

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

T-MOBILE US, INC., T-MOBILE USA, INC.,
TELECOMMUNICATION SYSTEMS, INC., ERICSSON INC., and
TELEFONAKTIEBOLAGET LM ERICSSON,
Petitioners,

v.

TRACBEAM, LLC,
Patent Owner.

Case IPR2015-01687
Patent 7,764,231 B1

Before KEVIN F. TURNER, JAMES A. TARTAL,
and MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. *Background*

T-Mobile US, Inc., T-Mobile USA, Inc., TeleCommunication Systems, Inc., Ericsson Inc., and Telefonaktiebolaget LM Ericsson (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 17, 20, 25, and 26 of U.S. Patent No. 7,764,231 B1 (Ex. 1001, “the ’231 Patent”). TracBeam, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). The parties reached agreement to remove claim 26 from the proceeding. Paper 7 (Joint Motion to Limit Petition); Paper 8 (Joint Submission of Narrowing Agreement). We accepted that agreement and limited this proceeding to claims 17, 20, and 25. Paper 9.

Upon consideration of the Petition and Preliminary Response, we conclude, under 35 U.S.C. § 314(a), that Petitioner has established a reasonable likelihood that it would prevail with respect to claims 20 and 25. Accordingly, we institute an *inter partes* review of claims 20 and 25 of the ’231 Patent.

B. *Related Matters*

The ’231 Patent is the subject of several lawsuits filed in several United States District Courts. Pet. 2; Paper 5, 1–4.

The ’231 Patent also is the subject of *T-Mobile US, Inc. v. TracBeam, LLC*, Case IPR2015-01681 (PTAB); *Apple Inc. v. TracBeam, LLC*, Case IPR2015-01702 (PTAB); and *Apple Inc. v. TracBeam, LLC*, Case IPR2015-01703 (PTAB). Pet. 2; Paper 5, 2.

Various related patents also are subjects of these and other proceedings before the district courts, the USPTO, and the Board. Paper 5, 1–4.

C. References Relied Upon

Petitioner relies upon the following prior art references:

Ex. 1008	Loomis	US 5,936,572	Aug. 10, 1999
Ex. 1009	Wortham	US 6,748,226 B1	June 8, 2004

D. The Asserted Grounds

Petitioner contends that claims 17, 20, and 25 would have been obvious, under 35 U.S.C. § 103 over Loomis and Wortham. Pet. 8.

E. The '231 Patent

The '231 Patent describes location systems for wireless telecommunication infrastructures. Ex. 1001, Abstract. According to the '231 Patent, the location techniques are useful for 911 emergency calls, vehicle tracking and routing, and location of people and animals. *Id.* at Abstract, 12:17–23.

Figure 4, reproduced below, illustrates an embodiment:

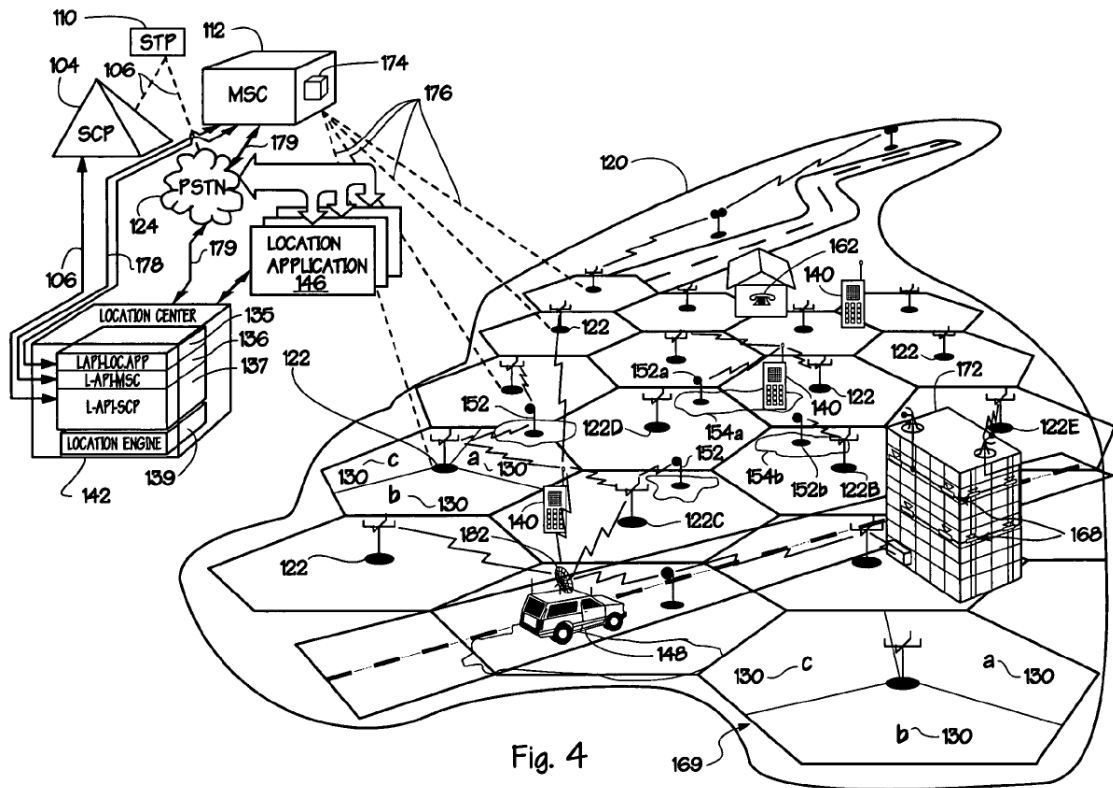


Figure 4 is an overall view of a wireless radio location network architecture. *Id.* at 21:34–35. The network includes a plurality of mobile stations (“MS”) 140, a mobile switching center (“MSC”) 112, and a plurality of wireless cell sites forming radio coverage area 120, each site including a fixed-location base station 122 for voice and data communication with MSs 140. *Id.* at 24:6–42. The network also includes location base stations (“LBS”) 152 with wireless location enablement, e.g., with transponders used primarily in communicating MS location related information to location center 142 (via base stations 122 and MSC 112). *Id.* LBSs can be placed, for example, in dense urban areas, in remote areas, along highways, or wherever more location precision is required than can be obtained using conventional wireless infrastructure components. *Id.* at 28:1–10.

Location center 142 determines a location of a target MS 140. *Id.* at 25:26–30, 37:16–18. The system uses a plurality of techniques for locating MSs, including two-way time of arrival (“TOA”), time difference of arrival (“TDOA”), and Global Positioning System (“GPS”). *Id.* at Abstract, 9:13–28, 11:13–62, 66:52–58. To determine a location for a MS, the system computes a first order model (also referred to as a hypothesis or estimate) for one or more of the locating techniques, computes a confidence value for each model indicating the likelihood that the model is correct, performs additional computations on the models to enhance the estimates, and computes from the models a “most likely” location for the MS. *Id.* at 12:52–13:36, 37:66–38:6. The most likely location can be a composite of the estimates. *Id.* at 13:30–36, 66:20–31.

Location estimates can be provided to location requesting applications, such as 911 emergency, police and fire departments, taxi services, etc. *Id.* at 8:56–64, 13:25–28.

F. Illustrative Claim

Claim 17, reproduced below, is illustrative of the claimed subject matter:

17. A method for locating a wireless mobile station, comprising performing the following steps by computational equipment:

(A1) receiving location information for the mobile station by the steps (a) and (b) following:

(a) first obtaining a first instance of the location information when supplied with signal time delay data obtained from wireless signal data received by the mobile station from a satellite, wherein a geographic range corresponding to the signal time delay data is used to determine the first instance;

wherein communication between the mobile station and at least one terrestrial transceiver is used to improve said first instance; and

(b) second obtaining a second instance of the location information of the mobile station when supplied with second data indicative of time delays of wireless signals transmitted between the mobile station and a plurality of terrestrial transceivers cooperatively linked together for use in two way communication with the mobile station, wherein at least one of (i) and (ii) following are used for obtaining the second instance: (i) a representation of a locus of locations having substantially a same time difference of arrival for wireless signals communicated between: the mobile station, and each of at least two of the transceivers, and (ii) an area obtained by a correspondence between surveyed wireless signaling characteristics of the area, and wireless signals communicated between the mobile station and the transceivers;

wherein the second instance does not depend on a geographical location of the mobile station obtained from information indicative of a distance between the mobile station and at least one of the one or more satellites;

(A2) determining resulting location information, for each of one or more locations of said mobile station, using at least one of: a first value obtained from the first instance, and a second value obtained from the second instance;

(A3) outputting said resulting location information for each of the one or more locations;

wherein: the first value is used to obtain the resulting information for one of the locations, and the second value is used to obtain the resulting information for one of the locations.

II. ANALYSIS

A. Claim Construction

Only terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner points out that the District Court in *TracBeam, LLC v. AT&T, Inc.*, Case No. 6:11-CV-96 (E.D. Tex.), construed several terms of the challenged claims. Pet. 9–14 (citing Ex. 1017 (District Court's Claim Construction Order)). For the majority of these terms, Petitioner argues that no constructions are necessary, but indicates that it would accept the District Court's claim constructions. *Id.* at 9–10. Patent Owner does not propose constructions for these terms. At this stage of the proceeding, we do not find it necessary to construe these terms expressly.

Patent Owner asserts that “[c]laim 17 recites an order.” Prelim. Resp. 8 (referring to the “first obtaining” and “second obtaining” recited in claim 17). Nevertheless, Patent Owner does not advance, in the Preliminary Response, an argument based on such an order. Rather, Patent Owner foreshadows that it “will demonstrate that ‘first’ and ‘second’ are used as adverbs to describe the manner in which the recited acts are performed and will further demonstrate that Petitioners’ asserted combination fails to disclose or render obvious the ordered ‘obtaining’ steps of claim 17,” if a proceeding is instituted,” but indicates that it “need not do so here” because of its reliance on other arguments. *Id.* at 8–9. Thus, at this stage, Patent Owner has not put forward evidence or argument to support limiting the steps of claim 17 to a specific order, or to show that the prior art fails to teach this order. At this stage, we decline to construe claim 17 to include

claim steps that must be performed in a specific order. Nevertheless, Patent Owner is free to raise such an argument in its Patent Owner Response.

For purposes of this Decision, we are persuaded that no claim term requires express construction.

B. Asserted Ground of Unpatentability

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” We resolve the question of obviousness on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

In an obviousness analysis, some reason must be shown as to why a person of ordinary skill would have combined or modified the prior art to achieve the patented invention. *See Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1374 (Fed. Cir. 2008). A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents;” “any need or problem known in the field of endeavor at the time of invention and addressed by the patent;” and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587

F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

1. Overview of Loomis

Loomis describes an apparatus for determining a location of a mobile user, both inside and outside of buildings and structures, using two different location determining techniques. Ex. 1008, Abstract. Loomis observes that location technology such as GPS, Global Orbiting Navigation Satellite System (“GLONASS”), and Long Range Navigation (“LORAN”) “provide object location estimates over regions with diameters of hundreds of kilometers (km) but do not work well where some of the signal sources are obscured by structures outdoors, or when the object to be located is positioned indoors.” *Id.* at 1:19–34. In contrast, “[frequency modulation (“FM”)] subcarrier signals can be used over smaller regions to estimate the location of an object inside or outside a building or other structure,” but such systems “tend[] to be limited to smaller regions, with diameters of the order of 20–50 km.” *Id.* at 1:38–46. To take advantage of both types of technology, Loomis’s system “provides an integrated, mobile or portable system for location determination that combines beneficial features of two or more LD systems.” *Id.* at 4:39–42.

Figure 1, reproduced below, illustrates an example:

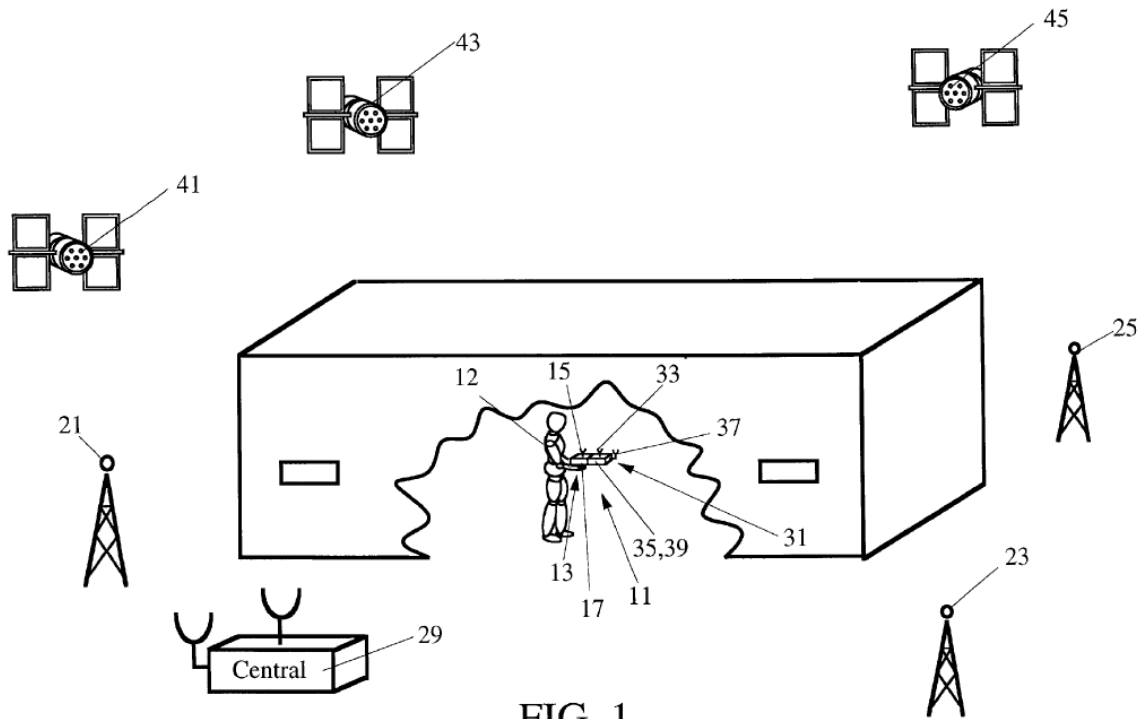


FIG. 1

Figure 1 is a schematic illustrating user 12 operating hybrid location determining (“LD”) system 11. *Id.* at 6:21–29. Hybrid LD system 11 includes two different technologies for receiving location information. Specifically, radio LD unit 13 (renumbered 71 in Figure 6) receives FM information from radio LD signal sources 21, 23, and 25, and outdoor LD unit 31 (renumbered 81 in Figure 6) receives GPS or GLONASS information from satellites 41, 43, and 45. *Id.* at 6:20–29, 7:9–22.

A controller receives location coordinates (in x, y, z format) from the radio LD unit and from the outdoor LD unit, along with indicia resulting from the comparison of the FM and outdoor signals to thresholds (i.e., indicia indicating the accuracy of the respective location coordinates). *Id.* at 12:21–27. In Figure 6, the controller is depicted as part of hybrid LD unit 11, although, in an alternative embodiment, “information from the radio LD

signals and/or the outdoor LD signals may be transmitted, unprocessed or partly processed or fully processed, to a central processing station 29 (optional), located at or near the site R, to allow determination of the present location of the user 12 at selected times.” *Id.* at 8:29–34; *accord id.* at 20:29–36. The controller can choose the radio coordinates or satellite coordinates, depending on which is the most accurate (or choose neither, if both are determined to be too inaccurate). *Id.* at 12:47–13:4. “[H]ybrid LD system 11 then processes the LD signals further, or transmits or stores or displays the location of the hybrid LD system.” *Id.* at 19:63–65.

Although the outdoor LD unit can determine coordinates without input from the radio LD unit, the converse is not the case. Rather, for the radio LD unit to make a location determination, it must first know the relative phases of the FM signals from the radio LD signal sources. *Id.* at 4:9–14. To that end,

The outdoor LD unit 31 in FIG. 1 includes a radio LD signal antenna and receiver/processor 37 and controller/interface 39 that also receives radio LD signals from the radio LD sources 21, 23 and 25, determines the relative phases of these radio LD signals, and provides this relative phase information with little or no time delay for use by the radio LD unit 13.

Id. at 7:23–29; *accord id.* at 11:66–12:8:

The outdoor LD unit 81 includes an FM subcarrier signal antenna 83, an outdoor signal receiver/processor 85 associated with and connected to the outdoor antenna 83, and a phase information antenna 87. The phase information antenna and receiver 87 receives the radio LD signals from the radio LD signal sources and passes these signals to the outdoor LD signal receiver/processor 85 for determination of the relative phases of the radio LD signal sources. This relative phase information is then passed to the radio LD unit 71 through the controller interface 91.

2. Overview of Wortham

Wortham describes integrating a differential positioning system, such as a satellite-based or land-based positioning system, with a mobile communications network. Ex. 1009, Abstract. Figure 1, reproduced below, illustrates an example:

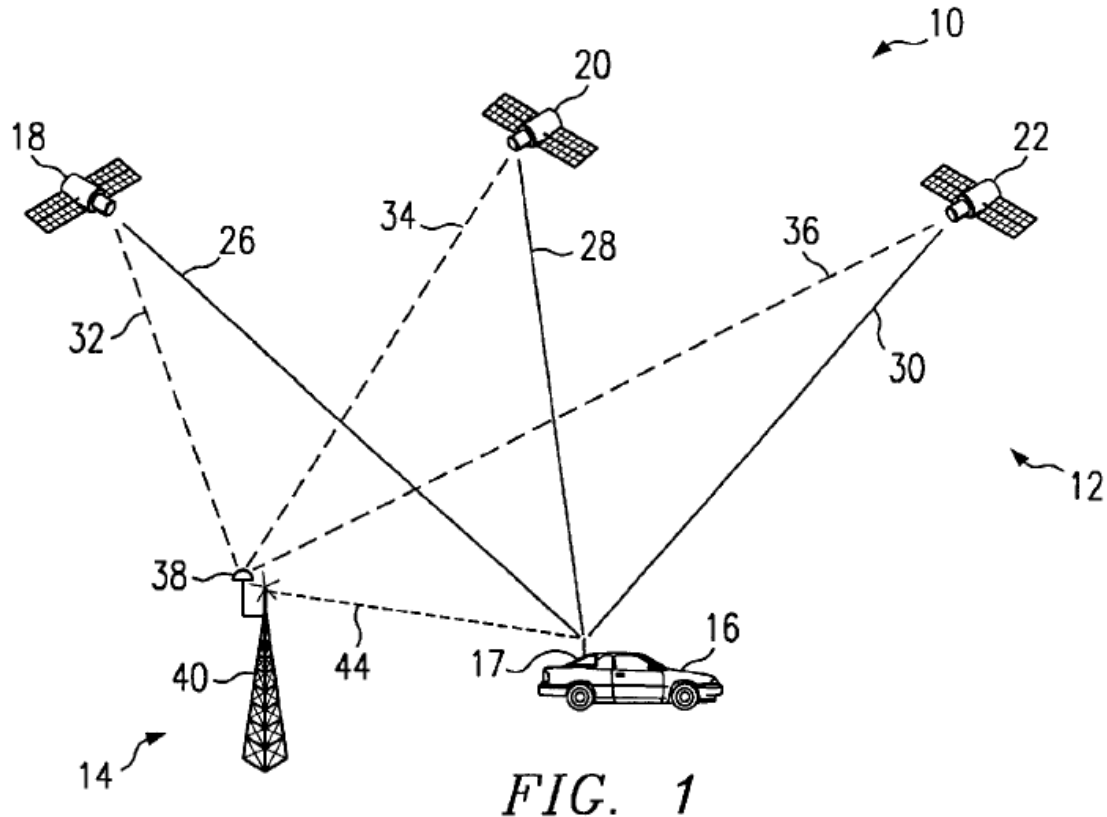


Figure 1 is a drawing of differential positioning system 10. *Id.* at 2:44.

Vehicle 16, depicted as an automobile, includes a person carrying portable or hand-held mobile unit 17. *Id.* at 4:26–33. Mobile unit 17 receives position signals over message data streams 26, 28, 30 from satellites 18, 20, 22, respectively, and determines the mobile unit's position from those signals. *Id.* at 5:6–23. Satellites 18, 20, 22 also send message data streams 32, 34, and 36, respectively, to a transmitter site 40. *Id.* at 5:29–33.

Reference positioning receiver 38 at transmitter site 40 determines a position fix from position signals received from satellites 18, 20, 22. *Id.* at 5:34–36. Traditional surveying techniques can be used to determine the actual coordinates of transmitter site 40. *Id.* at 5:42–43. Reference positioning receiver 38 compares the computed position fix to the known (e.g., surveyed) position coordinates and generates correction data, which are transmitted over correction data stream 44 to mobile unit 17. *Id.* at 5:37–41.

3. Combination of Loomis and Wortham

Petitioner proposes that a person of ordinary skill in the art would have been motivated to modify and/or combine Loomis’s hybrid location system with aspects of the positioning systems disclosed in Wortham. Pet. 15–16, 28–34. Petitioner contends that design incentives and market forces would have motivated such a change, giving the Federal Communications Commission’s (“FCC”) proposed rules for locating wireless callers (Ex. 1014) as an example. *Id.* at 29. According to Petitioner, the FCC’s proposed rules requiring cellular providers to locate wireless 911 callers both inside and outside of buildings would have motivated the combination. *Id.* at 29–30. Petitioner’s expert, William R. Michalson, Ph.D., testifies that such modification would have been within the level of skill in the art. Ex. 1006 § X.B; Pet. 29–31.

Petitioner also asserts that it would have been obvious to modify Loomis’s processes because Loomis already includes cellular capabilities, and Petitioner points out the similarities between the cellular towers in Loomis and the fixed or stationary radio transmission structures in Wortham, and how the towers could be modified to provide terrestrial location

capabilities instead of the existing FM radio transceiver and towers.

Pet. 31–32. As well, Petitioner contends that the combination also could have been motivated based on the extremely similar nature of the problem solved. *Id.* at 32–33.

Patent Owner does not challenge Petitioner’s reasons to combine Loomis and Wortham in the Preliminary Response, instead focusing on claim elements alleged not to be taught or suggested by the combination. Prelim. Resp. 6–7. On this record, we are persuaded that Petitioner is reasonably likely to show that a skilled artisan would have combined Loomis and Wortham as provided in the Petition.

4. Claim 17

Petitioner provides a detailed mapping of Loomis and Wortham to claim 17 with support from the testimony of Dr. Michalson (Ex. 1006), which we have considered. Pet. 34–44. To summarize, Petitioner contends, *inter alia*, that:

- 1) Loomis’s disclosed controller, GPS signal receiver/processor, radio signal receiver/processor and central station satisfy the claim element of computational equipment for performing the claimed method steps (*id.* at 35);
- 2) Loomis’s GPS and radio location techniques that provide location information of the mobile station satisfy the claim element of receiving location information for the mobile station (*id.*);
- 3) Loomis’s GPS location technique (i.e., outdoor LD module) that obtains GPS location information of the mobile station based on GPS satellite signal measurements satisfies the claim element of

first obtaining a first instance of the location information (*id.* at 36–37);

- 4) Loomis’s disclosure of differential GPS to determine correction data that allows for adjustment would have been modified, in view of Wortham, to transmit those correction data using the network of cell towers, and satisfies the claim element of the communication being used to improve said first instance (*id.* at 37–38);
- 5) Loomis’s radio location techniques (i.e., the indoor LD module), when combined with Wortham, would use the cell towers as radio sources, and use signal timing measurements of relative times of arrival, and satisfy the claim element of second obtaining a second instance of location information based on data indicative of time delays of wireless signals (*id.* at 38–40);
- 6) Loomis’s techniques use the claimed (i) to obtain the second instance (*id.* at 40);
- 7) Loomis’s radio technique calculates location estimates using phase measurements of signals received by the mobile station from the radio towers and Loomis acknowledges and uses differences in arrival times; Petitioner asserts that these satisfy the claim element of a locus of locations having substantially a same time difference of arrival (*id.* at 40–42);
- 8) Petitioner explains that claim element (ii) need not be shown since claim element (i) has been demonstrated, both being used to obtain the second instance (*id.* at 42);
- 9) Loomis details that the GPS technique operates independently of the radio technique, but not the reverse (*id.* at 42); and

- 10) Loomis determines which of the location techniques provided the most accurate location estimate, selects the location estimate, which may be based on location, and transmits the selected location estimate to an interested person/facility; Petitioner asserts that these satisfy the claim elements of using values obtained from the first and/or second instances to determine resulting location information and outputting that information (*id.* at 42–44).

Patent Owner generally argues that Petitioner has not met its burden through the Petition (Prelim. Resp. 1–6), and argues specifically that elements of claim 17, discussed above as (2), (3), (5), (9), and (10), have not been shown to be disclosed or met by the combination of Loomis and Wortham, and that Loomis teaches away from an element of claim 17, discussed above as (9). *Id.* at 6–16. We consider the element of claim 17 discussed above as (9) to efficaciously determine the propriety of the ground of unpatentability raised against claim 17.

Claim 17 recites, in part, “wherein the second instance *does not depend on a geographical location* of the mobile station *obtained* from information indicative of a *distance between* the *mobile station* and at least one of the one or more *satellites*” (emphases added). Patent Owner argues that, contrary to the claim language, Loomis teaches that the second position information (radio coordinates) depends on the first position information (GPS coordinates). *Id.* at 11–14.

Petitioner maps the GPS satellite signal measurements from Loomis’s outdoor LD module to claim 17’s “first instance of the location information,” the radio phase measurements from the radio LD module to the “second instance of the location information.” Pet. 36–40. Petitioner

cites (without further explanation) to Loomis's description that "[t]he outdoor LD system operates independently of the radio LD signal system," and "the outdoor LD unit 31 also complements the radio LD unit 13 by providing an independent determination of location of the hybrid LD unit 11," as a teaching of the above-cited portions of claim. *Id.* at 42 (quoting Ex. 1008, 5:7–9, 7:41–44).

While the passages cited by Petitioner arguably show that the coordinates provided by Loomis's outdoor LD unit do not depend on those provided by the radio LD unit, the passages fail to address whether the coordinates from the radio LD unit depend on those from the outdoor LD unit. Patent Owner argues that the coordinates from the radio LD unit in fact do depend on those from the outdoor LD unit. Prelim. Resp. 11–14. According to Patent Owner, the radio LD unit relies on FM signal phase measurements from the outdoor LD unit to generate radio LD coordinates. *Id.* at 12–13.

We agree with Patent Owner. According to Loomis:

The relative phases of the radio signals transmitted by the sources 21, 23 and 25 may change from time to time. When the radio LD unit 13 is provided with a recent measurement of these relative phases, the radio LD unit can determine the location of its antenna 15, using intersections of three or more hyperboloids that are defined by the relative times of arrival of the three radio LD signals at the antenna.

Ex. 1008, 6:46–52. Thus, to interpret the radio signals and generate coordinates from those signals, radio LD unit 13 must first be provided by a measurement of the phases of those radio signals. Loomis describes the outdoor LD unit as providing this phase information. For example,

The outdoor LD unit 31 in FIG. 1 includes a radio LD signal antenna and receiver/processor 37 and controller/interface 39

that also receives radio LD signals from the radio LD sources 21, 23 and 25, determines the relative phases of these radio LD signals, and provides this relative phase information with little or no time delay for use by the radio LD unit 13.

Id. at 7:23–29; *id.* at 11:66–12:8, 19:42–47. The outdoor LD unit’s phase determination is, in turn, dependent on a computation of the location of the outdoor LD unit: “The outdoor LD unit 31 determines the (approximate) location of itself and of the adjacent radio LD unit 13 and uses this information in determining the relative phases of the radio LD signals transmitted by the sources 21, 23 and 25.” *Id.* at 7:29–35. Thus, the coordinates (second instance of the location information) generated by the radio LD unit are dependent on a determination of the phases of the radio signals, a determination that is dependent on the outdoor LD unit’s computation of GPS coordinates (first instance of the location information). As Patent Owner notes (Prelim. Resp. 13), Loomis describes this as “an important feature of the invention.” Ex. 1008, 7:35–38.

We are persuaded by Patent Owner’s citations to Loomis. We read Loomis to teach that second instance of the location information is dependent on the first instance of the location information, which provides information indicative of the distances to one or more satellites. While Petitioner has argued that the first instance of the location information is not dependent on the second, Petitioner has not provided adequate argument or evidence to show the converse. We note that Petitioner does not cite to testimony from Dr. Michalson on this point. Nevertheless, we have considered paragraphs 204–05 of his declaration (Ex. 1006), which present arguments substantially the same as in the Petition, which we find deficient. Petitioner does not cite any teaching from Wortham on this point.

On the current record, we are not persuaded that Petitioner has established a reasonable likelihood that it would prevail with respect to claim 17 as obvious over Loomis and Wortham.

5. Petitioner's Use of Prior Analysis

The Petition utilizes the analysis of claim 17, discussed above, in attempting to demonstrate that claims 20 and 25 are also unpatentable. Pet. 44–60. Patent Owner takes issue with the format and analysis provided in the Petition with respect to claims 20 and 25, pointing out that those claims have different elements and limitations than those found in claim 17. Prelim. Resp. 16–28. Taking one example from the Preliminary Response, Patent Owner points out that claim elements Petitioner labels 17.3 and 20.4 have significant differences, with the former not reciting elements such as “first receiving,” “first of said location techniques,” and “corresponding input information for said first location technique.” *Id.* at 17–19. Based on this, Patent Owner asserts that Petitioner has failed to satisfy its burden of demonstrating that the subject elements are met or rendered obvious by the asserted art. *Id.* at 18. We do not agree with Patent Owner's characterization, and we evaluate each element individually below.

We do not employ an *in haec verba* test of the analysis found in the Petition to determine the efficacy of the ground provided against the challenged claims. Patent Owner would have us look to the differences between the claim elements and assert that because the elements are different, the Petition provides inadequate evidence or analysis. Instead, we look into what has already been provided in the Petition to determine the efficacy of the ground to that claim element recited. So, for example, we

look to the analysis of element 17.3, and what is cited in that analysis, to determine whether what is cited is sufficient to teach or suggest element 20.4. We will not, however, piece together evidence in an attempt to establish a ground or improperly shift the burden of deciphering the arguments onto the Patent Owner or ourselves. *See Whole Space Indus. Ltd. v. Zipshade Indus. (B.V.I.) Corp.*, Case IPR2015-00488, slip op. at 18 (PTAB July 24, 2015) (Paper 14); *Billy Goat Indus., Inc. v. Schiller Grounds Care, Inc.*, Case IPR2014-00742, slip op. at 28 n.4 (PTAB Nov. 7, 2014) (Paper 8).

We are also cognizant that the Board may examine a petition for what it discloses and argues, and determine the efficacy of the grounds proposed based on the totality of the disclosures. *See In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1274 (Fed. Cir. 2015), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 84 U.S.L.W. 3218 (U.S. Jan. 15, 2016) (No. 15-446) (“The fact that the petition was defective is irrelevant because a proper petition could have been drafted.”). Although the Petition relies on the analysis of an earlier claim in support of the asserted unpatentability of a later claim, we consider not only that analysis, but also the actual disclosure of the cited references. Therefore, we determine the propriety of the asserted ground of unpatentability against a single claim based on what the Petition itself asserts, looking to see if the earlier analysis, and the evidence it points to, support the assertion that the elements of that single claim are taught or suggested by the asserted prior art.

6. *Claim 20*

Petitioner provides an element-by-element analysis of where each limitation of claim 20 is taught or suggested by Loomis and Wortham, relying on the prior analysis of claim 17. Pet. 44–51. Claim 20 is similar, in many respects, to claim 17, but does not contain a recitation similar to the second instance not being dependent on a geographical location obtained from information indicative of a distance between the mobile station and at least one of the one or more satellites, as discussed above. Given this distinction, after a review of the Petition addressing claim 20, we are persuaded that Petitioner is likely to demonstrate that claim 20 would have been obvious over Loomis and Wortham. We evaluate the differences between claims 17 and 20, and the analysis provided in the Petition, by addressing Patent Owner’s arguments presented in the Preliminary Response.

Claim 20 recites, in part, “first receiving, from a first of said location techniques, first location information for the mobile station.” Patent Owner points out the differences in the limitations of claims 17 and 20, where Petitioner relies on the analysis of element 17.3 to teach or suggest the cited element of claim 20. Prelim. Resp. 16–19; Pet. 47. Patent Owner argues that the cited section of claim 20 recites additional elements such as “first receiving,” “first of said location techniques,” and “corresponding input information for said first location technique,” and that Petitioner has failed to demonstrate that these elements are taught or suggested. Prelim. Resp. 16–19. We do not agree. The analysis for claim element 17.3 details that Loomis’s outdoor LD module uses a GPS technique that obtains GPS information when provided with GPS satellite signal measurements.

Pet. 36–37. On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that such disclosure teaches or suggests the cited elements of claim 20.

In addition, claim 20 recites, in part, “second receiving, from a second of said location techniques, second location information for the mobile station.” Patent Owner points out the differences in the limitations of claims 17 and 20, where Petitioner relies on the analysis of element 17.5 to teach or suggest the cited element of claim 20. Prelim. Resp. 19–21; Pet. 49. Patent Owner argues that the cited section of claim 20 recites additional elements such as “second receiving,” “second of said location techniques,” “corresponding input information for said second location technique,” “data that is a function of a signal time delay of wireless signals,” and “plurality of transmissions between the mobile station and the one terrestrial station,” and that Petitioner has failed to demonstrate that these elements are taught or suggested. Prelim. Resp. 19–21. We do not agree. The analysis for claim element 17.5 details that Loomis’s indoor LD module uses a radio technique that obtains location information when provided with radio phase measurements. Pet. 38–40. That same analysis also provides that Loomis in view of Wortham would have multiple cell towers in communication with the mobile station, and the radio location techniques can utilize differences in time of arrival. *Id.* On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that such disclosures teach or suggest the cited elements of claim 20.

Also, claim 20 recites, in part, “determining, a plurality of resulting location estimates for the mobile station.” Patent Owner points out the differences in the limitations of claims 17 and 20, where Petitioner relies on

the analysis of element 17.10 to teach or suggest the cited element of claim 20. Prelim. Resp. 21–23; Pet. 50–51. Patent Owner argues that claim 20 recites additional elements such as “a plurality of resulting location estimates for the mobile station,” “step of determining includes steps (c) and (d),” “instance (I₁) of said first location information for locating the mobile station,” and “instance (I₂) of said second location information for locating the mobile station,” and that Petitioner has failed to demonstrate that these elements are taught or suggested. Prelim. Resp. 21–23. We do not agree. Contrary to Patent Owner’s arguments, the section directed to element 20.8 addresses that Loomis discloses determining locations at multiple times, and thus determines a plurality of resulting location estimates. Pet. 50–51. The analysis for claim element 17.10 details that Loomis discloses that the resulting location determination first determines which of the GPS and radio techniques likely provided the most accurate location estimate, by comparing the signal indicia of the estimates from each technique with threshold indicia and/or comparing the estimates themselves. *Id.* at 43–44. On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that such disclosures teach or suggest those elements of claim 20.

As such, we are persuaded that Petitioner has shown a reasonable likelihood that it would prevail with respect to claim 20 as obvious over Loomis and Wortham.

7. Claim 25

Petitioner provides an element-by-element analysis of where each limitation of claim 25 is taught or suggested by Loomis and Wortham,

relying on the prior analysis of claim 17. *Id.* at 51–60. Claim 25 is similar, in many respects, to claim 17, but does not contain a recitation similar to the second instance not being dependent on a geographical location obtained from information indicative of a distance between the mobile station and at least one of the one or more satellites. Given this distinction, after a review of the Petition addressing claim 25, we are persuaded that Petitioner is likely to demonstrate that claim 25 would have been obvious over Loomis and Wortham. We evaluate the differences between claims 17 and 25, and the analysis provided in the Petition, by addressing Patent Owner’s arguments presented in the Preliminary Response.

Claim 25 recites, in part, “first obtaining the first location information of said mobile station.” Patent Owner points out the differences in the limitations of claims 17 and 25, where Petitioner relies on the analysis of elements 17.1 and 17.3 to teach or suggest the cited element of claim 25. Prelim. Resp. 23–24; Pet. 58. Patent Owner argues that the cited section of claim 25 recites the additional element of “the first location information determined by computational machinery when said corresponding location technique for using the first collection is supplied with an instance of said first collection,” and that Petitioner has failed to demonstrate that this element is taught or suggested. Prelim. Resp. 23–24. We do not agree. The analysis for claim elements 17.1 and 17.3 details the various hardware components disclosed in Loomis and how the GPS receiver/processor obtains GPS location information based on the GPS satellite signal measurements. Pet. 35–37. On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that such disclosure teaches or suggests the cited element of claim 25.

In addition, claim 25 recites, in part, “second obtaining the second location information of said mobile station.” Patent Owner points out the differences in the limitations of claims 17 and 25, where Petitioner relies on the analysis of elements 17.1 and 17.5 to teach or suggest the cited element of claim 25. Prelim. Resp. 24–25; Pet. 58. Patent Owner argues that the cited section of claim 25 recites the additional element of “second location information determined by computational machinery when said corresponding location technique for receiving the second collection is supplied with an instance of said second collection,” and that Petitioner has failed to demonstrate that this element is taught or suggested. Prelim. Resp. 24–25. We do not agree. The analysis for claim elements 17.1 and 17.5 details the various hardware components disclosed in Loomis and how the radio receiver/processor obtains location information based on the radio phase measurements. Pet. 35, 38–40. On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that such disclosures teach or suggest the cited elements of claim 25.

Also, claim 25 recites, in part, “outputting, to a source for accessing location data.” Patent Owner argues that a “source for accessing location data” is a place or location from which the location data can be accessed or obtained, and that Petitioner has failed to identify any such source in Loomis. Prelim. Resp. 25–28. Patent Owner continues that the “interested person or facility,” to whom the selected location estimate is transmitted, is not explained by Petitioner as a “source for accessing location data.” *Id.* at 26 (citing Pet. 59–60). In addition, according to Patent Owner, all of

Petitioner's citations to Loomis do not teach or suggest a "source for accessing location data." *Id.* at 27–28. We do not agree.

Loomis provides that the information on the present or recent location of the LD unit can be sent to a person or facility spaced apart from the LD unit. Ex. 1008, 12:37–40. A facility that receives the information can further provide that information to users of the facility, thus acting as a source for accessing location data. We are persuaded that one of ordinary skill in the art would have interpreted such a facility as equivalent to the claimed "source." On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that Loomis and Wortham teach or suggest the cited element of claim 25.

As such, we are persuaded that Petitioner has shown a reasonable likelihood that it would prevail with respect to claim 25 as obvious over Loomis and Wortham.

III.CONCLUSION

We institute an *inter partes* review of claims 20 and 25, but not of claim 17. We have not yet made a final determination of the patentability of these claims or the construction of any claim term.

IV. ORDER

For the reasons given, it is:

ORDERED that *inter partes* review is instituted on the following ground:

Claims 20 and 25, under 35 U.S.C. § 103(a), as obvious over Loomis and Wortham;

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FURTHER ORDERED that the trial is limited to the ground identified above, and no other ground is authorized; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of U.S. Patent No. 7,764,231 B1 is hereby instituted commencing on the entry date of this Order, and 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.

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