

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

BROADPHONE LLC.,
Patent Owner.

Case IPR2024-00153
Patent 8,170,583 B2

Before KARL D. EASTHOM, SCOTT A. DANIELS, and
LISA L. TSANG, *Administrative Patent Judges*.

DANIELS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Samsung Electronics Co., Ltd. (“Petitioner”) filed a Petition (Paper 1 (“Pet.”)), seeking *inter partes* review of claims 1–10, 17–20, and 24–26 of U.S. Patent No. 8,170,583 B2 (Ex. 1001 (“the ’583 patent”)). Pet. 1. Broadphone LLC (“Patent Owner”) filed an untimely Preliminary Response. Paper 6 (“Prelim. Resp.”); *see* Paper 3 (Notice of Filing Date Accorded). With our email authorization (Ex. 2001), Patent Owner filed a Motion to Excuse Late Filing of its Preliminary Response by One Day (Paper 7 (“Motion”)), and Petitioner filed a Response to Patent Owner’s Motion to Excuse Late Filing (Paper 8). We granted Patent Owner’s Motion (Paper 9) and have considered the arguments Patent Owner presents in its Preliminary Response, which we address below.

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the arguments and evidence presented by Petitioner and Patent Owner, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. *See* 35 U.S.C. § 314(a). Accordingly, we institute an *inter partes* review of the challenged claims in this proceeding.

A. *Real Parties in Interest*

Petitioner states that Samsung Electronics Co., Ltd., is the real party in interest. Pet. 1. Patent Owner states that “Broadphone LLC (exclusive licensee of U.S. Pat. No. 8,170,583)” is the sole real party in interest. Paper 4, 1.

B. Related Matters

The parties identify that the '583 patent is involved in *Broadphone LLC v. Samsung Elecs. Co., Ltd.*, No. 2:23-cv-00001 (E.D. Tex. 2023). Pet. 1; Paper 4, 1.

Petitioner also identifies U.S. Patent Nos. 8,594,698 and 10,341,811 involved in the district court litigation and at issue in additional proceedings before the Board, namely, IPR2024-00154 (U.S. Patent No. 8,594,698 B2) and IPR2024-00155 (U.S. Patent No. 10,341,811 B2). Pet. 1.

C. The '583 Patent (Ex. 1001)

The '583 patent is titled “Signal Comparison-Based Location Determining Method” and discloses a technique for monitoring a location of a portable device using signal strength measurements from multiple antenna stations, i.e., cells.¹ Ex. 1001, codes (54), (57), 6:18–32, 7:10–26. According to the '583 patent, there were problems with providing highly accurate and simply calculated location data for mobile devices, especially in locations having poor signal reception or multiple floor levels, and maintaining user privacy with respect to location data.² *Id.* at 1:39–49, 5:25–40.

To solve these problems, the '583 patent discloses causing the portable device to compare the measured signal strengths from the current location with the measured signal strengths from the desired location to

¹ The '583 patent refers alternatively to mobile phone network antenna towers as both “antenna stations” and “cells.” *Compare, e.g.*, Ex. 1001, 16:17–19 *with id.* at 14:41–44.

² The '583 patent refers to “a mobile telephone, or [] a mobile communications device” as both a “mobile” and “portable” device or unit as well as a “cell phone.” Ex. 1001, 1:26–28, 62–63, 2:60, 5:65–66.

determine whether the portable device's current location is also the desired location. *Id.* at 7:10–26.

Figure 2, below, shows “a schematic view of an antenna space reception map.” Ex. 1001, 10:43–44.

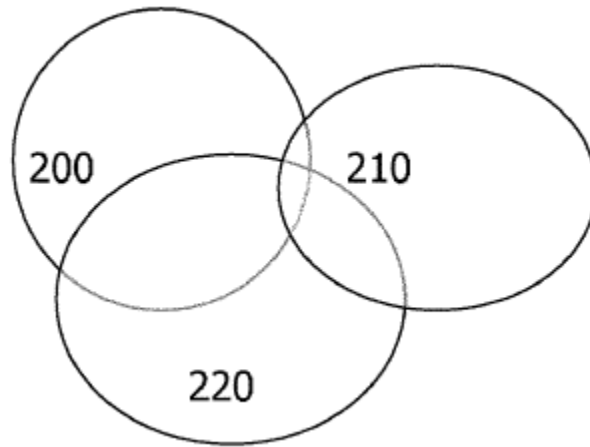


Figure 2 illustrates overlapping coverage areas for three service antennas 200, 210, 220, resembling a Venn diagram. *Id.* at Fig. 2, 8:25–33. The '583 patent explains that, for a given building or cell phone within the coverage areas shown in Figure 2,

there is a 40% probability of a building [or cell phone] being in the coverage area of a single service antenna, a 40% probability of a building [or cell phone] being in the overlapping coverage area of two service antennas, and a 20% probability of a building [or cell phone] being in the overlapping coverage area of three service antennas.

Id. at 8:28–33. To determine its location, the cell phone obtains “distance equivalent measurement(s) between itself . . . and each of the area service antenna(s).” *Id.* at 8:33–36. In one embodiment, at a selected location, the cell phone measures *and stores* at least two signal strength measurements from nearby antenna stations. *Id.* at 6:23–28. In this embodiment, the cell phone is then able to monitor its location “by causing the [mobile] device to

measure reception signal strength associated with local fixed-location service-area antenna stations signals, and to electronically compare these measurements with the stored at least two measurements.” *Id.* at 6:29–32.

In a further embodiment, the ’583 patent discloses that a user may select an action to occur each time he or she is at the desired location. Ex. 1001, 18:17–24. For example, a user might desire “to receive discount coupons from mall stores every time the user enters the shopping mall next to his home (the shopping mall is a desired location).” *Id.* at 18:14–16.

D. Illustrative Claim

Claim 1 is independent. Each of dependent claims 2–10, 17–20, and 24–26 ultimately depend from independent claim 1. Claim 1 illustrates the claimed subject matter and is reproduced below:

1. A signal-comparison based location-determining method, operable by a first portable RF communications device in conjunction with a plurality of fixed-location service-area antenna stations capable of RF communication with the first portable RF communications device wherein the antenna stations are substantially continuously operating, the method comprising:

(a) the first portable RF communications device monitoring its location by

(i) receiving communications signals from a first plurality of the antenna stations,

(ii) identifying at least one ID within at least one of the received communications signals, and

(iii) measuring the signal strengths associated with a received communications signal from the first plurality of antenna stations; and

(b) the first portable RF communication device determining if a monitored location is within proximity of a location chosen by a user of the first portable RF communication device, as a result of

(i) electronically comparing the at least one ID and at least one figure based on the signal strengths of the first plurality of antenna stations at the monitored location with the at least one ID and the at least one figure based on signal strengths of the first plurality of antenna stations at the location chosen by the user, and

(ii) determining if the difference between the signal strengths measured at the monitored location and the signal strengths at the location chosen by the user is less than a predetermined threshold.

Ex. 1001, 26:5–31.

E. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–10, 17–20, and 24–26 would have been unpatentable based on the following grounds:³

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1–10, 26	103(a) ⁴	Spain-I, ⁵ Hunzinger, ⁶ Nanda ⁷
2	3, 5–6	103(a)	Spain-I, Hunzinger, Nanda, Damarla ⁸
3	7–10	103(a)	Spain-I, Hunzinger, Nanda, Hour ⁹
4	17–20, 24–25	103(a)	Spain-I, Hunzinger,

³ Petitioner supports its challenge with the Declaration of Dr. Kevin C. Almeroth. Ex. 1002. Patent Owner has not submitted declaration testimony at this stage.

⁴ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 287–288 (2011), amended 35 U.S.C. §§ 102, 103, and 112. Because the ’583 patent claims priority to an application filed before March 16, 2013 (the effective date of the relevant amendments), the pre-AIA version of § 103 applies. See Ex. 1001, code (63).

⁵ U.S. Patent No. 6,944,465 B2, issued September 13, 2005 (Ex. 1011).

⁶ U.S. Patent No. 6,957,076 B2, issued October 18, 2005 (Ex. 1054).

⁷ U.S. Patent No. 8,477,731 B2, issued July 2, 2013 (Ex. 1006).

⁸ U.S. Patent No. 7,346,359 B2, issued March 18, 2008 (Ex. 1028).

⁹ U.S. Patent No. 7,397,424 B2, issued July 8, 2008 (Ex. 1032).

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
			Nanada, Blomquist ¹⁰

II. ANALYSIS

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966)). The question of obviousness is resolved based on 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 evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Relying on the Declaration of Dr. Almeroth for support, Petitioner contends a person of ordinary skill in the art (“POSITA”)

would have had at least a BS degree in computer science, electrical engineering, or similar discipline, and two or more years of experience with location determining-based systems

¹⁰ U.S. Patent No. 7,305,244 B2, issued December 4, 2007 (Ex. 1033).

and/or processes, such as for example systems/processes for determining mobile device location(s). . . . More education can supplement practical experience and vice versa.

Pet. 3 (citing Ex. 1002 ¶¶ 31–32). At this juncture, Patent Owner does not argue the level of ordinary skill in the art. Prelim. Resp. 1–2.

For purposes of this Decision, we adopt the level of ordinary skill in the art articulated by Petitioner because, based on the current record, it is not disputed and is consistent with our review and understanding of the technology and descriptions in the ’583 patent and prior art of record.

Okajima v. Bourdeau, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2020). Under this standard, we construe the claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.* Furthermore, at this stage in the proceeding, we expressly construe the claims only to the extent necessary to determine whether to institute *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe 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))).

Petitioner submits that “no special constructions are necessary” beyond the plain meaning of the claims. Pet. 4. Similarly, for purposes of their Response, Patent Owner states that “no formal claim construction is necessary.” Prelim. Resp. 2. Currently, where neither party proposes any

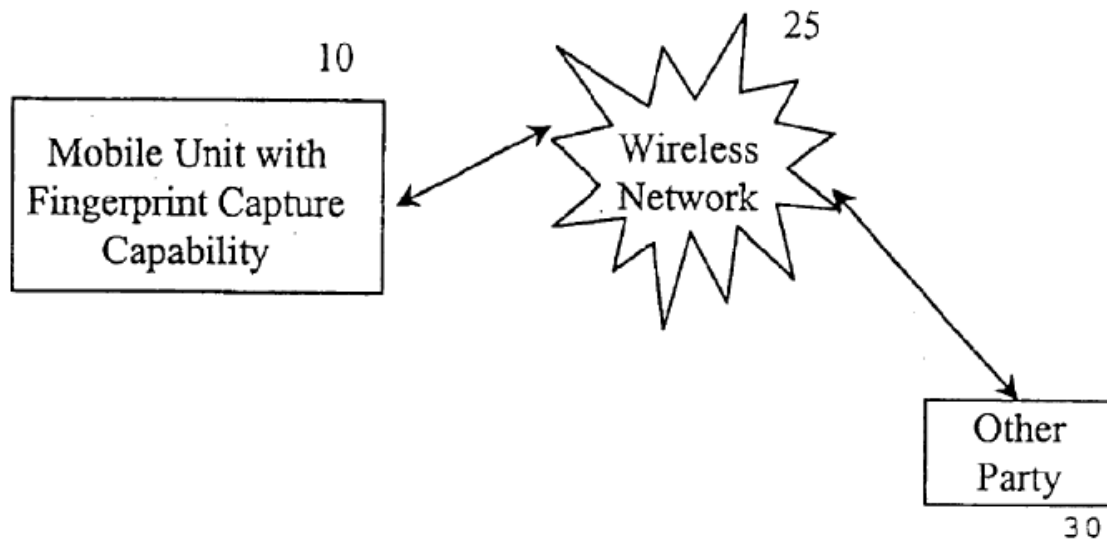
particular construction or indicates disagreement as to the meaning of any claim language, we need not explicitly construe any claim terms.

D. Ground 1: Claims 1–10 and 26—Alleged Obviousness over Spain-I, Hunzinger, and Nanda

On this record, Petitioner has established a reasonable likelihood of prevailing on its assertion that claims 1–10 and 26 would have been obvious in view of Spain-I, Hunzinger, and Nanda, for the reasons explained below.

1. Spain-I (Ex. 1011)

Spain-I is titled “Estimating the Location of a Mobile Unit Based on the Elimination of Improbable Location.” Ex. 1011, code (54). Figure 1, below, shows a wireless communication network. *Id.* at 3:8–9.



Spain-I’s Figure 1 depicts an exemplary wireless communication network, with mobile unit 10 in communication with wireless network 25, which is in communication with other party or location server 30. *Id.* at Fig. 1, 3:9–11.

Spain-I is “based on the principle that any location has a unique Radio Frequency (RF) spectral fingerprint” that may be generated using parameters including signal strength. Ex. 1011, 3:42–47, 4:55–57. Spain-I explains that the mobile unit is activated to capture information from portions of the RF

spectrum when a location estimate of the mobile unit is desired, and a fingerprint is generated by extracting parameters from captured signals. *Id.* at 4:43–47, 5:55–62. The generated fingerprint is compared with fingerprints stored in a database, and a corresponding location of a closest fingerprint match in the database is selected as the location of the mobile unit. *Id.* at 5:61–6:4.

2. *Hunzinger (Ex. 1054)*

Hunzinger is titled “Location Specific Reminders for Wireless Mobiles” and seeks to “allow[] users of wireless mobile terminals to set reminders, alerts, or other actions to be triggered based on location or dynamics.” Ex. 1054, codes (54), (57). To do so, Hunzinger describes a mobile terminal that “stor[es] location related information (‘remembered’ locations) and trigger or action information” and compares “‘remembered’ locations with current location information.” *Id.* at 3:56–60. The mobile terminal monitors current location information and “may detect that it is [*sic*] has transitioned out of the area described by the stored location information or that the current location matches the stored location information.” *Id.* at 4:28–31. For example, the mobile terminal may detect a base station hand-off or detect that it has exceeded a predetermined distance from the stored location. *Id.* at 4:24–28. When the mobile terminal “detects that it has reentered the vicinity of the stored-location,” it triggers an action such as a text reminder message or sound activation. Ex. 1054, 4:43–57.

3. *Nanda (Ex. 1006)*

Nanda is titled “Method and Apparatus for Locating a Wireless Local Area Network [(‘WLAN’)] in a Wide Area Network” and describes comparing “fingerprints” to determine a mobile device’s proximity to a

communications network. Ex. 1006, codes (54), (57). In particular, Nanda’s mobile device monitors beacon and pilot signals from base stations in order to perform base station hand-offs. *Id.* at 5:50–57. Nanda explains that a fingerprint represents a location of the mobile device, such that the device may determine its current fingerprint and compare it with a known fingerprint for a given area, in order to determine whether the device is located within the area. *Id.* at 6:52–58.

In an exemplary embodiment, the fingerprint “has a vector for signal strengths and one for phases.” Ex. 1006, 10:55–57. Nanda uses algorithms to compare vectors of a current fingerprint with vectors of a stored fingerprint and determine whether there is a match. *Id.* at 10:64–11:19. If so, then the mobile device searches for beacon signals of a given access point. *Id.* at 11:20–23.

4. *Independent Claim 1*

We consider initially the elements of claim 1.

a) *Petitioner’s Arguments*

(1) Preamble – A signal-comparison based location-determining method, operable by a first portable RF communications device in conjunction with a plurality of fixed-location service-area antenna stations capable of RF communication with the first portable RF communications device wherein the antenna stations are substantially continuously operating, the method comprising:

Petitioner argues Spain-I teaches a mobile unit (“MU”) that “works in conjunction with antenna stations capable of RF communication with the MU.” Pet. 6 (citing Ex. 1011, 3:35–41, Figs. 9–10). Relying on Spain-I, Petitioner asserts that “[w]hen a location estimate of the MU is desired’ at a current location, the MU captures information from signals received from

surrounding antenna stations and creates a fingerprint.” *Id.* at 7 (citing Ex. 1011, 4:42–46, 5:20–6:8, 7:64–8:44, 9:25–10:27). Petitioner further argues that Spain-I’s MU compares “fingerprint” location information “to determine whether it is ‘at a particular location or not.’” *Id.* (citing Ex. 1011, 4:23–47). Additionally, relying on Dr. Almeroth, Petitioner contends that a person of ordinary skill in the art knew Spain-I’s antenna stations “would have been understood as continuously operating fixed-location service-area antenna stations, given they communicate RF signals within respective service areas with the MU having an antenna, consistent with known wireless network infrastructures.” *Id.* (citing Ex. 1002 ¶ 99).

(2) *Limitation 1(a)(ii)-(iii) – the first portable RF communications device monitoring its location by*

(i) receiving communications signals from a first plurality of the antenna stations,

(ii) identifying at least one ID within at least one of the received communications signals, and

(iii) measuring the signal strengths associated with a received communications signal from the first plurality of antenna stations; and

Petitioner argues that Spain-I’s “MU monitors its location by receiving signals from antenna stations, identifying at least one ID within at least one received signal (*e.g.*, station ID), and measuring signal strengths associated with a received signal from a first plurality of stations.” *Id.* at 9 (citing Ex. 1011, 3:5–16, 4:42–54, 3:55–58, 5:20–32). Petitioner points to Spain-I’s Figure 9, a table entitled, “Fingerprint Structure,” showing a series

of antenna station IDs across the top row of the table. We reproduce Petitioner’s annotated Figure 9 below.

400	Fingerprint Structure					
401	Time of Capture:					
403	Station ID:	I1	I2	I3	...	In
405	Frequency:	F1	F2	F3	...	Fn
407	Tuning Parameters:	P1	P2	P3	...	Pn
409	Transmitter Location:	L1	L2	L3	...	Ln
411	Signal Strength 1:	S11	S12	S13	...	S1n
413	Signal Strength 2:	S21	S22	S23	...	S2n
415	...	...	...	...	...	...
417	Signal Strength m:	Sm1	Sm2	Sm3	...	Smn

Fig. 9

Figure 9 from Spain-I “is an illustration of the organization of the fingerprint data” with “Station ID” I1–In, and “Signal Strength” 1–m highlighted in blue and yellow respectively. Ex. 1011, 2:40–41. Based at least in part on Figure 9, Petitioner argues that “[t]he MU creates a fingerprint for its current location using that information (station IDs and signal strengths).” Pet. 10 (citing Ex. 1011, Figs. 9–10).

(3) *Limitation 1(b)(i)-(ii) – the first portable RF communication device determining if a monitored location is within proximity of a location chosen by a user of the first portable RF communication device, as a result of*

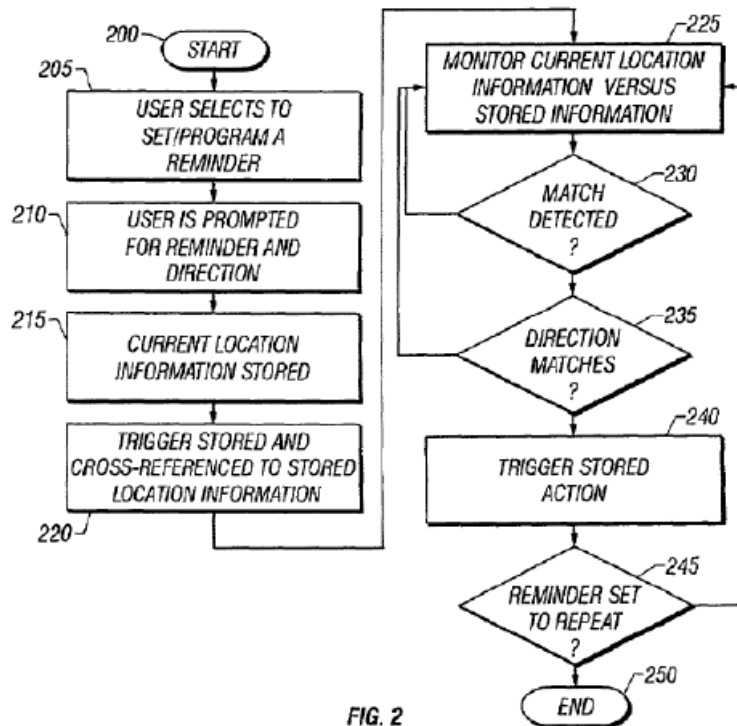
(i) electronically comparing the at least one ID and at least one figure based on the signal strengths of the first plurality of antenna stations at the monitored location with the at least one ID and the at least one figure based on signal strengths of the first

plurality of antenna stations at the location chosen by the user, and

(ii) determining if the difference between the signal strengths measured at the monitored location and the signal strengths at the location chosen by the user is less than a predetermined threshold.

Petitioner argues that Spain-I in view of Hunzinger and Nanda disclose these limitations. *Id.* at 12. Petitioner argues that Spain-I compares a current location with a stored location in a database, and “[u]pon a ‘match’ (or close match) the ‘corresponding location in the database is then chosen as the location of the mobile unit.’” *Id.* (citing Ex. 1011, 5:61–6:4, 8:1–26).

To the extent that Spain-I does not teach “determining if a monitored location is within proximity of *a location chosen by a user* of the first portable RF communication device,” as called for in claim limitation 1(b), Petitioner asserts that “*Hunzinger* discloses a location determining system/process where a mobile device (with ‘position location technology’) is configured to allow a user to choose locations and related actions that are performed when the device is determined to be at such chosen locations.” *Id.* at 15 (citing Ex. 1054, Abstract, Figs. 1A–4, 1:38–2:6, 2:10–44, 3:4–67). Hunzinger’s Figure 2 is reproduced below.



Hunzinger's Figure 2 is "a flow chart illustrating location reminder programming, monitoring and triggering procedures" which compares current location at 215, to a user selected stored location 220, and if match is detected at 230 then action 240 is triggered. *See* Ex. 1054, 4:46–48 (Hunzinger explains that "[t]he action is triggered 240 when [] the location matches 230 the stored location.").

In addition, Petitioner argues that "*Nanda* describes features that allow a mobile device user to select when to create a fingerprint, which causes fingerprint information (*e.g.*, strength/ID data) to be collected/measured while the MU is at a location chosen by the user." Pet. 21 (citing Ex. 1006, 8:29–36). Petitioner argues that by providing the predetermined user selected stored location information as taught by Hunzinger and Nanda, with *Spain-I*'s database, "such modification(s) would have predictably resulted in the *Spain-I* database maintaining fingerprints

corresponding to locations of interest to the user so that later, . . . when the MU is determined to be in proximity of such a location (*e.g.*, retailer, service provider/vendor, etc.), relevant personalized services can be provided.” *Id.* at 24.

Finally, with respect to the difference in signal strengths between a user selected location and a current location being “less than a predetermined threshold” as recited in claim 1, Petitioner argues that a person of ordinary skill in the art would have understood that Nanda, for example, discloses a signal strength “deviation” for determining a relative comparison between current and stored location parameters, such as signal strength. *Id.* at 29–30. According to Petitioner, Nanda stores IDs and associated signal strength parameters as shown in the table below. *Id.* at 30 (citing Ex. 1006, 8:29–55, 9:31–10:13).

WAN ID	WLAN SSID	WLAN BSS ID	Signal Strength	Phase
A	I1	A ₁	s ₁ (A ₁) . . . s _n (A ₁)	p ₁ (A ₁) . . . p _n (A ₁)
		A ₂	s ₁ (A ₂) . . . s _n (A ₂)	p ₁ (A ₂) . . . p _n (A ₂)
		A ₃	s ₁ (A ₃) . . . s _n (A ₃)	p ₁ (A ₃) . . . p _n (A ₃)
B	I1	B ₁	S ₁ (B ₁) . . . s _n (B ₁)	
	I2	B ₂	S ₁ (B ₂) . . . s _n (B ₂)	

Nanda explains with respect to the table that “[t]he first column of the table refers to the WAN ID of the WAN The particular base stations in the WAN may be identified by the pilot offsets, pilot signal strengths or other attribute which are part of the finger print . . . [which] identifies the location of the mobile device.” Ex. 1006, 8:56–62.

Next, Petitioner points to an ensuing table, reproduced below from Nanda, indicating the signal strength “deviation” between a stored fingerprint and a current fingerprint.

WAN ID	WLAN BSS ID	Signal Strength	Strength Deviation	Phase	Phase Deviation
A	A ₁	s ₁ (A ₁) . . . s _n (A ₁)	d ₁ (A ₁) . . . d _n (A ₁)	p ₁ (A ₁) . . . p _n (A ₁)	q ₁ (A ₁) . . . q _n (A ₁)
	A ₂	s ₁ (A ₂) . . . s _n (A ₂)	d ₁ (A ₂) . . . d _n (A ₂)	p ₁ (A ₂) . . . p _n (A ₂)	q ₁ (A ₂) . . . q _n (A ₂)
	A ₃	s ₁ (A ₃) . . . s _n (A ₃)	d ₁ (A ₃) . . . d _n (A ₃)	p ₁ (A ₃) . . . p _n (A ₃)	q ₁ (A ₃) . . . q _n (A ₃)

Nanda explains that “[t]he above table includes a deviation value for the signal strength” where the “‘deviation’ amount is defined that helps control the determination of whether a fingerprint matches a stored fingerprint.” Ex. 1006, 10:36–50.

Further, considering Nanda’s Figure 3B reproduced below as annotated by Petitioner, Petitioner argues that just as in claim 1, in Nanda “[a]t step 324, the signal strength(s) of fingerprint(s) for each BSS ID (access point) within an identified WAN ID (*e.g.*, A or B) are compared to the current fingerprint strengths to determine if the difference is below a predetermined threshold.” Pet. 32 (citing Ex. 1002 ¶ 162).

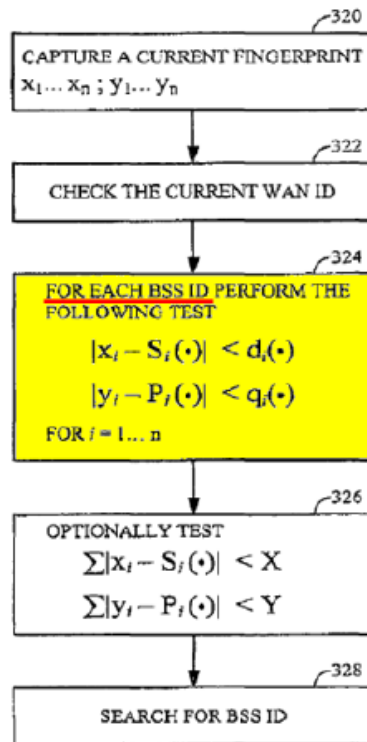


FIG. 3B

Nanda’s Figure 3B “depicts a flowchart of an exemplary method to compare fingerprints of different locations.” Ex. 1006, 3:18–19. Petitioner asserts that “[a] ‘match’ is determined when the difference between a stored and current measured signal strengths (x-s) is less than ($<$) a predetermined threshold (d).” Pet. 33 (citing Ex. 1006, 10:62–11:10; Ex. 1002 ¶ 163).

b) Patent Owner’s Arguments

Patent Owner argues Petitioner has failed to demonstrate the obviousness of claim 1 by not showing that the ordinarily skilled artisan would have been motivated to combine the teachings of Spain-I, Hunzinger, and Nanda, and that the Petition relies on hindsight. Prelim. Resp. 2–8.

Patent Owner argues that Spain-I uses “a server separate from the portable device to estimate the portable device’s location,” rather than “identifying whether the device is at a location that is of interest to the *user*.” *Id.* at 3. According to Patent Owner, “nothing in Spain-I discloses or suggests a target location that is selected by a user, or indeed even specific to a particular device.” *Id.* Patent Owner argues that Petitioner’s reasoning that Spain-I’s estimated location, somehow suggests “determining proximity to a location chosen by a user of the device,” simply “assumes that a POSITA would be trying to reach the specific solution claimed in the ’583 Patent—the soul of hindsight.” *Id.* at 3–4.

Patent Owner further argues Petitioner’s rationale to combine the teachings of Spain-I, Hunzinger, and Nanda is “based almost entirely on the teachings of the secondary references” in isolation. *Id.* at 4 (citing Pet. 22–25). In particular, Patent Owner contends that Hunzinger and/or Nanda already provide benefits Petitioner articulates, and the skilled artisan would have considered those teachings without the addition of Spain-I. *Id.* at 5

(citing Pet. 23). In addition, Patent Owner argues Petitioner's reliance on *Bayer Pharma AB v. Watson Laboratories, Inc.*, 874 F.3d 1316 (Fed. Cir. 2017), is misplaced because "Hunzinger and Nanda provide qualitatively different purported improvements over Spain-I." *Id.* at 6 (citing *Bayer*, 874 F.3d at 1321–1324; Pet. 15–19, 21).

Patent Owner further contends Petitioner's rationale to combine the teachings of the asserted art "is purely generic and results oriented" because it contradicts Petitioner's reasoning in related IPR2024-00155 ("the '155 IPR"). Prelim. Resp. 4 (citing IPR2024-00155, Paper 1, 16).

c) Analysis and Conclusion as to Claim 1

As an initial matter, Petitioner's reasoning and evidence in this IPR is not inconsistent with Petitioner's obviousness assertions in the '155 IPR as Patent Owner contends. *Id.* In the '155 IPR Petitioner relies on similar teachings and suggestions in Spain-I as in this proceeding. *Compare* Pet. 14, *with* '155 IPR, Paper 1, 16. In both cases, Petitioner argues that in addition to storing fingerprints in a database for selected locations, "*Spain-I* discloses configurations where a user can initiate a request that causes 'the MU [to] capture[] the fingerprint of its current location.'" Pet. 14 (quoting Ex. 1011, 6:9–30) (citing 6:43–47, Fig. 3; Ex. 1005, 6:43–47); *see also* 155 IPR, Paper 1, 16 ("*Spain-I* thus suggests the concept of user initiated target location fingerprint data collection."). Similar to the '155 IPR, Petitioner reasons in this IPR that based on Spain-I's disclosure of "generating/storing in a database fingerprints corresponding to selected location(s)," the ordinarily skilled artisan would have considered "that the MU is configurable to receive user requests to measure/collect other fingerprint locations." Pet 14. We appreciate that there are differences in Petitioner's analyses and conclusions between the proceedings. This is because, at least

in part, the claims are written differently. For example, in this proceeding the claims do not recite a “device-specific target location” as claim 1 in IPR2024-00155, but instead, “a location chosen by a user.” Ex. 1001, 26:21–22. Overall, Petitioner’s arguments and evidence between both cases do not appear to be inconsistent where both of these claim limitations refer similarly to a “desired location” as described in the ’583 patent. *See, e.g., id.* at 15:43–45 (the ’583 patent describing the function of “determin[ing] whether the cell phone or the ubiquitous computer of the present location is also at the desired location.”).

We also appreciate, as Patent Owner points out, that Spain-I discloses storing the fingerprint database and performing the location estimation at a separate “location server.” Prelim. Resp. 3. However, Spain-I also discloses that the mobile device can perform this function as well. *See* Ex. 1011, 5:65–6:2 (Spain-I describing that “[i]n one embodiment the database is stored in the mobile unit. The generated fingerprint is compared with the fingerprints in the database and the fingerprint in the database that is closest to the generated fingerprint is selected as the match.”).

Specifically relating to this proceeding, Dr. Almeroth testifies that “a person of ordinary skill in the art would have understood that *Spain-I* describes that the fingerprints generated and stored in the fingerprint database correspond to location(s) that were selected or predetermined.” Ex. 1002 ¶ 118. In other words, Petitioner and Dr. Almeroth assert that where Spain-I teaches that for purposes of comparing location data, by obtaining a user requested *current* fingerprint of the MU, an ordinarily skilled artisan would have also understood that a predetermined or previously stored location in the database, could also have been a user initiated or requested location capture. *See id.* at ¶ 119 (Dr. Almeroth testifies that “[a] person of

ordinary skill in the art would have understood that *Spain-I* at least suggests features where generating fingerprints and building the fingerprint database stems from signal characteristic (*e.g.*, signal strength) measurements and related information collected when the MU was carried by a user to specific locations of the MU.”).

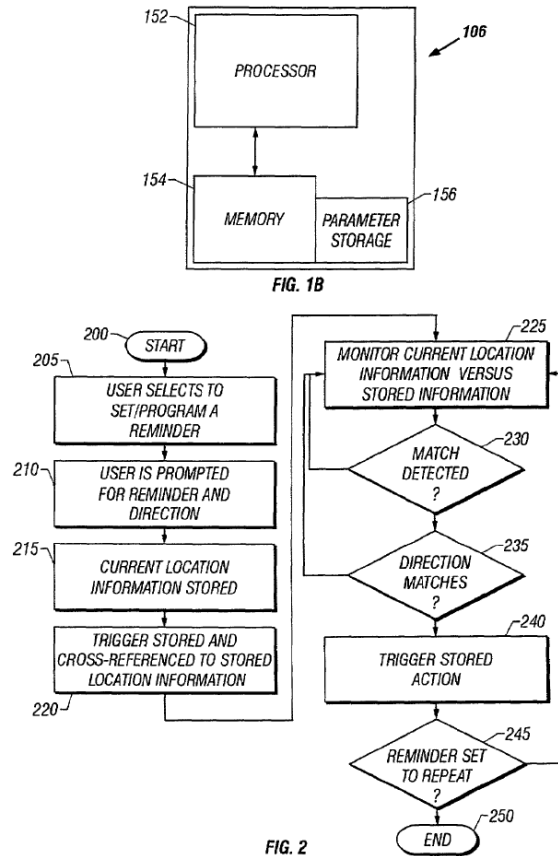
On this early record, Dr. Almeroth’s testimony is unrebutted as to what the teachings of *Spain-I* would have imparted to a person of ordinary skill in the art. Moreover, as discussed below, we have before us, at least initially, persuasive testimony that a person of ordinary skill in the art would have considered other teachings and references in the field of mobile telecommunications location determination, namely Hunzinger and Nanda, in determining how specific comparison locations can be selected by the user. *See* Ex. 1002 ¶ 119 (Dr. Almeroth testifies that “*Spain-I* thus suggests the concept generally of user-initiated location-based fingerprint data collection generally . . . and thus would have been motivated to consider teachings in the art when considering the teachings of *Spain-I*.”).

Turning to Patent Owner’s accusations of hindsight, on the record before us, and as discussed below, we determine that Petitioner has sufficiently demonstrated *why* the ordinarily skilled artisan would have found it obvious to combine the teachings of *Spain-I*, Hunzinger, and Nanda, to achieve the claimed “location chosen by a user,” in this proceeding, as well as a “device-specific target location” in the ’155 IPR, and performing actions on the mobile device as a result of determining that that device is in proximity of the device-specific target location.

Patent Owner argues, for instance, that Petitioner’s explanations and evidence “fails to address why a POSITA would be motivated to combine Hunzinger and/or Nanda *with Spain-I*.” Prelim. Resp. 5. We disagree.

Petitioner articulates multiple reasons why the ordinarily skilled artisan would have modified Spain-I with the teachings of Hunzinger and Nanda. *See* Pet. 14–25. And regardless of whether the ordinarily skilled artisan may have alternatively used Hunzinger and/or Nanda alone to provide a system for selecting device-specific target locations, “[i]t’s not necessary to show that a combination is ‘the *best* option, only that it be a *suitable* option.’” *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (Fed. Cir. 2021) (citing *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–1198 (Fed. Cir. 2014)); *see also In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (“[O]ne cannot show non-obviousness by attacking references individually where . . . the rejections are based on combinations of references.”).

For example, Petitioner argues that to the extent Spain-I’s predetermined database stored locations do not expressly describe “a user chosen location” with which to compare a current location, “*Hunzinger* discloses a location determining system/process where a mobile device (with ‘position location technology’) is configured to allow a user to choose locations and related actions that are performed when the device is determined to be at such chosen locations.” Pet. 15 (citing Ex. 1054, Abstract, 1:38–2:6, 2:10–44, 3:4–67, Figs. 1A–4; Ex. 1002 ¶ 121). Considering Hunzinger’s Figure 2, reproduced below, Petitioner argues that “[p]osition-monitoring function[s] ‘compare[] one or more ‘remembered’ locations with current location information.’” *Id.* at 16 (quoting Ex. 1054, 3:56–60).



Hunzinger’s Figure 2 “is a flow chart illustrating location reminder programming, monitoring and triggering procedures according to one embodiment of the present invention.” Ex. 1054, 2:59–61. Hunzinger explains further that “[t]he mobile terminal also includes memory for storing location related information (‘remembered’ locations) and trigger or action information.” *Id.* at 3:56–59. Hunzinger then compares a current mobile terminal location to the remembered location so that “[t]he mobile may detect that it is has transitioned out of the area described by the stored location information or that the current location matches the stored location information 230.” *Id.* at 4:28–31.

Similarly, Nanda discloses in Figure 3A reproduced below that a user captures and stores fingerprint attributes for a specific location.

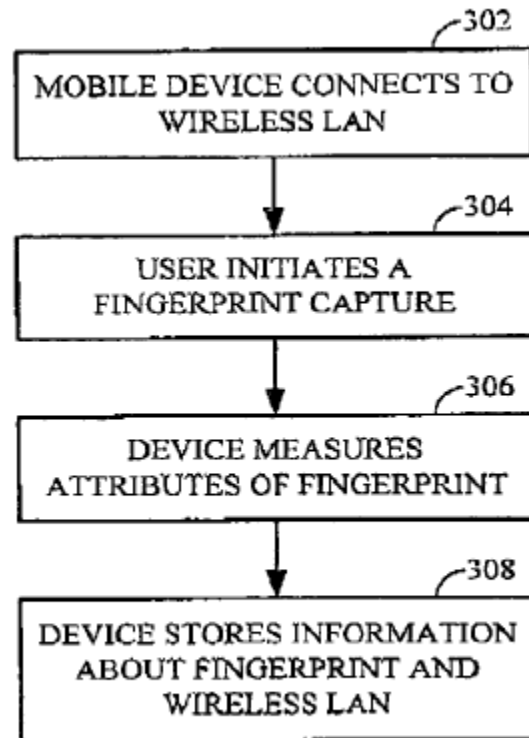


FIG. 3A

Nanda’s Figure 3 “depicts a flowchart of an exemplary method to create fingerprints on a mobile communications device.” Ex. 1006, 3:16–17.

Relying on the prior art teachings, Dr. Almeroth’s testimony, and the knowledge of the ordinarily skilled artisan, Petitioner asserts that modifying Spain-I by

configuring the MU with user-friendly interface mechanisms (*e.g.*, menus (*Hunzinger*), key-based (*Nanda*)) and related functionalities that enabled a user to easily choose locations would have enhanced the way the *Spain-I* system facilitated how locations are selected to build the fingerprint database, thus promoting use of the modified system while expanding its potential applications.

Pet. 23–24 (citing Ex. 1002 ¶¶ 137–138). Petitioner further reasons that to add Hunzinger and Nanda’s features would have “result[ed] in a more marketable, desirable, and/or user-friendly and feature-based location

determining system, thus expanding application options.” *Id.* at 24 (citing Ex. 1002 ¶¶ 140–141, 144).

Patent Owner’s arguments at this stage are unpersuasive to show that Petitioner’s reasoning above lacks a rational underpinning or is gleaned only from the ’583 patent’s Specification. *See In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971) (“Any judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as [a conclusion of obviousness] takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper.”).

As another example, Petitioner relies on the prior art teachings, Dr. Almeroth’s testimony, and the knowledge and skills of the ordinarily skilled artisan to support its conclusions that the modifications Petitioner proposes would have been implemented by the ordinarily skilled artisan using known techniques and with a reasonable expectation of success. *See* Pet. 25 (Petitioner arguing that “[g]iven the familiar features/technologies taught by *Spain-I-Hunzinger* (and *Nanda*) and state of art . . . a POSITA would [have] had the skills/knowledge/rationale to consider/implement such modifications with a reasonable expectation of success.”) (citing Ex. 1002 ¶¶ 145–146).

With respect to Petitioner’s overall rationale to combine, we acknowledge that Hunzinger and Nanda may provide different specific improvements over Spain-I, yet we understand Petitioner’s position to be that Hunzinger and Nanda show that features such as user selected target locations and numerical and algorithmic ID signal strength comparisons were well-known in the art. *See* Pet. 19 n.10. (“Indeed, an invention is likely obvious where it merely combines familiar elements according to

known methods and yields only predictable results.”) (citing *KSR*, 550 U.S. at 416). Furthermore, Dr. Almeroth’s testimony as to the level and knowledge of skill in the art is unrebutted at this early stage and we do not discern any persuasive evidence on this preliminary record that modifying Spain-I’s mobile device to achieve the user selected specific target location or location-based actions of Hunzinger and Nanda would be “uniquely challenging or difficult for one of ordinary skill in the art” or “represented an unobvious step over the prior art.” *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418–19). Accordingly, for purposes of institution, we find persuasive Petitioner’s position that a person of ordinary skill in the art would have, for at least the above discussed reasons, been motivated to combine the teachings of Spain-I, Hunzinger, and Nanda, and would have done so with a reasonable expectation of success.

5. *Analysis and Conclusion as to Dependent Claims 2–10, and 26*

Petitioner provides an element-by-element analysis of where each element in challenged dependent claims 2–10, and 26 is disclosed by or would have been obvious in view of Spain-I, Hunzinger, and Nanda. Pet. 41–61.

We determine on the evidence before us at this early stage that Petitioner has shown that Spain-I, Hunzinger, and Nanda disclose or would have taught to a person of ordinary skill in the art, each additional limitation recited in dependent claims 2–10 and 26 as they depend from claim 1. Petitioner explains for example, with respect to dependent claim 3, that given the teachings in Hunzinger and Nanda,

a POSITA would have been motivated, and found obvious, to configure the modified *Spain-I* system/processes such that multiple MUs (including a second different MU different) measures/collects signal strengths from signals received when at a user chosen location selected by the user of the first MU (§IX.A.1(b)(ii)(1)) to generate respective fingerprints used for building a robust fingerprint database stored at a remote server, consistent with features contemplated by *Spain-I* and *Nanda*.

Id. at 42–43 (citing Ex. 1002 ¶ 187); *see also* Ex. 1006, 12:14–31 (Nanda explaining that the remote database “receiv[es] fingerprints from multiple mobiles devices” enabling a “much larger database of available access points than would be found in a single mobile device”).

*E. Grounds 2–4: Dependent Claims 3, 5–10, 17–10, and 24–25—
Alleged Obviousness over Spain-I, Hunzinger, Nanda and one of
Damarla, Houri, and Blomqvist*

Because we institute on another ground on this record, we need not make a determination at this point regarding whether Petitioner has met its burden to show that the combination of *Spain-I*, Hunzinger, Nanda and one of Damarla, Houri, and Blomqvist renders the claims of the ’583 patent obvious.

Patent Owner does not specifically address the limitations relating to the dependent claims in grounds 2–4 and Petitioner’s challenges based on Damarla, Budampati, and Blomqvist. *See* Prelim. Resp. 7 (Patent Owner stating that “[t]he Petition’s failure to show motivation to combine *Spain-I* with either Hunzinger or Nanda or both dooms all asserted grounds”).

III. CONCLUSION

On this record, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing on its challenges that *Spain-I*, Hunzinger, and Nanda renders obvious at least claims 1–10 and 26 of the ’583 patent. That said, Petitioner’s remaining obviousness challenges, namely those

based on Damarla, Houri, and Blomqvist in grounds 2–4, are best left for trial after full development of the record. 37 C.F.R. § 42.108(c); *SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (“Equal treatment of claims and grounds for institution purposes has pervasive support in *SAS*.”). We therefore institute trial on all claims and all challenges included in the Petition.

Our factual findings and determinations at this stage of the proceeding are preliminary, and based on the evidentiary record developed thus far. This is not a final decision as to the patentability of claims for which *inter partes* review is instituted. Our final decision will be based on the record as fully developed during trial.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review of the ’583 patent is hereby instituted as to claims 1–10, 17–20, and 24–26 on all grounds set forth in the Petition; and

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 on the grounds of unpatentability authorized above; the trial commences on the entry date of this decision.

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FOR PETITIONER:

Joseph E. Palys
Naveen Modi
Kevin M. Stewart
PAUL HASTINGS LLP
josephpalys@paulhastings.com
naveenmodi@paulhastings.com
kevinstewart@paulhastings.com

PATENT OWNER:

Reza Mirzaie
Qi Tong
RUSS AUGUST & KABAT
rmirzaie@raklaw.com
ptong@raklaw.com