UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

SPEIR TECHNOLOGIES LTD.,
Patent Owner

IPR2023-00305
Patent No. 7,321,777

PATENT OWNER'S PRELIMINARY RESPONSE

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2001	Defendant Apple Inc.'s Preliminary Invalidity Contentions in *Speir Technologies Ltd. v. Apple Inc.*, Case No. 6:22-cv-00077-ADA (W.D. Tex.)

I. Introduction

Patent Owner Speir Technologies Ltd. ("Patent Owner") submits this preliminary response to Petitioner Apple Inc.'s ("Petitioner") Petition for *inter partes* review of U.S. Patent No. 7,321,777 ("the '777 patent").

First, the Board should exercise its discretion to deny the Petition under § 314(a) because this is the type of proceeding that the Board's precedential decisions—*Valve I, Valve II,* and *General Plastic*—were developed to prevent. Here, all the *General Plastic* factors weigh against institution in light of copending IPR2022-00987 challenging the same claims of the '777 patent with the same art.

Second, the Board should deny institution because Petitioner fails to establish a reasonable likelihood of unpatentability for the independent claims under any ground, let alone present compelling evidence of unpatentability.

The Petition challenges the claims of U.S. Patent No. 7,321,777 ("the '777 Patent") under five grounds of unpatentability:

- Ground 1. Claims 1, 6–9, 12, 16–20, and 23-25 are anticipated by U.S. Patent Application Publication 2003/0174048 ("*McCorkle*," Ex. 1003).
- Ground 2. Claims 1, 3, 5–9, 12, 14–20, and 22-25 are obvious over *McCorkle*.
- Ground 3. Claims 1–3 and 5–25 are obvious over *McCorkle* in view of U.S. Patent 7,203,500 ("*Leeper*," Ex. 1004).

- Ground 4. Claims 3, 5, 14, 15, and 22 are obvious over *McCorkle* in view of U.S. Patent 5,381,444 ("*Tajima*," Ex. 1006).
- Claims 3, 5, 11, 14, 15 and 22 are obvious over *McCorkle* in view of *Leeper* and *Tajima*

All of the claims of the '777 patent recite the limitation of "estimating a range …based upon … a plurality of determined propagation delays." Ex. 1001, 11:9-11 (for claims 1-9); 11:62-64 (for claims 10-11); 12:19-21 (for claims 12-19); and 12:65-67 (for claims 20-25). With respect to this limitation, Petitioner either (i) relies on *McCorkle* as either anticipatory or obviating (Grounds 1, 2 and 4); or (ii) asserts that the limitation is obvious over *McCorkle* in view of *Leeper.*

The first challenge that *McCorkle* is either anticipatory or obviating fails. Under the only proper construction, the '777 Patent requires that the range to the target device be estimated based upon a plurality of determined propagation delays and ***not solely*** upon a single determined propagation delay. But *McCorkle* describes a range determining system that estimates the range based upon a ***single*** determined "propagation delay." As such, it cannot alone satisfy the requirement that the range to the target device is estimated based upon a plurality of determined propagation delays. For this reason, the Petition cannot show any challenged claims to be unpatentable under Grounds 1, 2 or 4.

The challenge based on the proposed combination of *McCorkle* and *Leeper* also fails. The Petition's theory relies on the assertion that a POSITA would have been motivated to modify *McCorkle's* estimation of range based upon a single determined "propagation delay" to use *Leeper*'s estimation of range based upon multiple "propagation delays." In doing so, the Petition generically asserts that *McCorkle's* system would benefit from the increased accuracy afforded by *Leeper's* approach to range estimation. But the Petition fails to provide any allegation that a POSITA would have recognized any issues with respect to the accuracy of McCorkle's unmodified system or that a POSITA would have recognized any benefit from making the modification. In fact, a POSITA would understand that the proposed combination would be ***detrimental*** to *McCorkle*, because it contradicts *McCorkle's* stated goal of minimizing the bandwidth allocated to the range messaging. A POSITA would thus ***not*** have been motivated to make the proposed combination. At most, the Petition establishes that a POSITA ***could*** have made its proposed modification to McCorkle, not that a POSITA ***would have been motivated*** to do so as required. For these reasons, the Petition cannot show any challenged claim in Grounds 3 and 5 to be unpatentable.

Even if the Board concludes that a discretionary denial is not appropriate, Petitioner has not established a reasonable likelihood of unpatentability under any ground or challenged claim. Accordingly, the Board should deny institution.

II. Institution Should Be Denied Under § 314(a)

35 U.S.C. § 314(a) gives the Board discretion to deny instituting "follow on" petitions. *General Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (Sept. 6, 2017) (precedential). The Board has often exercised this discretion to deny institution of a subsequent petition against a previously challenged patent where the subsequent petition is filed by a new petitioner. *See, e.g.*, *NetApp v. Realtime Data*, IPR2017-01195, Paper 9 (Oct. 12, 2017) ("*NetApp*") at 10; *NetApp v. Realtime Data*, IPR2017-01196, Paper 10 (Oct. 12, 2017); *NetApp v. Realtime Data*, IPR2017-01354, Paper 16 (Nov. 14, 2017); *EchoStar v. Realtime Data*, IPR2018-00614, Paper 10 (Sept. 5, 2018); *Shenzhen Silver Star Intelligent Tech. v. iRobot*, IPR2018-00761, Paper 15 (Sept. 5, 2018); *United Fire Protection v. Engineered Corrosion Solutions*, IPR2018-00991, Paper 10 (Nov. 15, 2015).

The Board has set forth seven factors for determining whether discretionary denial is appropriate (the "*General Plastic* factors"):

1. whether the same petitioner previously filed a petition directed to the same claims of the same patent;

2. whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known of it;

3. whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the first petition;

4. the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition;

5. whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent;

6. the finite resources of the Board; and

7. the requirement under 35 U.S.C. § 316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review.

General Plastic Indus. Co., IPR2016-01357, Paper 19 at 16.

Indeed, the Board has emphasized that the seven *General Plastic* factors "provide a useful framework for analyzing the facts and circumstances present in this case in which a ***different petitioner*** filed a petition challenging a patent that had been challenged already by previous petitions." *NetApp* at 10 (emphasis added). Here, all of the *General Plastic* factors weigh against institution.

A. Factors 1, 2 and 3 weigh against institution.

Factors 1 and 2 relate to successive petitions filed by the same petitioner, which is not precisely at issue here. However, when different petitioners challenge the same patent, the Board considers the relationship between those petitioners when weighing the *General Plastic* factors. Factors 1, 2 and 3 weigh against institution. *See NetApp* at 10.

Indeed, in the latest Trial Practice Guide, the Office reiterated that a petition may be denied under § 314(a) and *General Plastic* where, as here, the subsequent petition is filed by a different petitioner. Trial Practice Guide Update (November 2019) at 57 n.1 ("Since *General Plastic*, the Board has held that the application of the first General Plastic factor is not limited to instances where multiple petitions are filed by the same petitioner. *See Valve Corp. v. Elec. Scripting Prods., Inc.,* Case IPR2019-00062, -00063, -00084 (PTAB Apr. 2, 2019) (Paper 11) (precedential) (denying institution when a party filed follow-on-petitions for *inter partes* review after the denial of an *inter partes* review request of the same claims filed by the party's co-defendant). When different petitioners challenge the same patent, the Board considers the relationship, if any, between those petitioners when weighing the General Plastic factors. *Id.*").

The relationship between the petitioners here is particularly on point. As admitted by copending petitioner Unified Patents in a Supreme Court pleading, Apple is a member of Unified Patents. *See, e.g.*, Brief of Unified Patents, LLC as Amicus Curiae in Support of Petitioner at 2, *Apple Inc. v. Qualcomm Inc.*, No. 21-746 (U.S. Dec. 20, 2021) (identifying Apple as a Unified member). Unified Patents, much like RPX (discussed below), is a for-profit company that facilitates challenges to patent validity.

In *Applications in Internet Time, LLC v. RPX Corp*., the Federal Circuit concluded that RPX acted as a proxy for its members. *Applications in Internet Time, LLC v. RPX Corp*., 897 F.3d 1336, 1349 (Fed. Cir. 2018). As part of the analysis, the Federal Circuit highlighted, inter alia, the following facts: (1) "RPX, unlike a traditional trade association, is a for-profit company whose clients pay for its portfolio of 'patent risk solutions'"; (2) one of RPX's strategies "for transforming the patent market is 'the facilitation of challenges to patent validity'"; and (3) the fact that RPX opts not to discuss specific IPRs with clients may be for the purpose of circumventing the RPI requirement. *Id.* at 1351-52 and n.4. The court emphasized that RPX had advertised that its "interests are 100% aligned with those of [its] clients." *Id*. at 1340, 43, 57; *see also id*. at 62, 64 (Reyna, J., concurring). The Federal Circuit concluded that these facts collectively "imply that RPX can and does file IPRs to serve its clients' financial interests, and that a key reason clients pay RPX is to benefit from this practice in the event they are sued by an NPE." *Id*. at 1352.

Unified Patents' business model is substantially similar to that of RPX, and Unified Patents is a for-profit company that collects fees from its for-profit members in order to provide this protection. Unified Patent's individual members subscribe with the anticipation that their own organization will be protected within their defined "Zones." Unified Patents' members therefore have an established

relationship with Unified Patents and receive a benefit in exchange for the subscription fees they pay. *See Applications in Internet Time*, 897 F.3d at 1351. Put simply, Unified Patents acts as a proxy for its members, protecting those members from statutory bars and allowing the possibility of multiple "bites at the apple"—meaning this factor weighs against institution. *See id.* at 1351-52.

Factor 2 likewise weighs heavily against institution because, as discussed below with respect to factors 4 and 5, the references relied upon in Unified Patents' Petition (McCorkle, Leeper, and Tajima) are the same references relied upon by Apple. The present Petition repeats the arguments in the Unified Patents' Petition with respect to the references nearly verbatim. Thus, by virtue of Apple's relationship to Unified Patents and the fact that it relies on the same references and arguments in the Unified Patents' IPR, Apple (at a minimum) should have known of the prior art at the time of filing the original petition.

Factor 3 relates to whether the petitioner already received the Board's decision on whether to institute review in the first petition. Factor 3 likewise weighs against institution. The institution decision in the Unified Patents' IPR was entered on November 9, 2022. *Unified Patents, LLC v. Speir Technologies Ltd.*, IPR2022-00987, Paper 9 (Nov. 9, 2022). The present Petition was not filed until a month later on December 9, 2022.

B. Factor 4 weighs against institution, as Petitioner delayed filing after learning of all of the references.

Factor 4 addresses Petitioner's delay between learning of the art and filing the Petition. *See Valve I* at 13; *Valve II* at 13; *General Plastic* at 16. This factor weighs against institution. At the very latest, Petitioner knew of the McCorkle, Leeper and Tajima references by June 14, 2022, when they served preliminary invalidity contentions citing these references. *See* Ex. 2001 (Preliminary Invalidity Contentions). Apple's excuse in the delay is that the efforts for the Original Petition "were already underway and continued for months" and the remaining time was spent awaiting the institution decision in the Unified Patents' IPR. Petition at 71. This is a red-herring. There was nothing precluding Apple from filing for joinder earlier. Apple's protestation that "it would be wasteful … to expend the substantial resources required to pursue joinder any earlier" is insincere at best. And, not surprisingly, Apple does not attempt to detail the purported "substantial resources," because such joinder is by definition meant to be efficient to avoid the unnecessary expenditure of resources. Simply put, there is no excuse for the delay which has, in fact, resulted in unfair tactical advantages over Patent Owner. This delay weighs in favor of denying institution. *See NetApp* at 11–12.

C. Factor 5 also weighs against institution, as Petitioner has no valid excuse for its delay.

Factor 5, which relates to Petitioner's explanation for any delay, also weighs against institution. *See Valve I* at 15; *Valve II* at 13–14; *General Plastic* at 16. Petitioner has not provided a valid explanation for the delay in filing a joinder petition. Tellingly, Apple does not identify when it specifically became aware of the Unified Patents' IPR, but instead asserts that it "learned of the prior art in the Unified Petition after its filing." Petition at 70. The Unified Patents' IPR was filed on May 27, 2022 and Apple served its invalidity contentions, identifying the same prior art, just a few weeks later on June 14, 2022. It follows that Apple was aware of the Unified Patents' IPR before it served its invalidity contentions. Yet it waited nearly seven months to file a joinder petition. There is no reasonable explanation for that delay.

D. Factor 6 weighs against institution, as the district court is set to rule on the validity of the same claims and the Board is already considering the same prior art.

Factor 6 relates to efficiency and the finite resources of the Board. *See Valve I* at 15; *Valve II* at 15; *General Plastic* at 16. This factor weighs against institution. "In general, having multiple petitions challenging the same patent, especially when not filed at or around the same time as in this case, is inefficient and tends to waste resources." *Valve I* at 15; *Valve II* at 16. The Board's finite resources are implicated

because Petitioner could have moved to join the Unified Patents' IPR many months earlier and provides no justification for why it did not do so.

E. Factor 7 also weighs against institution, as Petitioner's strategic timing prevents coordination/consolidation with the earlier IPR, wastes the Board's resources, and prejudices Patent Owner.

Factor 7 considers the Board's ability to resolve the proceeding within a year. *See Valve I* at 15; *Valve II* at 15; *General Plastic* at 16. This factor also weighs against institution. The Board has consistently found that Factor 7 weighs against institution where (1) the filer of a follow-on petition fails to seek coordination or consolidation with a co-pending petition; and (2) coordination or consolidation would be impractical.

For example, in *NetApp v. Realtime Data*, IPR2017-01354, the Board found that petitioner's failure to seek coordination or consolidation with pending IPRs which "are not so advanced that coordination would be impractical" prevented the Board from disposing of the petitions efficiently. Paper 16 at 13. It concluded that conducting "an entirely separate proceeding" would be "a significant waste of the Board's resources." *Id*; *see also NetApp* at 12–13 (finding Factors 6 and 7 weigh against institution because "the Board is unable to join, consolidate, or coordinate this proceeding with the three earlier-filed proceedings" resulting in a "significant waste of the Board's resources"); *NetApp v. Realtime Data*, IPR2017-01196, Paper 10 at 12 (same); *EchoStar v. Realtime Data*, IPR2018-00614, Paper 10 at 17 (finding

Factors 6 and 7 weigh against institution "due to Petitioner's delay in filing its Petition and the time limit of 35 U.S.C. § 316(a)(11), the Board is unable to join, consolidate, or coordinate this proceeding with the earlier filed proceedings… The result would be a significant waste of the Board's resources.").

Here, Petitioner could have could have filed its Petition and moved to join the Unified Patents' IPR, which was filed on May 27, 2022, many months earlier. Petitioner had already been sued on the '777 patent more than four months prior to the filing of the Unified Patents' IPR. Instead, Petitioner filed serial Petitions so that Patent Owner would have to simultaneously defend the same claims of the same patent in staggered and separate proceedings.

F. Summary of Factors

In summary, all of the *General Plastic* factors weigh against institution. Under § 314(a) and the totality of *General Plastic* factors, institution should be denied.

III. The Petition Fails to Establish a Reasonable Likelihood of Unpatentability

A. The Teaching of *McCorkle*

U.S. Patent Application Publication 2003/0174048 to McCorkle ("*McCorkle*") relates to a system for enabling or blocking communications between a local device and multiple remote devices using an ultra-wide band (UWB) signal in a relatively size-constrained environment such as a conference room, warehouse

or retail store. (Ex. 1003, at [0153], [0003].) The local device and the remote devices can come in the form of mobile telephones, laptop computers, personal digital assistants (PDAs), or fixed devices such as a retail store kiosk. (*Id.* at [0100].)

As part of the enabling or blocking of communications *McCorkle's* local device transmits distance-determining messages to the remote devices and receives responses therefrom via UWB links to determine if the remote devices are within a given range and should be allowed to communicate to and through the local device:

> The present invention provides a system and method that enables device functions based on distance information. More specifically, the present invention allows a simplified method for enabling communications between a local wireless device and a remote wireless device based on the distance between the wireless devices. In order to provide such a distance-based system that is practically usable, the wireless devices involved must be able to discriminate distances at fine intervals, or stated another way, the wireless device must have accurate range resolution.

(*Id.* at [0094].)

> The present inventors have recognized that using an ultra wide band system, range resolutions can be accomplished that have practical significance in distinguishing between remote wireless devices. For example, an ultra wide bandwidth system having 3 GHz of bandwidth has a range resolution of 0.1 meters. Even greater bandwidth systems can accomplish resolutions on the order of centimeters. Thus, as realized by the present inventors, a local UWB device can compute a unique distance to remote UWB devices as long as the actual distance from the local device to each remote device differs on the order of centimeters, which is a common scenario for current uses of wireless devices such as PDAs.

(*Id.* at [0097].)

> The local device 405 is linked to the first through N^{th} remote devices 410_1,-$41o_N$ [sic] via UWB links 415_1-415_N, respectively.

(*Id.* at [0097].)

> [I]n a preferred embodiment, the multiple access protocol provides the capability for the local device 405 to establish unique and independent UWB links 415_1, 415_2, …, 415_N with remote devices 410_1, 410_2, . . . , 410_N, respectively…

(*Id.* at [0104].)

The local device determines the amount of time between the transmission of the distance-determining message to the remote device and the reception of the reply message from the remote device and from that time determines the distance to the remote device:

> After unique links 415_1, 415_2, . . . , 415_N are established, the local device 405 determines a distance to each linked remote device as shown in step 503. In determining the distance, local device 405 exchanges data with remote devices 410_1, 410_2, . . . 410_N via their respective unique links. Each distance determined by the local device 405 is associated with the unique link on which the distance determining information was exchanged in order to associate a determined distance with a remote device as will be discussed below with reference to FIG. 7.

(*Id.* at [0105].)

Based on the determined distance, accurate on the order of centimeters, between the local device and the remote device, the local device either (1) enables communications with the remote device if the determined distanced is within the range limit or (2) blocks communications with the remote device if the determined distanced is outside of the range limit. The process is repeated regularly to update the remote devices that may have communications enabled or blocked:

> Once the distance to each remote device is determined, the local device 405 then enables communications with each remote device in step 505 based on the distances determined in step 503. Due to the range resolution of the UWB system included in each of the devices of FIG. 4, the distance determined may be accurate on the order of centimeters, as discussed above. Therefore the probability of having remote devices at equal distances is very low and the local device 405 can differentiate between remote devices 410_1, 410_2, . . . , 410_N based on the distance determined for each device. For example, the local device may automatically enable data communications with devices that are within a predefined range at any given time while all remote devices outside the predefined range will be blocked from data communications with the local device as will be described below with respect to FIG. 8.

(*Id.* at [0106]; *see also id.* at [0129]-[0142], Fig. 8.)

> Thus, according to the embodiment of the present invention shown in FIGS. 6-9, the local device 405 automatically enables and blocks data communications with remote devices 410_1, 410_2, ..., 410_N based on the distance to each remote device 410_1, 410_2, . . . , 410_N. As the local device continually updates distance information for all linked devices while also searching for new remote devices to join the network, the network established according to this embodiment is a dynamic network in which communications with remote devices may be enabled with the local device 405 based on their distance to the local device 405 without the need for the user of the local device 405 to select from among a list of remote devices 410_1, 410_2, ..., 410_N as discussed in the background Section above.

(*Id.* at [0145].)

McCorkle's local device determines the distance based on a ***single*** transmission of the distance-determining message to the remote device and the corresponding reply message:

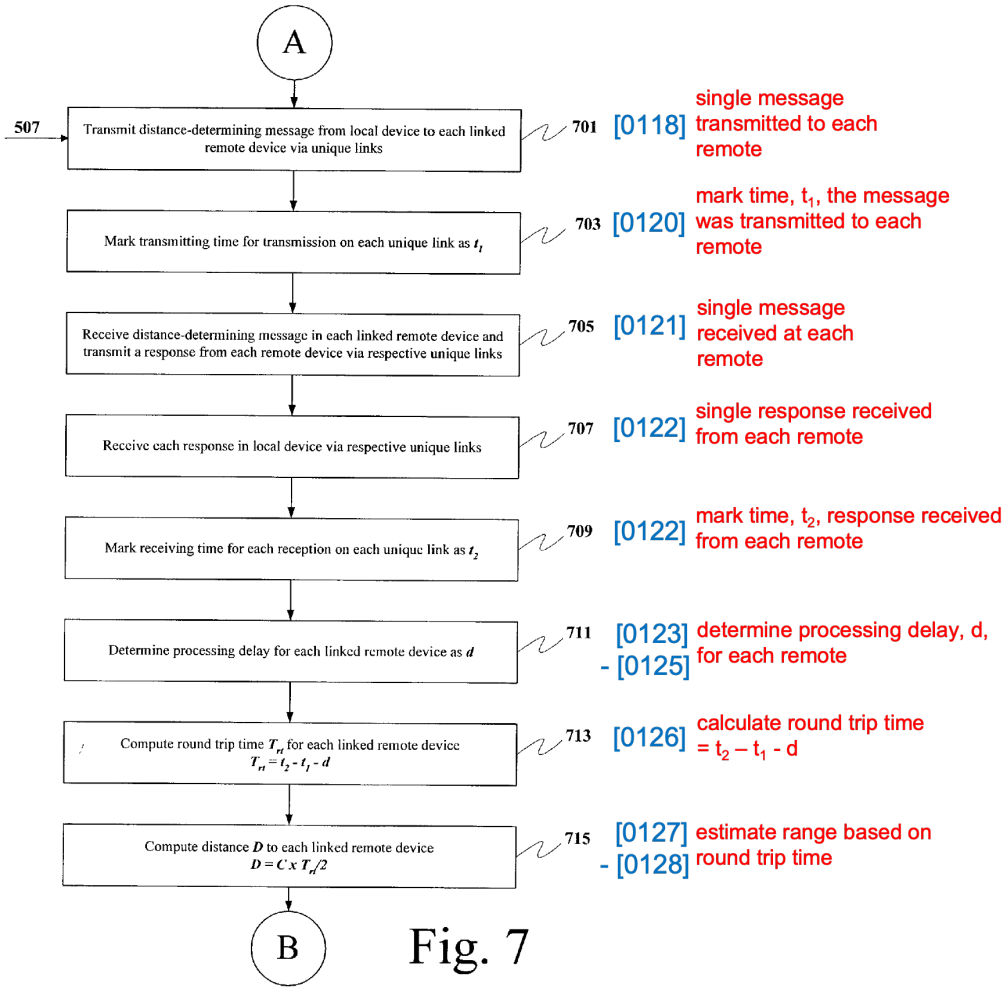

Fig. 7

(*Id.*, Fig. 7 (annotated); *see also id.* at [0118]-[0128].)

Recognizing that "the bandwidth of the local device 405 is fixed" (*id.* at [0142]), *McCorkle* seeks to maximize the allocation of bandwidth on the UWB links $415_1, 415_2, \ldots, 415_N$ for enabled communications between the local device 405 and the remote devices $410_1, 410_2, \ldots, 410_N$. Accordingly, *McCorkle* seeks to minimize the allocation of bandwidth to the transmission of distance determining messages and the corresponding responses on the UWB links $415_1, 415_2, \ldots, 415_N$.

> Each unique link 415_1, 415_2, . . . , 415_N is preferably a low-level communications link that is allocated a minimal amount of bandwidth available to the local device 405. The amount of bandwidth allocated may vary but is preferably an amount that is sufficient for the local device 405 to maintain awareness of the presence of the remote devices 410_1 through 410_N and to determine distance to each remote device.

(*Id.* at [0117].)

> In a preferred embodiment, however, communications to and from the out of range remote device 400 may be blocked at the MAC layer in the stack of the local device 405. In this embodiment, the local device 405 allocates a minimal amount of available bandwidth to the link 415_N associated with the out-of-range device 400_N [sic], and a relatively large amount of bandwidth to enabled links associated with in-range remote devices 410_1 and 410_2.

(*Id.* at [0136].)

> According to the preferred embodiment, the minimal bandwidth allocated to each of the out of range device 410_N is sufficient to update the distance information so that the local device 405 can continue monitoring the distance of the out of range remote device 410N …

(*Id.* at [0137].)

B. Claim Construction

Claim terms that are in dispute and for which resolution of such dispute is "necessary to resolve the controversy" must be construed. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). This threshold for construing claim terms is applicable in IPR proceedings. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

1. The Board should construe "estimating a range …" to be based upon a "plurality of determined propagation delays."

The Petition shows that there may be a claim construction dispute between the parties that must be addressed to resolve the controversy as to whether *McCorkle* discloses "estimating a range …based upon … a plurality of determined propagation delays" as required by all challenged claims of the '777 Patent. Consistent with the plain and ordinary meaning of the limitation, reinforced by the specification, Patent Owner respectfully requests that the Board recognize that "estimating a range …based upon … a plurality of determined propagation delays" requires the range to the target device be estimated not solely based upon a single determined propagation delay, but rather upon a plurality of determined propagation delays.

The plain language of these limitations, including limitation [1.8] for claims 1-9), limitation [10.8] for claims 10-11, limitation [12.4] for claims 12-19, and limitation [20.3] for claims 20-25, dictates that a ***single*** range ("a range") must be calculated using a ***plurality*** of determined propagation delays ("based upon a plurality of determined propagation delays"). The specification supports this meaning. For example, the specification states that "[i]n accordance with the present invention, the controller 42 advantageously estimates the range to the target device 34 not solely based upon a single measured propagation delay, but rather upon a plurality thereof." (Ex. 1001, 7:47-50.)

The specification's recitation that, "in accordance with the present invention," a single range estimation must be based on a plurality of propagation delays, "is strong evidence that the claims should not be read to encompass [an] opposite" reading. *SciMed Life Sys. Inc. v. Adv. Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001); *see also Regents of the Univ. of Minn. v. AGA Med. Corp.*, 717 F.3d 929, 936 (Fed. Cir. 2013); *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention."). Consistent with the specification, all of the claims of the '777 Patent recite "estimating a range …based upon … a plurality of determined propagation delays." (Ex. 1001, 11:9-11 (for claims 1-9); 11:62-64 (for claims 10-11); 12:19-21 (for claims 12-19); and 12:65-67 (for claims 20-25).)

There should be no dispute that the claims of the '777 Patent require that the range to the target device is estimated not solely based upon a single determined propagation delay, but rather upon a plurality of determined propagation delays. Indeed, Petitioner implicitly acknowledges this by noting the specter of a claim construction that would require "that a single range be determined based on multiple calculated propagation delay," while not presenting any argument or evidence that could countenance a contrary construction. Petition at 42. Presenting a tepid analysis of how *McCorkle* purportedly discloses, or renders obvious, these

limitations, Petitioner did not set about an examination of how *McCorkle* meets the express language of the limitation. *Id.* at 40-42.

C. Grounds 1, 2 and 4 of the Petition fail because *McCorkle* does not teach a single range estimation based upon a plurality of determined propagation delays.

As noted in Section III.A, *supra*, *McCorkle* describes the estimation of the range of a remote device based upon only a ***single*** identified "propagation delay." Consequently, *McCorkle* alone cannot satisfy this claim limitation and the Petition does not explain how a POSITA would find the limitation obvious over *McCorkle* without citation to another reference. *See* Petition at 42 (Tacitly acknowledging that *McCorkle* alone cannot invalidate by stating that "[t]o the extent Speir argues that the claimed estimating requires that a single range be determined based on multiple calculated propagation delay, this would have been rendered obvious over *McCorkle* as modified by *Leeper*."). For this reason, Grounds 1, 2 and 4, relying solely on *McCorkle* with respect to the independent claims 1, 10, 12, and 20, fail.

D. Grounds 3 and 5 fail because the Petition fails to motivate its combination of *McCorkle* with *Leeper.*

Grounds 3 and 5 of the Petition propose a combination of *McCorkle* with *Leeper*, *inter alia*, to allege invalidity of all challenged claims. In particular, the proposed combination addresses *McCorkle*'s failure to teach the estimation of a single range based upon a plurality of determined propagation delays. *See* Petition at 42-44 (relying solely on *Leeper* for the use of a plurality of determined

propagation delays for estimation of a single range). As discussed below, the Petition fails to show that a POSITA would have found it obvious to use *Leeper's* determination of a plurality of determined propagation delays for estimation of a single range with *McCorkle's* range determination system.

1. The Petition's rationale to consider *Leeper*'s average calculations in view of *McCorkle* is unsupported.

Petitioner asserts that "[a] POSITA would have been motivated to combine the teachings of *McCorkle* with those of *Leeper* with a reasonable expectation of success" because (1) "the references are analogous art to the '777 patent (and each other)," disclosing "wireless communication systems in the same field of … location determination"; (2) "combining the teachings of McCorkle with Leeper would have been no more than the combination of prior art elements according to known methods to yield predictable results" in the form of "more accurate distance determinations" and "reducing errors"; and (3) combining the teachings "would have been the use of a known technique," i.e., averaging multiple estimates, "to improve similar devices in the same way." Petition at 42-44.

As an initial matter, this argument cites to Dr. Braasch's declaration at ¶¶46-49—which simply repeats the argument of the Petition nearly verbatim[1] and should

[1] The only thing that Dr. Braasch states differently is that "[b]ased on [his] experience, taking averages was a common technique used by engineers to reduce potential errors in measurements." (Ex. 1002, ¶48.)

be given no weight. *Compare* Petition at 42-44 *with* Ex. 1002, ¶¶46-49; *Smartmatic USA Corp. v. Election Sys. & Software*, IPR2019-00527, Paper 32 at 34 (Aug. 5, 2020) (giving no weight to an expert declaration that "merely parrots the language in the Petition"); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper No. 9 at 15 (PTAB Aug. 24, 2022) (precedential) ("Thus, the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.").

None of the Petitioner's cited reasons factually or legally support the obviousness contention with respect to the combination of *McCorkle* and *Leeper*. First, Petitioner's identification of *McCorkle* and *Leeper* as analogous prior art does not factor into determining whether a POSITA would have a motivation to combine the references. "Analogous art is merely a threshold inquiry as to whether a reference can be considered in an obviousness analysis. Demonstrating that a reference is analogous art or relevant to the field of endeavor of the challenged patent is not sufficient to establish that one of ordinary skill would have had reason to combine its teachings with other prior art in the manner set forth in the claim." *Johns Manville Corp. v. Knauf Insulation, Inc.*, IPR2018-00827, 2018 WL 5098902, at *4 (PTAB Oct. 16, 2018) (citing *Securus Techs., Inc. v. Global Tel*Link Corp*., 701 F. App'x 971, 977 (Fed. Cir. 2017)).

Next, Petitioner generically alleges that the proposed combination "would have been no more than the combination of prior art elements according to known methods to yield predictable results" because "a POSITA reading *McCorkle* would have looked for known ways to make the distance determination between its wireless devices more accurate." Petition at 43; Ex. 1002, ¶48. Petitioner also contends that applying *Leeper's* averaging of distance-determining calculations to *McCorkle* "would have been the use of a known technique to improve similar devices in the same way." Petition at 44; Ex. 1002, ¶49. Petitioner's allegations are unfounded and simply inadequate to show that a POSITA would have a motivation to combine *McCorkle* and *Leeper*.

As an initial matter, Petitioner presents no detail or analysis with respect to the accuracy of *McCorkle's* range determining system. That is not surprising because a POSITA, reading the descriptions of the system and goals of *McCorkle*, would recognize that *McCorkle* has already implemented accuracy that significantly *exceeds* the needs of the system. As such, a POSITA would not be motivated to look to *Leeper* to improve the accuracy of *McCorkle's* system.

McCorkle's system "allows a ***simplified*** method for enabling communications between a local wireless device and a remote wireless device based on the distance between the wireless devices." (Ex. 1003, at [0094].) "The local device 405 automatically enables and blocks data communications with remote devices 410_1,

410_2, ..., 410_N based on the distance to each remote device 410_1, 410_2, . . . , 410_N." (*Id.* at [0145].) The remote devices, as well as the local device, could be mobile telephones, laptop computers, personal digital assistants (PDAs), or fixed devices such as a retail store kiosk. (*Id.* at [0100].)

McCorkle gives examples of the environments the system is designed for, including conference rooms (*id.* at [0153], as well as warehouses and retail stores (*id.* at [0003]). The remote device contemplated by *McCorkle*, mobile telephones, laptops, PDAs, retail kiosks, etc., are either stationary or slow moving in these environments. *McCorkle* also teaches that the accuracy of a single UWB-signal-based range estimate is sufficient. (*See* Ex. 1003, at [0106] ("Due to the range resolution of the UWB system included in each of the devices of FIG. 4, the distance determined may be accurate on the order of centimeters."); *see also id.* at [0097] ("[A]s realized by the present inventors, a local UWB device can compute a unique distance to remote UWB devices as long as the actual distance from the local device to each remote device differs on the order of centimeters, which is a common scenario for current uses of wireless devices such as PDAs."). Indeed, *McCorkle* provides no indication of why accuracy below centimeters would be contemplated. Nor would a POSITA, reading *McCorkle*, need to contemplate enhanced accuracy, because *McCorkle* provides the details of the components and operation of a system that already has more than adequate accuracy. Petitioner has not identified any

reason as to why a POSITA, contemplating the teachings of *McCorkle's* system, would be motivated to look to other references to improve the accuracy of *McCorkle's* range determinations.

2. The Petition identifies no benefit for its proposed combination.

Petitioner and Dr. Braasch also generically urge that using "Leeper's averaging of multiple calculated propagation delays would have been a beneficial modification to McCorkle's" system because a POSITA would have understood that sending "multiple distance-determining messages to calculate an averaged distance" would be "an effective way of reducing errors that may occur from a single distance calculation that is inaccurate." Petition at 43; Ex. 1002, ¶48.

Petitioner and Dr. Braasch contend that a POSITA would recognize that this modification would "create a more accurate solution." Petition at 43; Ex. 1002, ¶48. This is a merely generic statement as to purported benefits from the combination. Neither the Petition nor Dr. Braasch explain in any detail (i) the sufficiency of accuracy of *McCorkle's* system in its unmodified form; (ii) what "potential errors" *McCorkle's* system faces in its unmodified form; (iii) how those "potential errors" impact the performance of *McCorkle's* system in its unmodified form; (iv) the degree to which the "potential errors" would be reduced if *McCorkle's* system were modified as suggested; and, *most importantly*, (v) how and why McCorkle's system would ***benefit*** from the alleged improvement in distance-determining accuracy.

Petitioner's explanation as the purported benefit is not only inadequate. Taken to its logical conclusion, Petitioner's argument would allow a POSITA to find that any modification to *McCorkle* that improves accuracy to be beneficial. This is incongruent with the law of obviousness.

The absence of evidence for any specific benefit from the combination of *McCorkle* and *Leeper* is strong evidence <u>*against*</u> obviousness. As the Court explained in *KSR*:

> Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, *it can be important to identify a* ***reason*** *that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does*. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 418–19 (2007); *see also id.* at 424 ("The proper question to have asked was whether a [POSITA] . . . would have seen a ***benefit*** to upgrading Asano with a sensor."); *Ex Parte Debates*, Appeal No. 2020-006536, 2022 WL 263587, at *4 (PTAB Jan. 27, 2022) (reversing examiner's obviousness rejection because it was "too general and [was] not tailored to explaining why one skilled in the art would have seen the ***benefit*** of modifying Lerner's electronic device and tag reading method to include the specific overlay

features of Detlefsen"); *Duo Sec. Inc. v. Strikeforce Techs., Inc.*, IPR2017-01041, 2017 WL 4677235, at *9 (PTAB Oct. 16, 2017) (finding no motivation to combine where "Petitioner ***never identifies or explains adequately any benefit or improvement*** gained by adding Falk, and specifically, Falk's relevant message, to the proposed combination of Feigen and Bulfer" (emphasis added)); *Ex Parte Brillowska-Dabrowska*, Appeal No. 2016-006485, 2016 WL 4525004, at *4 (PTAB Aug. 24, 2016) (reversing rejection based on a combination of references where it was "unclear why" the combination "would be particularly useful").

The Petition also alleges that the combination would "yield predictable results." *See* Petition at 43. But absent motivation to actually implement range-estimation based upon a plurality of determined propagation delays in *McCorkle*, this is the wrong inquiry; whether the combination would "yield predictable results" goes, at most, to the issue of whether a POSITA ***could have*** made the proposed combination, not to whether a POSITA ***would have been motivated*** to make that combination as required. *See Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017) (it is not enough to show that "a skilled artisan, once presented with the two references, would have understood that they ***could*** be combined"); *Apple, Inc. v. Realtime Data LLC*, IPR2016-01737, 2018 WL 1326656, at *25 (PTAB Mar. 13, 2018) (granting motion to amend because petitioner did not adequately "articulate a *reason why* a person of ordinary skill in the art would

combine the prior art references") (citing and quoting *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combination or modifications of prior art to arrive at the claimed invention")) (emphases in original). The Petition's failure to show that a POSITA ***would have been motivated*** to make its proposed combination is shown by the Petition's failure to articulate in detail how *McCorkle* would benefit from the enhanced accuracy that the proposed combination allegedly provides—much less consider any supposed benefits and weigh them *against the significant drawbacks* to the combination that a POSITA would have recognized. *See Johns-Manville Corp.,* 2018 WL 5098902, at *6 ("An unsupported statement that combining the teachings of the two references would have been 'well within the skill of a POSA,' because the results of reacting a reducing sugar with an amine reactant 'were well-known and predictable' does not meet Petitioner's burden.").

In summary, the Petition fails to compare the performance of *McCorkle's* range determining system in its unmodified form with the Petitioner's proposed addition of the range estimation based upon a plurality of determined propagation delays. Nor does the Petition adequately identify any affirmative reason a POSITA would have had to make the proposed modification. Furthermore, as explained below, the Petition's proposed modification not only lacks benefits, but also includes

drawbacks that contradict *McCorkle's* design goals, causing a POSITA to avoid making that combination.

3. A POSITA would have further avoided the Petition's proposed combination because the effects of that combination would be contrary to *McCorkle's* design goals.

As discussed above, the Petition provides no articulation or explanation of the alleged benefit of modifying *McCorkle's* range estimation to be based upon a plurality of determined propagation delays. However, even if the Petition ***had*** made such a showing, the inquiry would not end there, because obviousness cannot be established based solely on an allegation of benefits. Instead, the countervailing drawbacks or losses from pursuing a proposed modification must be evaluated to determine whether the proposed modification is "on balance, desirable." *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000) ("Trade-offs often concern what is feasible, not what is, on balance, desirable. Motivation to combine requires the latter."). Accordingly, "the benefits, both lost and gained, should be weighed against one another." *Id.* at 1349 n.8.

Neither Petitioner nor Dr. Braasch discuss the potential drawbacks to *McCorkle* from the proposed modification, but a POSITA would have recognized drawbacks in the form of lost bandwidth. *McCorkle* notes that "the bandwidth of the local device 405 is fixed," (Ex. 1003, at [0142]), and proposes that "[e]ach unique link 415_1, 415_2, . . . , 415_N is … ***allocated a minimal amount of bandwidth*** available

to the local device 405 … that is sufficient for the local device 405 to maintain awareness of the presence of the remote devices 410_1 through 410_N and to determine distance to each remote device," (*id*. at [0117] (emphasis added)). (*See also id.* at [0136] ("[T]he local device 405 ***allocates a minimal amount of available bandwidth*** to the link 415_N associated with the out-of-range device 400_N [sic], and a relatively large amount of bandwidth to enabled links associated with in-range remote devices 410_1 and 410_2.")(emphasis added); [0137] ("the minimal bandwidth allocated to each of the out of range device 410_N is sufficient to update the distance information so that the local device 405 can continue monitoring the distance of the out of range remote device 410N").)

McCorkle sets a clear goal of maximizing the allocation of bandwidth on the UWB links 415_1, 415_2, . . . , 415_N for enabled communications between the local device 405 and the remote devices 410_1, 410_2, . . . , 410_N. To do so, *McCorkle* also sets a clear goal of ***minimizing the allocation of bandwidth to the transmission of distance determining messages*** and the corresponding responses on the UWB links 415_1, 415_2, . . . , 415_N. Petitioner proposes modifying *McCorkle* to include a second "propagation delay" calculation. To accomplish this modification, an additional distance determining message, along with a corresponding response, must be transmitted. *See* Petition at 43 ("A POSITA would have understood that it would have been beneficial to send multiple distance-determining messages to calculate an

averaged distance between the wireless communications devices based on the averaged propagation delay.").

To support transmission of the additional messages and responses to the remote devices 410_1, 410_2, . . . , 410_N in the same amount of time, *McCorkle* system would have to ***double*** the allocation of bandwidth on the UWB links 415_1, 415_2, . . . , 415_N. This runs contrary to *McCorkle's* goal of minimizing the allocation of bandwidth to the transmission of distance determining messages and the corresponding responses. A POSITA would be ***discouraged*** from making this modification absent some countervailing benefit that a POSITA would view as trumping the loss of bandwidth on the UWB links for enabled communications between the local device and the remote devices. Petitioner's generic assertion that a POSITA would recognize a benefit from increased accuracy as a result of the combination is insufficient to be considered such a countervailing benefit.

These drawbacks of the Petition's proposed combination (which the Petition fails to address) are strong evidence of non-obviousness. *See Ex Parte Shigetoshi Ito & Daisuke Hanaoka*, Appeal No. 2010-003391, 2012 WL 3041144, at *4 (BPAI July 23, 2012) ("[T]he Examiner relied on impermissible hindsight. . . . S ince Harding strives to increase cooling, one skilled in the art would have been discouraged from modifying Harding's device with Ootsuka's nonconductive, thermally insulating, cap.").

4. The Petition's combination is supported only by hindsight.

Petitioner does not compare the overall performance of *McCorkle's* system in its unmodified form to the overall performance with the proposed modification from *Leeper*, such that a POSITA, when considering the benefits and drawbacks, would find it prudent to make the modification to *McCorkle*. The Petition necessarily arrives at its proposed combination through the impermissible use of hindsight. The Petition's hindsight-motivated approach should be rejected. *See In re NTP, Inc.*, 654 F.3d 1279, 1299 (Fed. Cir. 2011) ("Care must be taken to avoid hindsight reconstruction by using 'the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.'") (quoting *Grain Processing Corp. v. American–Maize Prods. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988)).

In *NTP*, the Federal Circuit reviewed the Board's rejection of certain claims of a patent application and acknowledged that all claim elements were disclosed separately in the prior art. *Id.* (noting that "the Board's findings regarding the content of the references are supported by substantial evidence"). Nevertheless, the court reversed the Board's rejections because the Board "improperly relied on hindsight reasoning to piece together elements to arrive at the claimed invention." *Id.* The court criticized the Board for "carv[ing] out" a claim limitation from one reference for combination with applicant's admitted prior art ("AAPA"), explaining:

"This type of piecemeal analysis is precisely the kind of hindsight that the Board must not engage in." *Id.*

The Petition improperly engages in exactly this type of "piecemeal analysis" by carving out a particular feature of *Leeper* for use in *McCorkle*—the use of multiple determined propagation delays in the estimation of a single range—while failing to compare the goals and operation of *McCorkle* both with and without that feature. Absent any articulated, rational explanation as to why a POSITA would have been motivated to arrive at the challenged claims, the Petition can only arrive at its conclusion of obviousness with the benefit of improper hindsight. *See Ex Parte Masashi Hayakawa*, Appeal No. 2020-006550, 2021 WL 6133976, at *4 (PTAB Dec. 27, 2021) ("Without any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that *KSR* warns against."). And the impropriety of the Petition's hindsight-motivated approach is further underscored because, as discussed above, a POSITA would have been discouraged from making the proposed combination in view of the combination's drawbacks. *See Ex Parte Shigetoshi Ito & Daisuke Hanaoka*, 2012 WL 3041144, at *4 ("[T]he Examiner relied on impermissible hindsight. . . . Since Harding strives to increase cooling, one skilled in the art would have been discouraged from modifying Harding's device with Ootsuka's nonconductive, thermally insulating, cap.").

In sum, the Petition's hindsight-guided approach to obviousness should be rejected. *See NTP*, 654 F.3d at 1299.

IV. Conclusion

As set forth above, because *McCorkle* describes a range determining system that estimates the range based upon a ***single*** determined "propagation delay," it cannot alone satisfy the claimed requirement that the range to the target device is estimated not solely based upon a single determined propagation delay, but rather upon a plurality of determined propagation delays. For this reason, the Petition cannot show any challenged claims to be unpatentable under Grounds 1, 2 or 4.

With respect to the proposed combination of *McCorkle* and *Leeper*, the Petition fails to either adequately explain any benefit that a POSITA would recognize from the proposed combination, or analyze the drawbacks of the proposed combination, drawbacks that run contrary to *McCorkle's* stated goal of minimizing the bandwidth allocated to the range messaging. A POSITA would thus ***not*** have been motivated to make the proposed combination. For these reasons, the Petition cannot show any challenged claim in Grounds 3 and 5 to be unpatentable.

In addition, the Board should exercise its discretion to deny the Petition under § 314(a) because all of the *General Plastic* factors weigh against institution. For all of the reasons above, Patent Owner respectfully requests that the Board deny institution.

Respectfully submitted,

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Date: March 24, 2023

CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that there are 8,102 words in the paper excluding the portions exempted under 37 C.F.R. § 42.24(a)(1).

Dated: March 24, 2033

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CERTIFICATE OF SERVICE (37 C.F,R. § 42.6(e))

The undersigned hereby certifies that the above document was served on March 24, 2023, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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