

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, SAMSUNG ELECTRONICS CO., LTD., AND
SAMSUNG ELECTRONICS AMERICA, INC.,
PETITIONERS,

v.

NARISTE NETWORKS PTY. LTD.,
PATENT OWNER.

CASE IPR2023-01374
PATENT RE48,206

PATENT OWNER'S SUR-REPLY
37 C.F.R. § 42.23

TABLE OF CONTENTS

CURRENT EXHIBIT LIST.....	ii
CLAIM LISTING	vi
I. PATENT OWNER’S CLAIM CONSTRUCTIONS ARE CORRECT.....	1
A. Claims 37, 40, and 43: “a position error of said mobile device determined from the wireless communications network”	1
II. GROUND 1: WATTERS DOES NOT ANTICIPATE OR RENDER ANY CLAIM OBVIOUS.....	2
A. Watters Fails to Disclose or Render Obvious Limitations 37[b]/40[c]/43[c].....	2
1. Watters’ does not disclose “determining when said embedded GPS module should be powered on being dependent on . . . a current radio position . . . determined from the wireless communications network.”	3
2. Watters’ does not disclose “determining when said embedded GPS module should be powered on being depending on . . . a position error of said mobile device determined from the wireless communications network”	4
B. Watters Fails to Disclose or Render Obvious Claims 39/42/45	6
III. GROUND 2: NOHARA DOES NOT ANTICIPATE OR RENDER ANY CLAIM OBVIOUS.....	7
A. Nohara Fails to Disclose or Render Obvious Limitations 37[b]/40[c]/43[c].....	7
1. Nohara’s Disclosure of “HDOP” Does Not Disclose or Render Obvious Limitation 37[b]/40[c]/43[c]	7
IV. WATTERS IN COMBINATION WITH NOHARA DOES NOT RENDER CLAIMS 37-45 OBVIOUS	9
V. PETITIONERS GROUNDS 3 AND 5 FAIL AS WELL.....	9
VI. CONCLUSION.....	10

CURRENT EXHIBIT LIST¹

No.	Brief Description
1001	U.S. Patent No. RE48,206
1002	Declaration of Scott Andrews
1003	Curriculum Vitae of Scott Andrews
1004	Prosecution History of U.S. Patent No. RE48,206
1005	U.S. Patent No. 5,982,324 to Watters (“Watters”)
1006	U.S. Patent Publication No. 20020151314 to Nohara (“Nohara”)
1007	U.S. Patent No. 6,975,941 to Lau (“Lau”)
1008	INTENTIONALLY LEFT BLANK
1009	INTENTIONALLY LEFT BLANK
1010	INTENTIONALLY LEFT BLANK
1011	INTENTIONALLY LEFT BLANK
1012	INTENTIONALLY LEFT BLANK
1013	INTENTIONALLY LEFT BLANK
1014	INTENTIONALLY LEFT BLANK
1015	INTENTIONALLY LEFT BLANK
1016	INTENTIONALLY LEFT BLANK
1017	INTENTIONALLY LEFT BLANK
1018	INTENTIONALLY LEFT BLANK
1019	INTENTIONALLY LEFT BLANK
1020	Claim Mapping Table
1021	Nariste Networks Pty. Ltd.’s Sur-Reply in Opposition to Defendants’ Rule 12(b)(6) Motion to Dismiss Under 35 U.S.C. § 251 and the Rule Against Recapture
1022	Yilin Zhao, Vehicle Location and Navigation Systems 43–81 (Illustrated ed. 1997).

¹ Relevant portions of exhibits may be highlighted to help the Panel locate cited sections.

No.	Brief Description
1023	U.S. Patent No. 5,592,173 to Lau et al (“Lau”)
1024	U.S. Patent No. 6,748,224 to Chen et al (“Chen”)
1025	U.S. Patent No. 6,889,053 to Chang et al (“Chang”)
1026	U.S. Patent No. 5,663,734 to Krasner et al (“Krasner”)
1027	U.S. Patent No. 5,594,453 to Rodal et al (“Rodal”)
1028	U.S. Patent No. 7,409,188 to Syrjarinne et al (“Syrjarinne”)
1029	U.S. Patent Publication No. 20050083230 to Harvey et al (“Harvey”)
1030	Xinrong Li, Kaveh Pahlavan, and Jacques Beneat, Performance of TOA estimation Techniques in Indoor Multipath Channels 911–915 (2002).
1031	Flowchart, https://en.wikipedia.org/w/index.php?title=Flowchart&oldid=1169392868 (last visited Aug. 30, 2023).
1032	Central processing unit, https://en.wikipedia.org/w/index.php?title=Central_processing_unit&oldid=1172444772 (last visited Aug. 30, 2023)
1033	Samir S. Soliman and Charles E. Wheatley, Geolocation technologies and applications for third generation wireless 229–251 (2002).
1034	Samir Soliman, Parag Agashe, Ivan Fernandez, Alkinoos Vayanos, Peter Gaal, and Milan Oljaca, gpsOne™: A hybrid position location system 330–335 (2000).
1035	A. M. Turing, On Computable Numbers, With an Application to the Entscheidungsproblem 230–265 (1936).
1036	Defendants’ Motion to Transfer Venue to the Northern District of California Under 28 U.S.C. § 1404(a)
1037	Defendants’ Rule 12(b)(6) Motion to Dismiss Under 35 U.S.C. § 251 and the Rule Against Recapture
1038	Nariste Networks Pty. Ltd.’s Response in Opposition to Defendants’ Rule 12(b)(6) Motion to Dismiss Under 35 U.S.C. § 251 and the Rule Against Recapture

No.	Brief Description
1039	Defendants' Reply in Support of Rule 12(b)(6) Motion to Dismiss Under 35 U.S.C. § 251 and the Rule Against Recapture (Dkt. 23)
1040	Plaintiff's Disclosure of Asserted Claims and Infringement Contentions and Identification of Document Production Accompanying Disclosure
1041	Order Granting Motion to Stay Pending IPR
1042	Reply Declaration of Scott Andrews
1043	Dr. Samuel Pullen Deposition Transcript (Sept. 27, 2024)
2001	Declaration of Dr. Samuel Pullen
2002	Prosecution History of U.S. Patent No. 8,022,870
2003	Marius Specht, Experimental Studies on the Relationship Between HDOP and Position Error in the GPS System, Metrology and Measurement Systems, Vol. 29 No1, pp. 17-36 (2022)
2004	U.S. Patent No. 6,061,021 to Zibell (Zibell)
2005	U.S. Patent No. 5,894,266 to Wood, Jr. et al ("Wood")
2006	U.S. Patent No. 6,424,843 to Reitmaa et al ("Reitmaa")
2007	P. Misra and P. Enge, Global Positioning System: Signals, Measurement, and Performance, Ganga-Jamuna Press, 2 nd Ed., 2006.
2008	F.J. Bueche and E. Hecht, Schaum's Outline of Theory and Problems of College Physics, McGraw-Hill, 9th Ed., 1997.
2009	E.D. Kaplan and C.J. Hegarty, Eds., GPS: Principles and Applications, Artech House, 2 nd Ed., 2006.
2010	B. Parkinson, J. Spilker, P. Axelrad, P. Enge, Eds., Global Positioning System: Theory and Applications, Volume I, American Institute of Aeronautics and Astronautics (AIAA), 1996.
2011	S. Liao, Why GPS-dependent Apps Deplete Your Smartphone Battery, The Verge (Aug. 17, 2018)
2012	M. Sullivan, <i>A Brief History of GPS</i> , PCWorld (Aug. 9, 2012), available at https://www.pcworld.com/article/461346/a-brief-history-of-gps.html

No.	Brief Description
2013	E. Eason, <i>Smartphone Battery Inadequacy</i> , Stanford University (Dec. 17, 2020), <i>available at</i> http://large.stanford.edu/courses/2010/ph240/eason1/ .

CLAIM LISTING²

	Limitation
37[pre]	A method of acquiring a position on a mobile wireless communication device for a wireless communications network, said mobile wireless communication device possessing wireless communications capability for said wireless communications network and an embedded GPS module for GPS capability, said GPS referring to GPS-based techniques, said method comprising:
37[a]	determining when said embedded GPS module should be powered on, said embedded GPS module then being powered on,
37[b]	said when said embedded GPS module should be powered on being dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS.
38	The method according to claim 37, wherein said powered on comprises said module powering up from a low-power mode such as a TricklePower power-down mode.
39	The method according to claim 37, wherein said determining when said embedded GPS module should be powered on is also dependent on at least one of; a last satellite position; a last position determined by the GPS; and a last time determined by the GPS.
40[pre]	A mobile wireless communication device for a wireless communications network, said mobile wireless communication device possessing wireless communications capability for said wireless communications network and an embedded GPS module for GPS capability, said GPS referring to GPS-based techniques, said mobile wireless communication device comprising:
40[a]	an embedded GPS module providing a GPS capability for said mobile wireless communication device;
40[b]	and means for determining when said embedded GPS module should be powered on, said embedded GPS module then being powered on,

² As the Response presents the claim listing in its body in fragments and grouped by limitation type, rather than in numerical order, all claim limitations are presented here together so the Panel may easily view them in order and in context. Patent Owner uses Petitioners' numbering designation for consistency.

	Limitation
40[c]	said determining when said embedded GPS module should be powered on being dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS.
41	The mobile device according to claim 40, wherein said powered on comprises said module powering up from a low-power mode such as a TricklePower power-down mode.
42	The mobile device according to claim 40, wherein said determining when said embedded GPS module should be powered on is also dependent on at least one of; a last satellite position; a last position determined by the GPS; and a last time determined by the GPS.
43[pre]	A computer program product for a mobile wireless communication device for a wireless communication network, said mobile wireless communication device possessing wireless communications capability for said wireless communications network and an embedded GPS module for GPS capability, said GPS referring to GPS-based techniques, said computer program product embodied on computer readable storage medium, said computer program product for acquiring a GPS position on said mobile wireless communication device, comprising:
43[a]	a first portion designed to interface with the GPS capability of said mobile wireless communication device;
43[b]	and a second portion designed to determine when said embedded GPS module should be powered on, said embedded GPS module then being powered on,
43[c]	said determining when said embedded GPS module should be powered on being dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS.
44	The computer program product according to claim 43, wherein said powered on comprises said module powering up from a low-power mode such as a TricklePower power-down mode.
45	The computer program product according to claim 43, wherein said determining when said embedded GPS module should be powered on is also dependent on at least one of; a last satellite position; a last position determined by the GPS; and a last time determined by the GPS.

I. PATENT OWNER’S CLAIM CONSTRUCTIONS ARE CORRECT

Petitioners argue for construction of two terms. Pet. at 8–11. Patent Owner proposes construing an additional term: “a position error of said mobile device determined from the wireless communications network.”

A. Claims 37, 40, and 43: “a position error of said mobile device determined from the wireless communications network”

Petitioners argue that “the ’206 Patent does not discuss any units associated with position error.” Reply at 4. But the units would be evident to any POSITA and are intrinsic in how error in position is conventionally understood. Ex. 2001 at ¶23.

The examples given in the ’206 Patent and its prosecution history are consistent with this commonly understood definition of error. The ’206 Patent describes “position error” as “the error between the predicted position of the mobile device and that of the actual position . . .” Ex. 1001 6:35-37. The difference in two positions is commonly recognized as a distance. Ex-2001 ¶20-21. The ’206 Patent gives examples for the calculation of a position error that are consistent with this commonly known definition: “the difference between a predicted position and the actually position measured at time t can be used to formulate the position error.” Ex-1001 at 6:43-46.

Petitioners’ arguments with respect to the “Cramer-Rao Bound” are also non-availing. A Cramer-Rao Bound is an abstract lower bound for the variance of estimation error in measurements or other data sources. But that lower bound is

dependent on the underlying measurement that it applies to, in this case position error. Patent Owner's expert testified that the Cramer-Rao Bound is not itself an estimate of the error but instead a lower bound on the variance of the error. Ex-1043 18:6-20:16. A POSITA would understand there is an abstract Cramer Rao Bound on the lower bound of the standard deviation of a position error, which is simply the square root of the lower bound on the variance on the position error.

Petitioners seek to expand the commonly understood definition of error to include anything remotely related possible error, including statistical characterizations of what the possible distribution of error may be given what is known about a system. But the '206 Patent provides no reason to except anything other than the convention definition of position error.

II. GROUND 1: WATTERS DOES NOT ANTICIPATE OR RENDER ANY CLAIM OBVIOUS

A. Watters Fails to Disclose or Render Obvious Limitations 37[b]/40[c]/43[c]

37[b]/40[c]/43[c] said determining when said embedded GPS module should be powered on being dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS
--

Patent Owner does not dispute that Watters generally teaches that mobile device position can be determined from cellular signals, or that Watters discusses position measurement may have varying degrees of accuracy. *See e.g.*, Ex-1005

22:25-46; 23:1-20; 24:5-14. However, Watters does not teach using either of these to determine “when said embedded GPS module should be powered on” as required by the claims. Watters teaches powering on a GPS receiver based on one of only three criteria: whether a position can be determined, how far a receiver has moved, or how much time has passed since the last GPS position fix. Ex. 1002 at ¶¶ 106-108.

1. Watters’ does not disclose “determining when said embedded GPS module should be powered on being dependent on . . . a current radio position . . . determined from the wireless communications network.”

Petitioners assert that “Watters plainly uses a difference in ‘position’ determined by the cellular network (at step 1220) to turn on GPS.” Reply at 10. But Petitioners cite to no disclosure in Watters that describes such a use of position. Watters teaches using “how far (in space) the mobile terminal has moved since the last GPS update” as an alternative inquiry to turn on GPS. Ex-1005, 22:59-60. Watters does not provide any disclosure of how Watters determines “how far (in space) the mobile terminal has moved. Accordingly, Watters does not teach use of “a current radio position . . . of said mobile device” to calculate how far the mobile device as moved nor to determine “when said embedded GPS module should be powered on.”

Petitioners argue that use of position is obvious to calculate distance. Reply at 8. However, as explained in Patent Owner’s response and by Patent Owner’s expert,

Dr. Pullen, there are many ways to calculate a distance, such as measuring doppler shifts of signals or using internal accelerometer data. Ex. 2001 ¶33-37. These methods each have their own advantages compared to using “a current radio position . . . determined from the wireless communications network.” For example, Doppler shift can be measured with respect to any radio signal, even when a “a current radio position . . . determined from the wireless communications network” cannot be obtained. Ex. 2001 ¶35. Accordingly, it would not be obvious to a POSITA to determine “when said embedded GPS module should be powered on being dependent on . . . a current radio position . . . determined from the wireless communications network” based on the disclosure of Watters.

2. Watters’ does not disclose “determining when said embedded GPS module should be powered on being depending on . . . a position error of said mobile device determined from the wireless communications network”

Petitioners’ argument is based on the premise that Watters discloses that the concept of accuracy exists. Reply at 11. Patent owner does not dispute that “there are errors inherent in cellular based approaches, such as TOA (time of arrival) and TDOA (time difference of arrival).” *Id.* But the mere fact that some error exists in a quantity does not mean that Watters discloses “determining when said embedded GPS module should be powered on being *depending on* . . . a position error of said mobile device determined from the wireless communications network.” Likewise, Watters does not teach “accounting for multipath position errors by requiring more

or less frequent updates depending on whether the signals have ‘good accuracy’” as argued by Petitioners. Reply at 13. All Watters teaches is that error exists and that some “signals” have better accuracy than other according to Watters. Watters does not teach any quantification or use of position error, much less “determining when said embedded GPS module should be powered on” depending on position error. A POSITA would take the phrase “good accuracy” in reference to signals, to mean those signals can simply be detected by a receiver, i.e. the signal-to-noise ratio is good. They would not ascribe any notion of position accuracy to a signal. At best the “accuracy” or “signal-to-noise” ratio of a signal is a parameter that impacts the probability of a position measurement having a particular position error. *See* Ex. 1043 59:6-61:11; 109:7-111:13.

Petitioners attempt to expand Watter’s disclosure that if there are not “requisite cellular signals” then GPS will be powered to include signals determined to be of insufficient accuracy due to multipath or other reasons. Reply at 12. But Watters again has no teaching of determining or using a position error. Watters merely teaches that if a certain number of cellular signals are not present then Watters will turn its GPS receiver on.

B. Watters Fails to Disclose or Render Obvious Claims 39/42/45

39/42/45: [The method according to claim 37], wherein said determining when said embedded GPS module should be powered on is also dependent on at least one of; a last satellite position; a last position determined by the GPS; and a last time determined by the GPS.
--

While use of GPS satellite position may be inherent in using GPS to determine the position of a GPS receiver, Watters contains no disclosure that “a last satellite position” is used to determine “when said embedded GPS module should be powered on.” Petitioners argue that “determining when said embedded GPS module should be powered on is also dependent . . . a last satellite position” should collapse into use of a position. Reply at 16-17. But this ignores the plain language of the claim that requires determining when to power on the GPS module to be *dependent* on “at least one of; *a last* satellite position; *a last* position determined by the GPS; and *a last* time determined by the GPS.” Because each of these quantities is measured in the past, they must be recorded to use them after GPS is turned off. Watters does not teach any recording of previous satellite positions or times, and likewise does not teach using the recorded values (the “last” value), to determine when to power on its GPS module.

As with “position error,” Petitioners argue that because Watters teaches (or because their expert says a POSITA would be aware of) the existence of satellite position, position determined from GPS, and time determined from GPS that Watters necessarily teaches dependency of powering on its GPS module on these quantities.

But Watters does not teach, disclose, or suggest such a dependency. Watters provides a specific algorithm for turning on its GPS at Fig. 12 and its corresponding description in the specification, but nothing more.

III. GROUND 2: NOHARA DOES NOT ANTICIPATE OR RENDER ANY CLAIM OBVIOUS

A. Nohara Fails to Disclose or Render Obvious Limitations 37[b]/40[c]/43[c]

37[b]/40[c]/43[c] said determining when said embedded GPS module should be powered on being dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS

1. Nohara's Disclosure of "HDOP" Does Not Disclose or Render Obvious Limitation 37[b]/40[c]/43[c]

Nohara's disclosure of HDOP is not a "position error" as a POSITA would understand "position error" is used in the claims of the '206 Patent. A POSITA would understand that HDOP is fundamentally a metric related to the geometry of a system, and indicates a statistical distribution of what position errors could potentially be, when used in conjunction with additional measurement inputs, as a result of the geometry of a system. Ex. 2001 ¶¶44-46. Nohara may choose to call HDOP a "position error" for its purposes, but a POSITA would understand that the information conveyed by HDOP is not what is meant by the use of "position error" in the claims of the '206 Patent. Ex. 2001 at ¶50. Even when

HDOP is “high,” actual position error may be low. Ex. 2003 at 30.

Additionally, Nohara is internally inconsistent in how it defines HDOP and does not explain why it draws the “near” equivalency at equation 9 to make the $COV(\delta R)$ disappear from equation 9. Ex. 2001 at ¶¶49-51. Whether this is a typographical error on behalf of Nohara or an intentional estimation or simplification, the HDOP of Nohara remains a statistical characterization of possible position error and not a position error as POSITA would understand is meant by the '206 Patent. *Id.* at ¶53.

Petitioners rely heavily Fig. 15(b) of Nohara and the corresponding circle shown on Cerr. Reply at 25-28. First, Nohara does not relate Cerr to its decision of when to power on GPS. *See* Ex. 1006 at Fig. 16. Second, Nohara only describes the display of Cerr in general terms: “the display unit 16 makes on-screen display such as the circle Cerr equivalent to the magnitude of the positioning error HDOP.” Ex-1006 ¶0215. Additionally, the Petition did not argue that Cerr was a position error or that it is used by Nohara to determine when to power Nohara’s GPS module on.

A POSITA would recognize that the relationship between HDOP and actual position error must be estimated experimentally using additional measurement inputs, because HDOP only provides a potential statistical characterization of the distribution of position errors. *See* Ex. 2003 at 31; Ex-2001 at ¶54-58. Nohara’s Cerr is simply a circle drawn on a screen and is not described as being used by Nohara to

determine when to power its GPS receiver on. Ex. 1043 at 70:2-7.

Accordingly, Nohara's disclosure of HDOP is not "of said mobile device determined from the wireless communications network."

IV. WATTERS IN COMBINATION WITH NOHARA DOES NOT RENDER CLAIMS 37-45 OBVIOUS

Petitioners only assert a combination of Watters and Nohara as allegedly rendering Claims 37-45 of the '206 Patent obvious under the narrower "conjunctive" interpretation of the claims that Petitioners advance. Petitioners previously advanced an argument that a POSITA would be motivated to combine the teachings of Watters to utilize the HDOP of Nohara. Pet. at 56-57. Petitioners now argue, for the first time, that instead a POSITA would modify Watters using the Cerr value that Nohara states is derived from HDOP. Reply at 24. As explained above, neither Cerr nor HDOP are a "position error" as would be understood from the '206 Patent. Accordingly, and as Patent Owner argued in its Response, the combination of Watters and Nohara does not render Claims 37-45 obvious under the broader "disjunctive" interpretation and therefore also cannot render the same claims obvious under the narrow "conjunctive" interpretation of the claims that Petitioners advance.

V. PETITIONERS' GROUNDS 3 AND 5 FAIL AS WELL

Contrary to Petitioners' assertion, Patent Owner explicitly addressed Petitioners' Grounds 3 and 5 in Patent Owner's Response. Resp. at 27-28.

VI. CONCLUSION

Because neither Watters nor Nohara, alone or in combination, teach, disclose, or suggest “determining when said embedded GPS module should be powered on being dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS” as recited by claim elements 37[b], 40[c], and 43[d], the Petitioners have not shown the claims of the '206 Patent to be anticipated or obvious by a preponderance of the evidence.

Dated: November 15, 2024

Respectfully submitted,

/s/ Steven T. Jugle

Steven T. Jugle (Reg. No. 75,504)

ALAVI & ANAIPAKOS PLLC
609 Main Street, Suite 3200
Houston, TX 77027
Tel: (713) 751-2365
Fax: (713) 751-2341
sjugle@aatriallaw.com

Counsel for Patent Owner,
NARISTE NETWORKS PTY. LTD.

CERTIFICATE OF WORD COUNT

Per § 42.24(c)–(d) the undersigned certifies that the number of words in the paper, PATENT OWNER’S SUR-REPLY, is:

2296

The word count does not include the table of contents, table of authorities, certificate of service, word count, exhibits list, or claim listings.

To arrive at this count, the undersigned has relied upon the word count feature of the word-processing system used to prepare the paper.

Dated: November 15, 2024

/s/ Steven T. Jugle
Steven T. Jugle

CERTIFICATE OF SERVICE

The undersigned certifies that on the fifteenth day of November, 2024, a complete and entire copy of the foregoing “PATENT OWNER’S SUR-REPLY” including exhibits, if any, was served on the date below on the following counsel of record via email per Petitioners’ consent to electronic service, see Paper 1 at 3:

Petitioners’ Distribution List
William M. Fink
Benjamin Haber
Kyla Butler

OMMNariste@omm.com
tfink@omm.com
bhaber@omm.com
kbutler@omm.com

Dated: November 15, 2024

/s/ Steven T. Jugle
Steven T. Jugle

Counsel for Patent Owner,
NARISTE NETWORKS PTY. LTD.