a schematic block diagram of the wireless communication system. *Id.* at 4:34–37, 9:63–10:8.

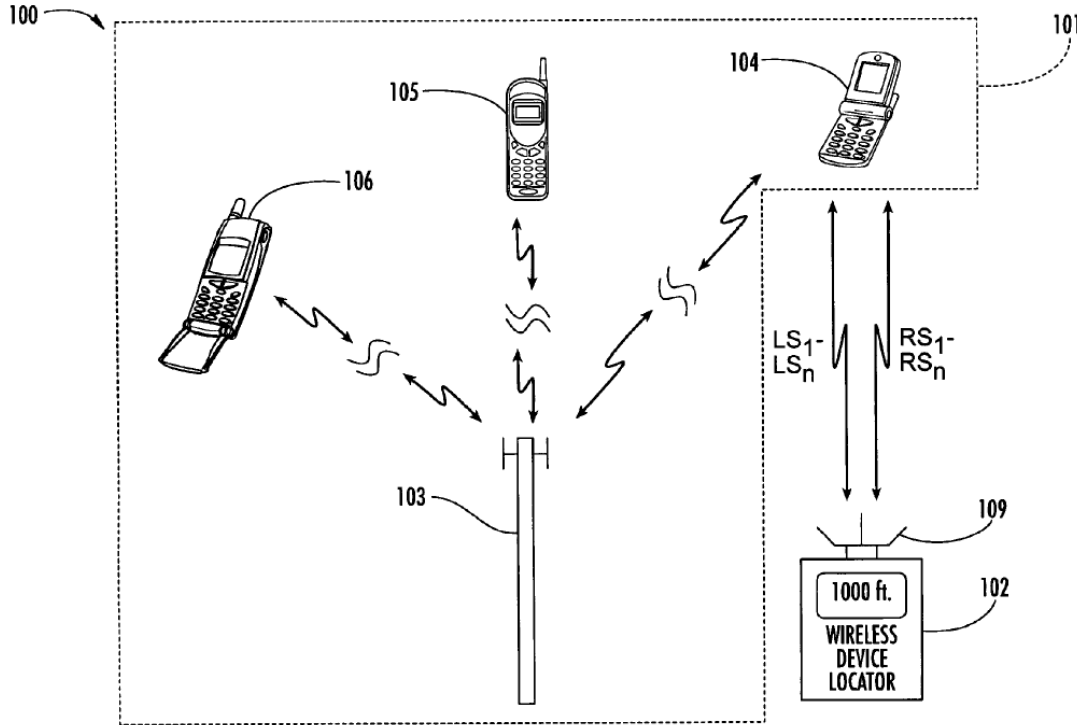


FIG. 10

Figure 10, above, illustrates wireless device locator 102 with antenna 109 used to locate cellular devices 104–106 in the network. Ex. 1001, 9:64–67. Cellular devices 104–106 receive calls via cellular tower 103. *Id.* at 9: 67–10:2.

Active range finding includes the wireless device locator transmitting a location finding signal with target cellular devices responding with a reply signal. Ex. 1001, 6:41–7:35, Fig. 3. A controller measures the “round trip time” (RTT), which includes propagation delays of the signals, and uses it to estimate the range to the target device. *Id.* at 6:41–46. The controller uses “known device latency (i.e., a mean latency) for the device type of the target device” in the determination of the propagation delay. *Id.* at 7:12–15.

*C. Illustrative Claim*

The '779 patent has 34 claims. Claims 1, 13, 18, and 27 are independent claims. Claim 1 is illustrative of the claimed subject matter and is reproduced below, with bracketed designations added for reference purposes.

1. [1.pre] A wireless communications system comprising:

[1.a.i] a plurality of wireless communications devices each having a device type associated therewith from among a plurality of different device types, [1.a.ii] each WLAN device having a unique identifier (UID) associated therewith, and [1.a.iii] each device type having a known device latency associated therewith; and

[1.b.i] a wireless device locator comprising

at least one antenna and a transceiver connected thereto, and

[1.b.ii] a controller for cooperating with said transceiver [1.b.iii] for transmitting a plurality of location finding signals to a target wireless communications device from among said plurality of wireless communications devices and [1.b.iv] inserting the UID for said target wireless communications device in each of the location finding signals;

[1.c] said target wireless communications device transmitting a respective reply signal for each of said location finding signals based upon the UID in the location finding signals;

[1.d] said controller of said wireless device locator also for [1.d.i] cooperating with said transceiver for receiving the reply signals,

[1.d.ii] determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of said target wireless communications device, and

[1.d.iii] estimating a range to said target wireless communications device based upon a plurality of determined propagation delays.

Ex. 1001, 10:51–11:15.

*D. Asserted Grounds of Unpatentability*

Petitioner challenges the patentability of claims 1–34 of the ’779 patent on the following grounds:

| Claims Challenged                                | 35 U.S.C. § <sup>1</sup> | Reference(s)                                 |
|--------------------------------------------------|--------------------------|----------------------------------------------|
| 1, 2, 8–10, 12, 13, 18, 19, 22–24, 26–28, 32, 34 | 103(a)                   | McCrary <sup>2</sup> , Raphaeli <sup>3</sup> |
| 1, 3–6, 10, 11, 13–17, 20, 21, 24, 25, 29–33     | 103(a)                   | McCrary, Raphaeli, Rofheart <sup>4</sup>     |
| 6, 7, 17, 21, 31                                 | 103(a)                   | McCrary, Raphaeli, Kuwahara <sup>5</sup>     |
| 1–6, 8–34                                        | 103(a)                   | Rofheart, Raphaeli, Godfrey <sup>6</sup>     |

Pet. 1.

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<sup>1</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application for the ’779 patent was filed before this date, the pre-AIA version of § 103 applies. *See* Ex. 1001, code (22).

<sup>2</sup> U.S. Patent No. 6,453,168 B1, issued September 17, 2002 (Ex. 1005).

<sup>3</sup> U.S. Patent No. 7,511,604 B2, issued March 31, 2009 (Ex. 1006).

<sup>4</sup> U.S. Patent No. 7,058,414 B1, issued June 6, 2006 (Ex. 1009).

<sup>5</sup> U.S. Patent No. 6,070,079, issued May 30, 2000 (Ex. 1007).

<sup>6</sup> U.S. Patent Publication No. US 2005/0130634 A1, published on June 16, 2005 (Ex. 1028).

### III. DISCRETIONARY DENIAL

Patent Owner requests that we exercise our discretion under 35 U.S.C. § 314(a) to deny institution. Prelim. Resp. ii–x<sup>7</sup>; PO Sur-reply 1. Patent Owner asserts that institution should be denied in view of the parallel district court litigation, now venued in the Northern District of California, which has been stayed. Pet. Prelim. Resp. Reply, 1; PO Prelim. Resp. Sur-reply 1.

Under Section 314(a), the Director has discretion to deny institution. *See* 35 U.S.C. § 314(a) (stating “[t]he Director *may not* authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition”) (emphasis added); 37 C.F.R. § 42.108(a) (stating “the Board will authorize the review to proceed”); *cf. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

The Board’s precedential decision in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”) sets forth six factors that we consider as part of this balanced assessment when determining whether to use our discretion to deny institution:

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<sup>7</sup> The Patent Owner’s Preliminary Response does not have page numbers on the individual pages. We refer to the page numbers included in the Table of Contents, which may not be completely accurate.

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

*Fintiv* at 6. Recognizing that “there is some overlap among these factors” and that “[s]ome facts may be relevant to more than one factor,” the Board “takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

We have considered Patent Owner's argument in light of the *Fintiv* factors, and we decline to exercise our discretion to deny the Petition. Of relevance is that the related district court litigation has been stayed. Accordingly, because a stay “allays concerns about inefficiency and duplication of efforts,” factors 1 and 2 strongly weigh against the exercise of discretion. *Fintiv* at 6; *see also Snap, Inc. v. SRK Technology, LLC*, Case No. IPR2020-00820, Paper 15, 9–11 (PTAB Oct. 21, 2020 (precedential as to § II.A)). As to factor 3, fact discovery had only commenced, but is now stayed, and briefing on a motion to dismiss and claim construction had been submitted, but no orders have been issued by the district court. Pet. 80; Prelim. Resp. iv, vii; Pet. Prelim. Resp. Reply 2. As such, we agree with Petitioner that the litigation is in its early stages, and this weighs against the exercise of our discretion. Pet. 80; Pet. Prelim. Resp. Reply 2.

For factor 4, as Patent Owner asserts, the invalidity contentions in the district court litigation identify the same prior art references as those in the grounds in this proceeding. Prelim. Resp. viii (citing Ex. 2003, 39–44). Petitioner states, however, that “[i]f instituted, Petitioner will not pursue in the litigation invalidity challenges against the ’779 patent that are the same as Grounds 1–4 in this Petition.” Pet. 81. This stipulation mitigates the risk of duplicative efforts. Moreover, in view of the stay, the Board will address patentability issues prior to the district court reaching them, which reduces concerns on inefficiency and conflicting results, and also provides the possibility of simplifying issues for any trial. As such, this factor weighs against the exercise of our discretion.

For factor 5, the petitioner and the defendant in the district court case are the same, so this favors the exercise of discretion. Pet. 81; Prelim. Resp. ix. Factor 6 is neutral, because we have determined that the Petition demonstrates a reasonable likelihood of prevailing and there are no other circumstances that impact our exercise of discretion.

The weight of factors 1–4 outweigh the remaining factors. Thus, based on our assessment of the *Fintiv* factors, we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny *inter partes* review.

#### IV. ANALYSIS

##### *A. Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art:

would have had a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and 2–3 years of systems/networks, including ranging/positioning systems or the equivalent. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

Pet. 4–5 (citing Ex. 1003 ¶¶ 20–22).

Patent Owner does not provide any proposed qualifications for a person of ordinary skill in the art. *See generally* Prelim. Resp.

For the purposes of this Decision, we adopt the assessment offered by Petitioner as it is consistent with the ’779 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) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner refers to claim construction positions taken for the term “known device latency” in the district court litigation, but contends that neither parties’ interpretation has any bearing on this proceeding. Pet. 2–3. Petitioner asserts that no express constructions are required in this

proceeding. *Id.* at 2. Patent Owner does not present any proposed claim constructions. *See generally* Prelim. Resp.

We determine that we need not expressly construe any claim terms at this juncture. *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; (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.<sup>8</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

### *D. Obviousness of Claims 1–6 and 8–34 Over Rofheart, Raphaeli, and Godfrey*

Petitioner contends that claims 1–6 and 8–34 would have been obvious over Rofheart, Raphaeli, and Godfrey. Pet. 52–79. To support its

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<sup>8</sup> No evidence of objective indicia of nonobviousness is presented in Patent Owner’s Preliminary Response. *See generally* Prelim. Resp.

contentions, Petitioner provides explanations as to how the combination of the prior art teaches each claim limitation and provides rationale to combine the references. *Id.* Petitioner also relies upon the Ding Declaration (Ex. 1003) to support its positions. Patent Owner argues that Petitioner relies upon impermissible hindsight reconstruction for combining the prior art. Prelim. Resp. x–xiii.

We begin our discussion with a brief summaries of Rofheart, Raphaeli, and Godfrey, and then address the evidence and arguments presented.

*1. Rolfheart (Ex. 1009)*

Rofheart is directed to determining a distance between a local device and a remote device based on a time between transmitting a message and receiving a response. Ex. 1009, code (57). Figure 3, reproduced below, depicts Rofheart’s wireless network that exchanges information using local and remote devices. *Id.* at 5:15–17, 17:13–14.

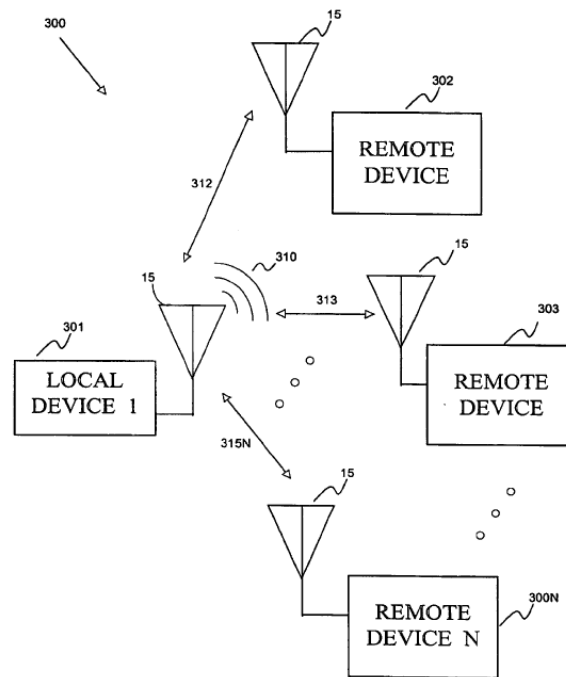


FIGURE 3

Figure 3, above, depicts wireless network 300 in which wireless devices exchange information. Ex. 1009, 17:13–14. Wireless network 300 includes local device 301 linked to first remote device 302, a second remote device 303 and N number of additional remote devices 300N. *Id.* at 17:18–21. Each of wireless devices 301–100N may be mobile devices such as mobile telephones, laptop computers, personal digital assistants, or a fixed structure device such as a retail store kiosk. *Id.* at 17:25–30.

Rofheart describes “transmitting a message from a local device to a remote device via an ultra wide band (UWB) wireless medium and receiving a response from the remote device via the UWB wireless medium.” Ex. 1009, 3:61–4:4. A time between the transmitting of the message and the receiving of the response is then determined and a function is performed in the local device based on the round trip time (RTT) determined. *Id.* at 4:1–4. Figure 7, reproduced below, illustrate steps in Rofheart, including a

message exchange, determination of RTT, and distance computation. *Id.* at 23:59–25:31.

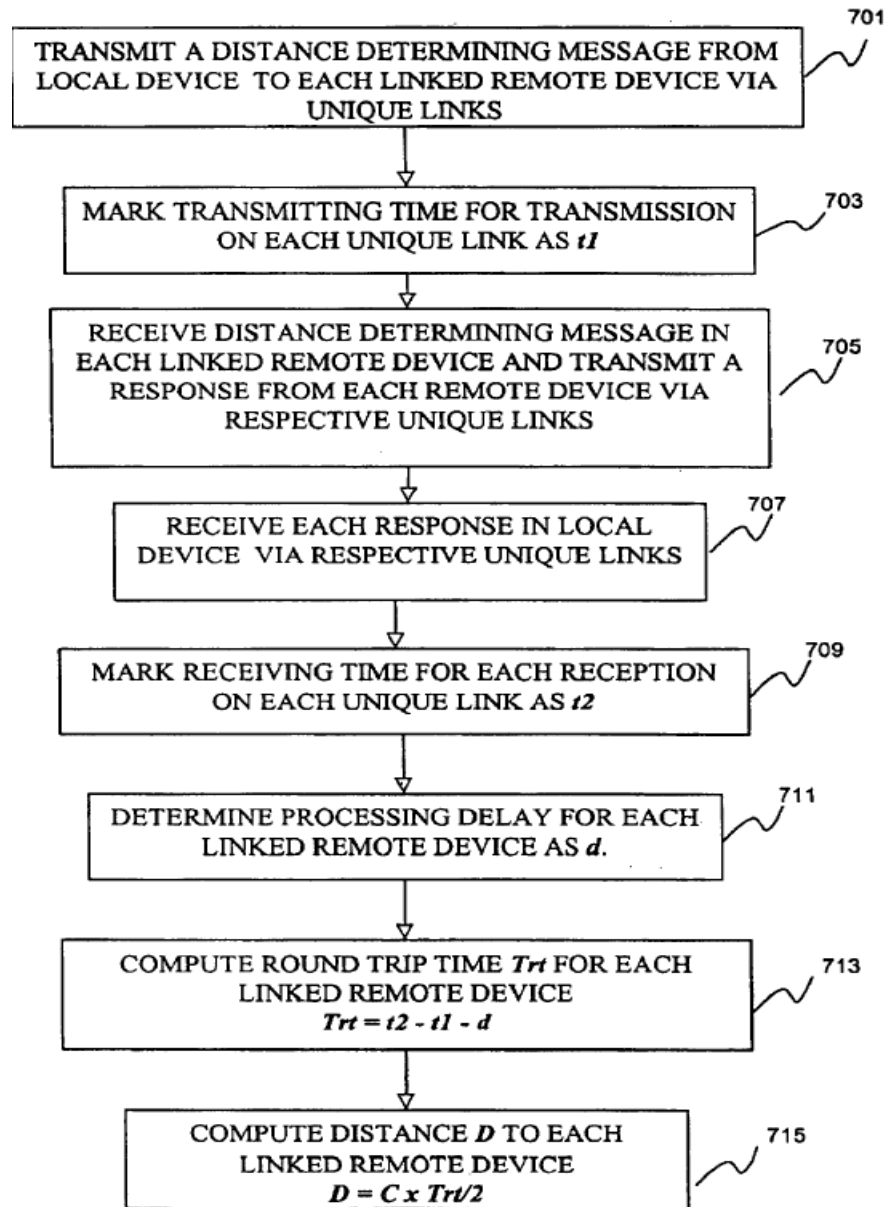


FIGURE 7

As shown in Figure 7 of Rofheart, reproduced above, at steps 711, 713, and 715, the delays for each remote device are determined, the local device calculates the round trip times, and the distances to the remote devices are computed. Ex. 1009, 24:36–25:31.

## 2. *Raphaeli* (Ex. 1006)

Raphaeli is directed to distance determination of radio frequency (RF) tags based on measuring round trip delays. Ex. 1006, code (57). Figure 2 of Raphaeli, reproduced below, depicts a schematic time chart of a broadcast signal. *Id.* at 6:32–34.

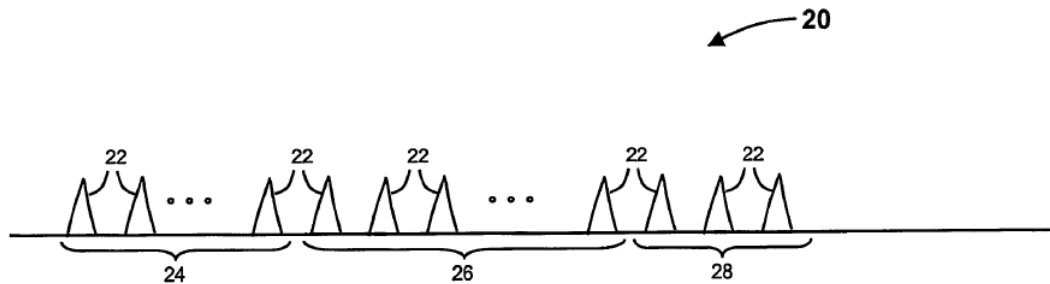


**FIG. 2**

Figure 2, above, depicts a schematic time chart illustrating a wide band broadcast interrogation signal 20. *Id.* at 9:3–5. Wide band broadcast interrogation signal 20 features a sequence of pulses 22 separated by a fixed interval, which can be organized into preamble, data, and response period portions 24, 26, 28. *Id.* at 9:15–18. Upon receiving the wide band broadcast interrogation signal 20, an RF tag responds with a response signal. *Id.* at 10:58–60.

Raphaeli determines multiple roundtrip delays based on the respective responses from the target device and calculates an average time delay based on those roundtrip delays. Ex. 1006, 16:61–17:4, 19:33–36 (“calculating an average time delay for collected pulse groups including at least the predetermined number of pulses,” so “the precision of the round trip delay determination is increased relative to a single delay measurement”).

### *3. Godfrey (Ex. 1028)*

Godfrey is directed to “location awareness in wireless networks and more particularly to identifying and communicating with proximate wireless stations,” such as “notebook (or ‘laptop’) computers, handheld computers . . . portable digital assistants (PDAs), cellular phones, etc.” Ex. 1028 ¶¶ 3, 33. Godfrey’s methods are based on the IEEE 802.11 standard, which includes transmitting/sending a frame, or message, that includes MAC addresses to convey information about the frame’s source and destination. *Id.* ¶¶ 33, 81.

### *2. Discussion*

#### *a. Claim 1*

For the teaching of the preamble [1.pre], Petitioner asserts that Rolfheart discloses the use of a wireless network which includes wireless communication devices (e.g., remote devices 302, 303, 300N) and a wireless device locator (e.g., local device 301). Pet. 59–60 (citing Ex. 1003 ¶ 274; Ex. 1009, 17:18–22).

For limitation [1.a.i], Petitioner argues that Rolfheart discloses the use of multiple wireless communication devices, which includes different types of devices. Pet. 60–61 (citing Ex. 1003 ¶¶ 275–277; Ex. 1009, 17:18–22, 17:25–30, 24:36–55, Fig. 3). For limitation [1.a.ii], Petitioner contends that in Rolfheart, reply messages from the devices have unique identifiers and a person of ordinary skill in the art would recognize that the user identifier in the reply message is associated with the device. *Id.* at 61 (citing Ex. 1003 ¶ 278; Ex. 1009, 20:62–66). For limitation [1.a.iii], Petitioner contends that in Rolfheart the remote devices have a processing delay, which is a predefined latency value, stored in the memory of the local device and keyed

to the different types of devices. *Id.* at 62 (citing Ex. 1003 ¶ 279; Ex. 1009, 4:5–21 (“the local device 301 then refers to a look up table (LUT) . . . to determine a predefined processing delay for the radio type”), 24:36–55).

For limitation [1.b.i], Petitioner asserts that Rofheart discloses that its wireless network includes a local device. Pet. 62 (citing Ex. 1003 ¶¶ 280–281; Ex. 1009, 17:18–22). Petitioner contends that the local device includes a transceiver and antenna. *Id.* at 63 (citing Ex. 1009, 17:38–46, Fig. 3). For limitation [1.b.ii], Petitioner contends that Rofheart’s local device includes a processing system that performs processing steps and transmits notifications and receives data. *Id.* at 64 (citing Ex. 1003 ¶¶ 282–283; Ex. 1009, 14:14–18, 15:60–63, 15:23–43, 17:38–46, 5:52–65, Figs. 1a, 1c, 2, 3). Petitioner argues that a person of ordinary skill in the art would have understood that Rofheart’s processor controls other components of the local device, including the transceiver. *Id.* (citing ex. 1003 ¶ 283; Ex. 1009, 15:23–43).

For limitation [1.b.iii], Petitioner contends that Rofheart teaches transmitting a plurality of location finding signals to a target remote devices. Pet. 65 (citing Ex. 1003 ¶¶ 284–286; Ex. 1009, 23:59–65, 19:63–20:9). Petitioner also asserts that Rofheart’s ranging messages exchange will be performed multiple times to obtain multiple propagation delay estimates, “which are subsequently combined by Raphaeli’s averaging technique.” *Id.* (citing Ex. 1003 ¶ 286; Ex. 1006, 9:3–21, 19:1–40). Petitioner argues that a person of ordinary skill in the art would have been “motivated to incorporate an averaging technique, such as described by Raphaeli, would have appreciated the need for Rofheart’s system to conduct multiple ranging message exchanges and calculate multiple corresponding

propagation delays.” *Id.* at 54 (citing Ex. 1003 ¶¶ 256–257). Petitioner contends that the motivation for the combination is based, *inter alia*, on Raphaeli’s express disclosure of the advantage of this method, which would have “predictably improve[d] a similar system like Rofheart’s by enhancing the precision of the estimated range.” *Id.* at 55–56 (citing Ex. 1003 ¶ 256; Ex. 1006, 19:33–40 (“By DSP 40 calculating an average time delay . . . the precision of the round trip delay determination is increased relative to a single delay measurement . . . the pulse form of each received pulse is interpolated . . . further enhancing the precision of the round trip delay determination.”)). For limitation [1.b.iv], Petitioner asserts that Godfrey discloses a UID called a MAC address in a frame/message, and this would be integrated into Rofheart’s distance determining messages. *Id.* at 65–66 (citing Ex. 1003 ¶¶ 287–292; Ex. 1028 ¶ 81). Petitioner argues that a person of ordinary skill in the art would have been motivated to include Godfrey’s teachings on MAC addresses because Rofheart discloses that “any other MAC protocol may be used to practice the present invention,” so this would have motivated one of to seek out Godfrey which provides additional types of suitable MAC protocols. *Id.* at 57–58 (citing Ex. 1003 ¶¶ 264–267; Ex. 1009, 18:15–20).

For limitation [1.c], Petitioner asserts that Rofheart discloses that the target device transmits a reply signal for each location finding signal, which includes the UID for the target wireless communications device. Pet. 67–68 (citing Ex. 1003 ¶¶ 293–294; Ex. 1009; 24:22–31). For limitation [1.d], Petitioner relies on the discussion of the prior art teachings for limitation [1.b.ii]. *Id.* at 68. For limitation [1.d.i], Petitioner relies on Rofheart’s disclosure that “the local device 301 receives responses sent from

the linked remote devices via respective unique links and marks a receive time  $t_2$  for each response received as seen in step 709.” *Id.* at 68 (citing Ex. 1003 ¶ 296; Ex. 1009, 24:28–31, Fig. 7 (step 707)). For limitation [1.d.ii], Petitioner contends that “Rofheart determines a propagation delay associated with the transmission of each location finding signal (transmitted at ‘time  $t_1$ ’), the respective reply signal therefor (received at ‘time  $t_2$ ’), and the processing delay of the remote device (the claimed known device latency[]).” *Id.* at 69–70 (citing Ex. 1003 ¶¶ 297–301; Ex. 1009, 24:10–21, 24:22–35, 24:10–55, Fig. 7). For limitation [1.d.iii], Petitioner asserts that “Rofheart discloses a range estimate equation (Eq. 10) which is based on propagation delay, e.g., round-trip time  $T_{rt}$  as discussed for [1.d.ii], to estimate a range ‘distance  $D$ ’ to the device.” *Id.* at 70 (citing Ex. 1003 ¶¶ 302–303). Petitioner further contends that in the Rofheart-Raphaeli-Godfrey combination the averaged propagation delays and the average delay value would be used in the range estimation equation. *Id.* (citing Ex. 1003 ¶ 303; Ex. 1006, 19:11–40).

At this juncture and on this record, Petitioner has made a sufficient showing that the combination of Rofheart, Raphaeli, and Godfrey teaches the preamble and all of the limitations of claim 1, with rationale to combine the references.

Patent Owner argues that the Petition relies on impermissible hindsight to modify Rofheart to include “estimating a range . . . based upon . . . a plurality of determined propagation delays.” Prelim. Resp. x. Patent Owner argues that “[t]he Petition does not distinguish between estimating a range based upon a plurality of determined propagation delays and estimating a range based upon an average of a plurality of determined

propagation delays.” *Id.* Patent Owner also asserts that the Petition makes conclusory assertions that a person of ordinary skill in the art would have incorporated Raphaeli’s alleged averaging techniques into Rofheart, and absent persuasive explanation, hindsight reconstruction is employed. *Id.* at xi–xii. Patent Owner also contends that “there is no evidence that Rofheart teaches a system that was deficient or insufficiently accurate for its intended purpose.” *Id.* at xii. Patent Owner asserts that Rofheart discloses “an ultra wide bandwidth system having 3 GHz of bandwidth has a range resolution of 1 meters. Even greater bandwidth systems can accomplish resolutions on the order of centimeters.” *Id.* (citing Ex. 1009, 17:4–7). Patent Owner argues that the Petitioner does not provide a persuasive explanation why, absent hindsight, a person of ordinary skill in the art would have added additional complexity or processing time by incorporation of Raphaeli’s alleged averaging technique. *Id.* at xii–xiii.

At this juncture, we do not find Patent Owner’s arguments persuasive. Petitioner explains that a person of ordinary skill in the art “would have contemplated conducting multiple of Rofheart’s ranging message exchanges, determining corresponding delays, and averaging those delays as taught by Raphaeli” for several reasons, including that Raphaeli discloses that its averaging method would enhance and increase the precision of the round trip delay determination. Pet. 54–57. At this juncture, we find that Petition, along with the supporting testimony of Dr. Ding (Ex. 1003 ¶¶ 255–263) provide adequate explanation of the combination of the prior art as well as why a person of ordinary skill in the art would be motivated to make that combination. Additionally, in Petitioner’s Rofheart-Raphaeli combination, there are multiple

determinations of propagation delays, and even with averaging, the range would still be “based upon” “a plurality of determined propagation delays,” as claimed. As to Patent Owner’s allegation that Rolfheart requires no additional improvement in its resolution, even if Rofheart has good performance under certain operational conditions, Raphaeli offers additional improvement.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 1 would be obvious over Rofheart, Raphaeli, and Godfrey.

*b. Claims 13, 18, and 27*

Claims 13, 18, and 27 are independent claims that have limitations that are similar to those of claim 1. Petitioner provides evidence and argument that these claims are obvious over Rofheart, Raphaeli, and Godfrey. Pet. 59–72. Patent Owner presents no additional arguments specifically directed to these claims. *See generally* Prelim. Resp. For reasons similar to those provided for claim 1, we find Petitioner’s evidence and argument is sufficient at this juncture.

*c. Claims 2–6, 8–12, 14–17, 19–26, and 28–34*

Petitioner provides evidence and argument that dependent claims 2–6, 8–12, 14–17, 19–26, and 28–34 are obvious over Rofheart, Raphaeli, and Godfrey. Pet. 72–79. Patent Owner presents no additional arguments specifically directed to these claims. *See generally* Prelim. Resp. We have reviewed the evidence and arguments and find Petitioner’s evidence and argument on the obviousness of these claims is sufficient at this juncture.

*F. Additional Grounds*

Petitioner also contends that the challenged claims would have been obvious over other grounds, identified *supra* Section II.D. Pet. 5–52. At this stage, we find that Petitioner’s showing as to obviousness over Rofheart, Raphaeli, and Godfrey for claims 1–6 and 8–34 is sufficient, and the other grounds will be addressed at trial.

V. CONCLUSION

For the foregoing reasons, we have determined that there is a reasonable likelihood that the Petitioner would prevail with respect to at least one of the claims challenged in the Petition. We therefore institute trial as to all challenged claims on all grounds stated in the Petition.

VI. ORDER

Upon consideration of the record before us, it is:

ORDERED that *inter partes* review of claims 1–34 of the ’779 patent is instituted on all grounds in the Petition;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

IPR2023-00151  
Patent 7,110,779 B2

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