

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,
Petitioner,

v.

TRACBEAM, LLC,
Patent Owner.

Case IPR2015-01713
Patent 8,032,153 B2

Before KEVIN F. TURNER, RICHARD E. RICE, DAVID C. McKONE,
and BARBARA A. PARVIS, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

DECISION

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

I. INTRODUCTION

A. *Background*

Petitioner, T-Mobile US, Inc., T-Mobile USA, Inc.,
TeleCommunication Systems, Inc., Ericsson Inc., and Telefonaktiebolaget
LM Ericsson, filed a Petition (Paper 1, “Pet.”) requesting that we institute an
inter partes review of claims 1, 3, 15, 16, 20, 21, 23, 27, and 29 of U.S.

Patent No. 8,032,153 B2 (Ex. 1003, “the ’153 Patent”). Patent Owner, TracBeam, LLC, filed a Preliminary Response (Paper 6, “Prelim. Resp.”). The parties then filed a Joint Motion to Limit the Petition (Paper 7), which we granted. Paper 9. Accordingly, the Petition is limited to claims 1, 3, and 15 (“the challenged claims”).

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

Petitioner asserts that each of the challenged claims is unpatentable, under 35 U.S.C. § 103(a), as obvious over Loomis.¹ Pet. 15. For the reasons that follow, we institute an *inter partes* review of each of the challenged claims of the ’153 Patent.

B. Related Proceedings

Petitioner and Patent Owner identify, as a related proceeding, a lawsuit in which the ’153 patent is asserted, which is pending in the United States District Court for the Eastern District of Texas, captioned *TracBeam, LLC v. T-Mobile US, Inc.*, Case Number 6:14-cv-678. Pet. 2; Paper 5, 1. The parties also identify additional proceedings that the parties contend could affect, or be affected by, a decision in this proceeding. Pet. 2; Paper 5, 1–4.

¹ U.S. Patent No. 5,936,572, issued Aug. 10, 1999, (Ex. 1008) (“Loomis”).

C. The '153 Patent

The '153 Patent relates to a system and method for locating people or objects using mobile station location estimators. Ex. 1003, 1:17–25. Figure 4 is illustrated below.

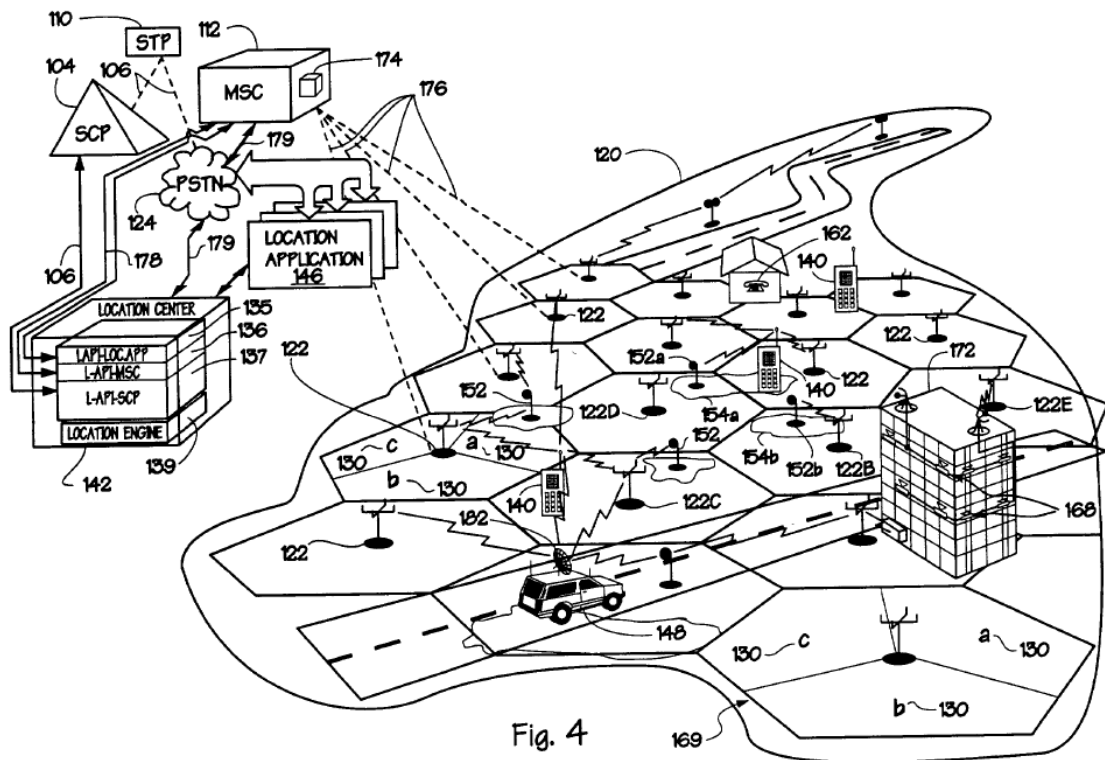


Figure 4 illustrates a view of a wireless radio location network architecture.

As shown in Figure 4, the wireless radio location network comprises wireless mobile stations (MSs) 140, mobile switching center (MSC) 112, infrastructure base stations 122A-122D in radio coverage area 120, and public switched telephone network (PSTN) 124. *Id.* at 24:41–25:12. The wireless radio location network further comprises additional components including location center 142 for determining a location of a target MS, mobile base stations 148 for tracking the target MS, and location base stations (LBSs) 152. *Id.* at 25:13–24.

D. Illustrative Claim

Of the challenged claims, claim 1 is independent. The other challenged claims depend directly from claim 1.

Claim 1 is illustrative and is reproduced below.

1. A method for locating from a plurality of wireless mobile stations, one of the wireless mobile stations using measurements of wireless signals, wherein at least one of: (i) said measurements and (ii) said wireless signals are transmitted between said one wireless mobile station and at least one of a plurality of fixed location communication stations, each communication station capable of at least one of receiving wireless signals from, and transmitting wireless signals to said one wireless mobile station, comprising the following steps at A and B which are performed by computational machinery:

(A) receiving, from each of at least first and second mobile station location estimators, corresponding first and second information related to likely geographical approximations for a location of said one wireless mobile station, wherein (a) and (b) following are satisfied:

(a) for determining a likely geographical approximation, GA_A , for a location, L_A , of a second of the wireless mobile stations at a time T_A , said first mobile station location estimator generates GA_A without requiring a prior likely geographical location approximation generated by said second mobile station location estimator for locating the second wireless mobile station at substantially the location L_A at substantially the time T_A , and,

- (b) for estimating a likely geographical approximation, GA_B , for a location, L_B , of a third one of the wireless mobile stations at a time T_B , said second mobile station location estimator generates GA_B without requiring a prior likely geographical location approximation generated by said first mobile station location estimator for locating the third wireless mobile station at the location L_B at substantially the time T_B ;
- (B) determining a resulting location estimate of said one wireless mobile station, wherein said step of determining includes at least one of the substeps (B1) through (B2) following:
 - (B1) when said first and second information include, respectively, first and second likely geographical approximations, combining said first and second likely geographical approximations so that said resulting location estimate is dependent on each of said first and second location likely geographical approximations; and
 - (B2) selecting one of said first and second information for receiving preference in determining said resulting location estimate, wherein said selecting is dependent upon location related data in at least one of said first and second information.

Ex. 1003, 169:7–55.

E. Claim Construction

1. Legal Standard

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC.*, 793 F.3d 1268, 1277–1279 (Fed. Cir. 2015) (“Congress implicitly approved the broadest reasonable interpretation standard in

enacting the AIA,”² and “the standard was properly adopted by PTO regulation.”), *cert. granted*, *Cuozzo Speed Techs. LLC v. Lee*, 84 U.S.L.W. 3218 (U.S. 2016). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

2. *Location Terms*

Petitioner points out that the District Court for the Eastern District of Texas (“the District Court”) in *TracBeam, LLC v. AT&T, Inc.*, Case No. 6:11-CV-96, construed two terms of the challenged claims. Pet. 6–7 (citing Ex. 1017). Petitioner does not indicate whether it agrees with the District Court’s claim constructions. *Id.* 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.

II. ANALYSIS

A. *Obviousness of the challenged claims over Loomis*

Petitioner asserts that each of the challenged claims of the ’153 Patent is unpatentable, under 35 U.S.C. § 103(a), as it would have been obvious over the teachings of Loomis. Pet. 26–45. To support its contentions, Petitioner also relies on the declaration testimony of Dr. William R. Michalson, submitted as Exhibit 1006.

² Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”).

1. Loomis

Loomis teaches an apparatus and method for determining the present location of a mobile user. Ex. 1008, Abs. In particular, Loomis teaches a mobile system for location determination that combines beneficial features of two or more location determination (LD) systems. *Id.* at 4:40–42. For instance, the system may include a radio LD system and an outdoor LD system. *Id.* at 4:60–67. The outdoor LD system may be a Global Positioning System (GPS) or other satellite-based positioning system. *Id.* at 4:67–5:2. Figure 6 of Loomis is illustrated below.

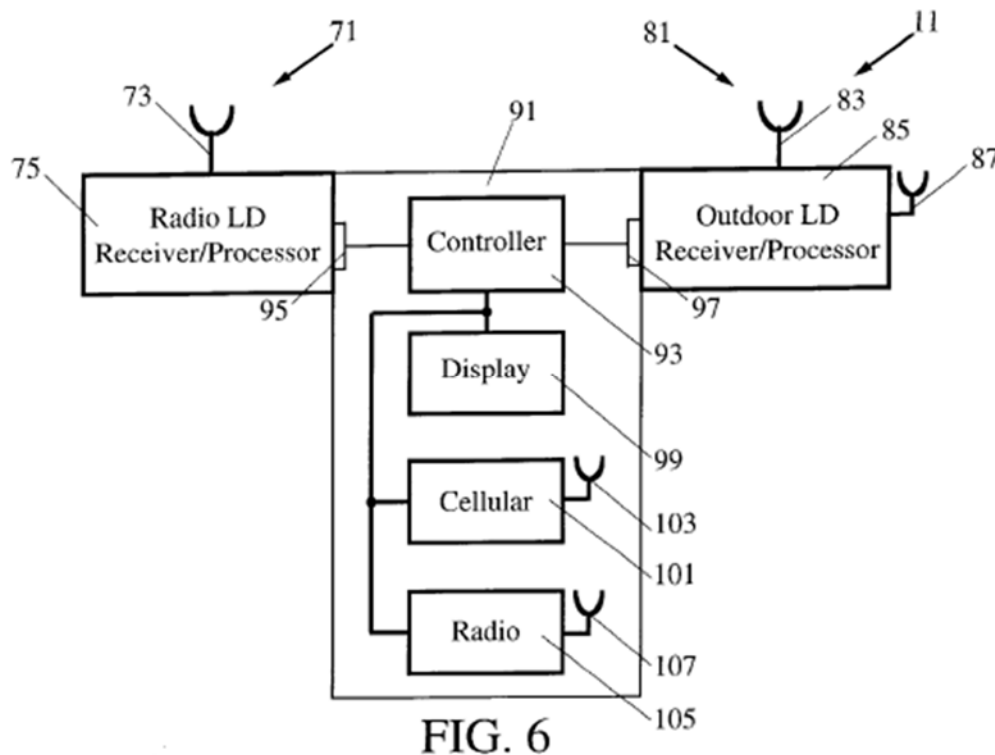


Figure 6 is a schematic view of a hybrid LD unit.

As illustrated in Figure 6, hybrid LD unit 11 includes radio LD unit 71 having radio LD signal antenna 73 and radio LD signal receiver/processor 75. *Id.* at 11:50–55. Hybrid LD unit 71 also includes outdoor LD unit 81 (*id.* at 11:50–51), which has FM subcarrier signal antenna 83, outdoor signal

receiver/processor 85, and phase information antenna 87 (*id.* at 11:66–12:2). Hybrid LD unit 11 additionally has interface-controller unit 91 (*id.* at 11:50–52), which passes relative phase information from outdoor LD signal receiver/processor 85 to radio LD unit 71 (*id.* at 12:2–8). Interface-controller unit 91 includes controller module 93, which receives present location coordinates $(x_u, y_u, z_u)_{\text{rad}}$ from the radio LD signal receiver/processor 75, the present location coordinates $(x_u, y_u, z_u)_{\text{out}}$ from the outdoor LD signal receiver/processor 85, and indicia for comparison. *Id.* at 12:16–27. If the indicia exceed thresholds and the outdoor LD system is GPS, controller module 93 will choose present location coordinates $(x_u, y_u, z_u)_{\text{out}}$ from the outdoor LD signal receiver/processor 85 as the present location of user 12. *Id.* at 12:47–58.

2. Claim 1 of the '153 Patent

a. Petitioner's Contentions

Petitioner contends “Loomis discloses a method and apparatus for determining and outputting a resulting location estimate for a mobile user carrying a hybrid location determination (“LD”) device (e.g., a mobile station) using multiple mobile location techniques that generate location estimates using wireless signal measurements.” Pet. 10 (citing Ex. 1008, Abs., 4:39–5:13, 11:49–13:4, 18:27–32, 19:32–20:5, Fig. 1). Petitioner additionally contends “Loomis’ location functionality can be performed by a variety of computational machinery, including a central station, controller, GPS signal receiver/processor, and/or radio signal receiver/processor” to determine “the specific geographic location of the user.” *Id.* (citing Ex. 1008, 4:39–42, 4:51–56, 5:4–38, 6:22–29, 6:41–55, 7:9–22, 11:50–12:29, 12:47–13:4, 14:52–55, 15:39–52, 16:39–51, 19:3–63, Figs. 6, 9).

Certain of the computational machinery and location techniques identified by Petitioner as teaching the elements of claim 1 are discussed in the summary of Loomis above. Petitioner also provides an element-by-element analysis showing portions of Loomis that Petitioner contends teach each of the recitations of claim 1, which is supported by the declaration testimony of Dr. Michalson (Ex. 1006). Pet. 26–42.

b. Patent Owner's Contentions

Patent Owner's contentions pertain to the recitation below, which Patent Owner refers to as “claim element 1.6” (Prelim. Resp. 7). Claim element 1.6 requires:

(b) for estimating a likely geographical approximation, GA_B , for a location, L_B , of a third one of the wireless mobile stations at a time T_B , said second mobile station location estimator generates GA_B without requiring a prior likely geographical location approximation generated by said first mobile station location estimator for locating the third wireless mobile station at the location L_B at substantially the time T_B .

Ex. 1003, 169:32–39.

Patent Owner contends “to satisfy their burden for claim element 1.6, Petitioner must demonstrate that Loomis discloses that the radio generation technique generates the radio location information without requiring prior GPS location information generated by the GPS technique.” Prelim. Resp. 7. Patent Owner, more specifically, contends that “the radio technique relies on signal phase measurements to operate” and “[t]hese signal phase measurements in turn depend on the location estimate determined by the outdoor LD (GPS) module.” *Id.* at 9. As Patent Owner contends (*id.*), Loomis teaches “[t]he outdoor LD unit 31 determines the (approximate) location of itself and of the adjacent radio LD unit and uses this information

in determining the relative phases of the radio LD signals transmitted by the sources 21, 23 and 25.” Ex. 1008, 7:31–35.

As Petitioner notes (Pet. 10, 20), Loomis teaches alternate embodiments. In the embodiment referred to by Patent Owner, the outdoor unit is “adjacent” to the radio LD unit. Ex. 1008, 7:31–35. Petitioner, however, points to Loomis’s teaching of “a variety of computational machinery.” *Id.* (citing Ex. 1008, 4:39–42, 4:51–56, 5:4–38, 6:22–29, 6:41–55, 7:9–22, 11:50–12:29, 12:47–13:4, 14:52–55, 15:39–52, 16:39–51, 19:3–63, Figs. 6, 9). As the Petition notes (*id.* at 20), Loomis teaches “[a]lternatively, information from the radio LD signals and/or the outdoor LD signals may be transmitted . . . to a central processing system.” Ex. 1008, 8:29–32. As the Petition also notes (Pet. 10), Loomis teaches another embodiment in which “the radio LD unit 13 and the outdoor LD unit 31 (or 51) are now physically separated from, and move independently of, each other.” Ex. 1008, 15:48–50; *see also id.* at Fig. 7 (illustrating radio LD unit 113 physically separated from outdoor LD unit 133). Additional detail is provided with respect to Figure 3 of Loomis, which “illustrates a second mode of operation of the invention, in which the radio LD unit 13 is made portable and moves with user 12, independently of movement of, and spaced apart from, the outdoor LD unit 31.” *Id.* at 7:45–49.

Because Loomis teaches multiple embodiments and configurations, including an embodiment in which the outdoor and radio units are physically separated, on this record, we determine that Petitioner has shown sufficiently that Loomis teaches that the determination by the outdoor unit of its location may be of a location that is physically spaced apart from the indoor unit. Therefore, on this record, Petitioner has shown sufficiently that Loomis

teaches the radio unit estimating its location (L_B) without requiring that the outdoor unit approximate “location L_B at substantially the time T_B ,” recited in claim 1.

As for the remaining elements recited in claim 1, we also find that Petitioner has shown sufficiently that Loomis teaches those elements, as illustrated by the comparisons of the teachings of Loomis and the claim limitations presented in the Petition. Pet. 26–42.

c. Summary of Analysis Regarding Claim 1

Accordingly, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claim 1 is unpatentable on the ground that it would have been obvious over the teachings of Loomis.

3. Claims 3 and 15 of the '153 Patent

Claims 3 and 15 of the '153 Patent depend directly from independent claim 1. Claims 3 and 15 recite additional features including that the location estimators comprise hardware and software and that the location determination involves transmitting stations not attached to the Earth, respectively.

a. Petitioner's Contentions

Petitioner provides an element-by-element analysis citing portions of Loomis that Petitioner contends teach each of the further recitations of claims 3 and 15. Pet. 42–45. For instance, with respect to claim 3, Petitioner points to Loomis's teaching of a radio LD system and an outdoor LD system, each including antenna and other hardware, as well as a processor and software. *Id.* at 42–43 (citing Ex. 1008, 5:7–10, 5:63–6:4, 11:55–65, 12:21–27, 19:42–47, 20:14–16, 21:48–57, Fig. 9; Ex. 1002 ¶ IX.F.2). As an additional example, regarding claim 15, Petitioner

points to various Loomis teachings including determining location using GPS satellites. *Id.* at 43–45 (citing Ex. 1008, 1:61–2:5, 4:51–56, 4:66–5:22, 8:1–15, 8:26–42, 10:65–67, 11:50–12:29, 12:47–13:4, 16:24–29, 19:63–65, 22:57–23:13, Figs. 1, 6; Ex. 1002 § IX.B.2).

b. Patent Owner's Contentions

Patent Owner relies on its contentions for independent claim 1. Prelim. Resp. 10–11. As for the elements recited in claims 3 and 15, we find that Petitioner has shown sufficiently that the asserted prior art teaches those elements, as illustrated by the comparisons of the teachings of that art and the claim limitations presented in the Petition. Pet. 42–45.

c. Summary of Analysis Regarding Claims 3 and 15

Accordingly, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claims 3 and 15 of the '153 Patent are unpatentable on the ground that they would have been obvious over the teachings of Loomis.

III. ORDER

For the foregoing reasons, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, *inter partes* review of the '153 Patent is instituted on the ground of unpatentability that claims 1, 3, and 15 are unpatentable, under 35 U.S.C. § 103(a), as obvious over Loomis;

FURTHER ORDERED that we institute *inter partes* review on no other ground other than that specifically noted above; and

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

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