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Paper 11
Entered: May 25, 2016

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 IPR2016-00728
Patent 7,525,484 B2

Before KEVIN F. TURNER, DAVID C. MCKONE, JAMES A. TARTAL, and BARBARA A. PARVIS, *Administrative Patent Judges.*

MCKONE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108
Denying Motion for Joinder
37 C.F.R. § 122(b)

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 claim 25 of U.S. Patent No. 7,525,484 B2 (Ex. 1002, "the '484 patent"). Concurrently, Petitioner filed a Motion for Joinder (Paper 3, "Mot. for Joinder"), requesting that we join this proceeding to IPR2015-01708, in which we instituted *inter partes* review of claims 1 and 51 of the '484 patent, but declined to institute as to claim 25.

TracBeam, LLC ("Patent Owner") filed a Preliminary Response (Paper 9, "Prelim. Resp."). Patent Owner also filed an Opposition to the Motion for Joinder (Paper 8, "Opp. to Mot. for Joinder"). Petitioner, in turn, filed a Reply in support of its Motion for Joinder. Paper 10.

Upon consideration of the Petition and Preliminary Response, we exercise our discretion, under 35 U.S.C. § 325(d), to deny institution of *inter partes* review as to claim 25.

B. The '484 Patent

The '484 patent describes location systems for wireless telecommunication infrastructures. Ex. 1002, Abstract. According to the '484 patent, the location techniques are useful for 911 emergency calls, vehicle tracking and routing, and location of people and animals. *Id.* at Abstract, 12:11–17.

Figure 4, reproduced below, illustrates an embodiment:

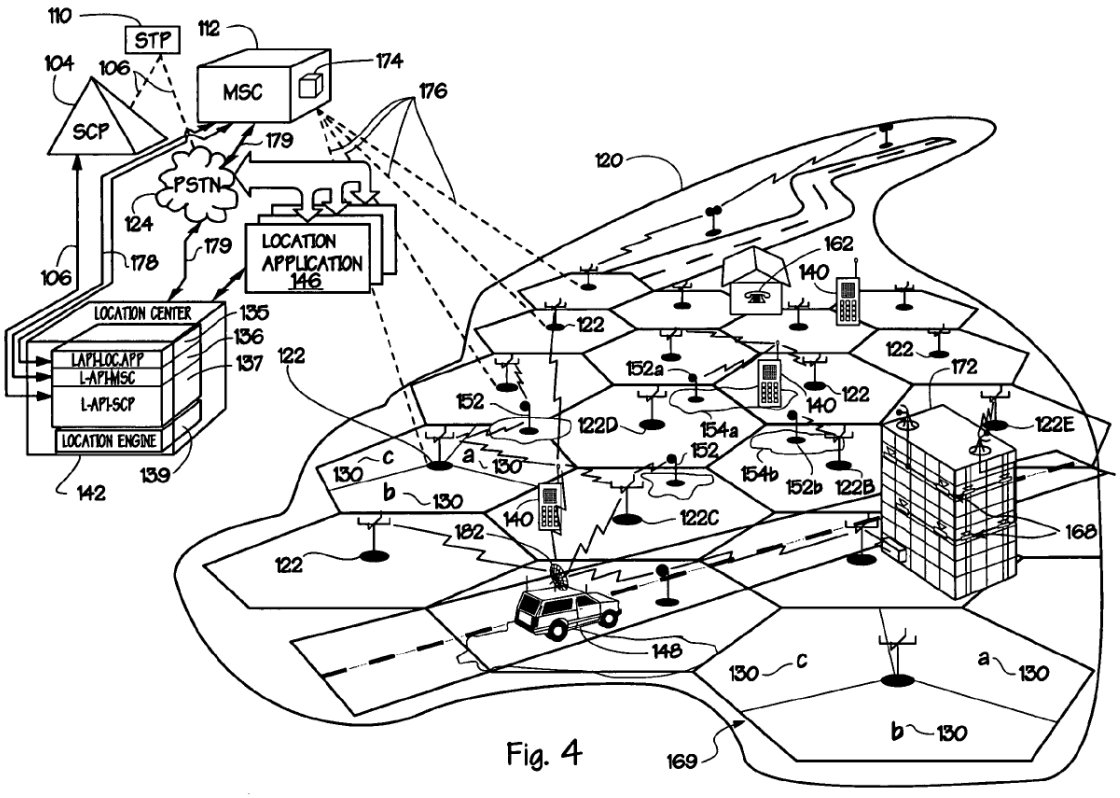

Fig. 4

Figure 4 is an overall view of a wireless radio location network architecture. *Id.* at 21:66–67. 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 24:41–57. 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.* at 24:57–64. 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 28:29–38.

Location center 142 determines a location of a target MS 140. *Id.* at 25:8–10, 37:43–46. 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, 9:5–23, 11:7–55, 66:45–50. 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 12:62–13:20, 38:9–31. The most likely location can be a composite of the estimates. *Id.* at 13:22–30, 66:45–50.

Location estimates can be provided to location requesting applications, such as 911 emergency, police and fire departments, taxi services, etc. *Id.* at 8:52–60, 13:20–22, 38:32–34.

Claim 25, the only claim challenged in the Petition, is reproduced below:

> 25. A method for estimating, for each mobile station M of a plurality of mobile stations, an unknown terrestrial location (L_M) for M using wireless signal measurements obtained via transmissions between said mobile station M and a plurality of fixed location terrestrial communication stations, wherein each of said communications stations is substantially co-located with one or more of a transmitter and a receiver for wirelessly communicating with said mobile station M, comprising:
>
> initiating a plurality of requests for information related to the location of said mobile station M, the requests provided to each of at least two mobile station location evaluators, wherein there is at least a first of the requests provided to a first of the location

evaluators and a second of the requests, different from the first request, provided to a second of the location evaluators, such that when said location evaluators are supplied with corresponding input data having values obtained using wireless signal measurements obtained via two way wireless communication between said mobile station M, and the communication stations, each of said first and second location evaluators determine corresponding location information related to L_M, and

wherein for at least one location L of one of the mobile stations, said first location evaluator and said second location evaluator output, respectively, first and second position information related to the one mobile station being at L wherein neither of the first and second position information is dependent upon the other;

obtaining a first collection of location information of said mobile station M, wherein the first collection includes first location information from the first location evaluator, and second location information from the second location evaluator;

determining resulting information related to the location L_M of the mobile station M, wherein the resulting information is dependent on geographical information in each of the first and second location information; and

transmitting, to a predetermined destination via a communications network, the resulting information.

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