UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

IPR2025-01261
U.S. Patent No. 9,042,910

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104

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I. INTRODUCTION

U.S. Patent 9,042,910 (the "'910 patent," Ex.1001) relates to monitoring the presence of mobile devices (e.g., cellular phones) in particular areas. But functionality to monitor the location of mobile devices in cellular networks, and thus their presence in particular areas, was well known and even standardized—under the umbrella term "location services"—prior to the '910 patent. Ex.1003 ¶¶31-32 (citing Ex.1005; Ex.1006; Ex.1018, 7; Ex.1019; Ex.1021). There is nothing new or novel about the '910 patent.

Accordingly, pursuant to 35 U.S.C. §§311, 314(a), and 37 C.F.R. §42.100, Apple Inc. ("Petitioner") respectfully requests that the Board review and cancel as unpatentable under 35 U.S.C. §103 claims 1-14 (the "Challenged Claims") of the '910 patent.

II. GROUNDS FOR STANDING

Petitioner certifies the '910 patent is eligible for IPR and Petitioner is not barred or estopped from requesting IPR challenging the patent claims. 37 C.F.R. §42.104(a).

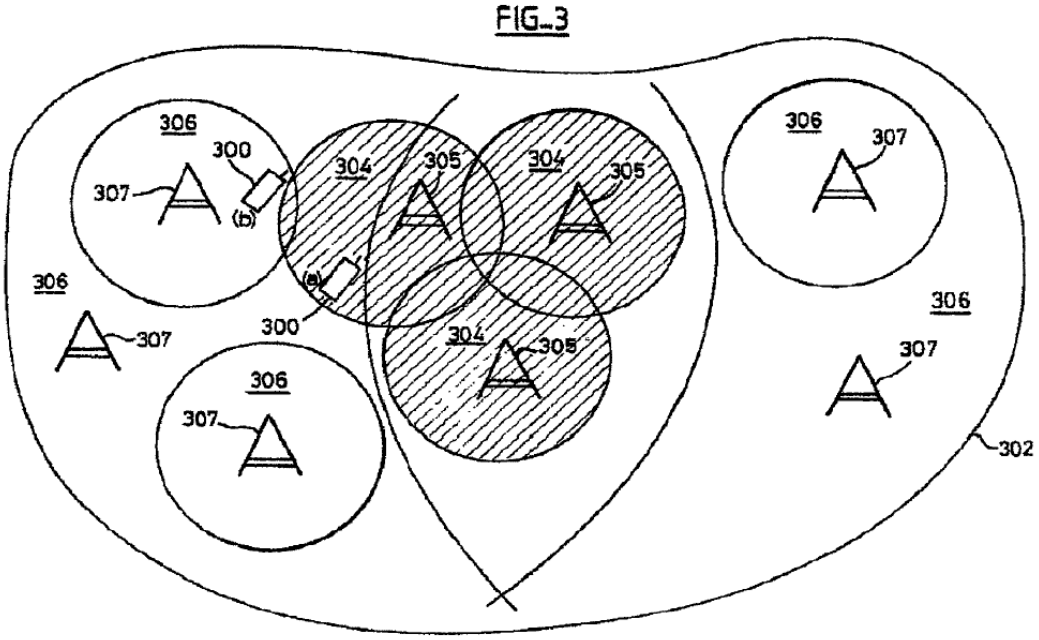
III. NOTE

Petitioner cites to exhibits' original page numbers. **Emphasis** in quoted material has been added. Claim terms are presented in *italics*.

IV. SUMMARY OF THE '910 PATENT

The '910 patent is directed to techniques for "monitoring the presence of a mobile station…in at least one special area," which the patent describes as a particular physical area in which the mobile station's presence is monitored. Ex.1001, Abstract. The '910 patent describes that a mobile station may receive "defining signal[s]" from "radio communication defining devices" such as "the base stations of a mobile telephone network[.]" Ex.1001, 15:1-6. The defining signal includes, for example, an identifier of the particular base station that enables a determination whether the mobile station is present in a "special area" configured by the operator of the network (*e.g.*, an area including the coverage area of a particular set of base stations). Ex.1001, 15:19-41. In response to receiving the defining signal, "the mobile station sends [an] updating signal to the mobile telephone network." Ex.1001, 15:50-52. Based on this updating signal, components in the mobile telephone network (*e.g.*, a server) can determine the approximate location of the mobile station (*e.g.*, based on the known location of the base station) and whether the mobile station is present in the configured special area (*e.g.*, based on whether the base station is included in the special area). Ex.1001, 15:50-16:26.

FIG. 3 of the ’910 patent illustrates a special area (304) comprising the coverage areas of three base stations (305), and a mobile station (300) present in the special area (304):



Ex.1001, FIG. 3

V. PROSECUTION HISTORY

The ’910 patent claim priority to EP patent application 06111804 on March 28, 2006. Ex.1001, (30). The applicant filed a PCT application on March 27, 2007, resulting in the issuance of U.S. Patent No. 8,738,040 (“the ’040 patent”). Ex.1001, (22), (63). The ’910 patent is a continuation of the ’040 patent. Ex.1001, (63).

During prosecution of the ’910 patent, the Examiner rejected the claims under the doctrine of non-statutory double patenting in view of the ’040 patent.

Ex.1002, 81-86. In response, the applicant filed a terminal disclaimer, Ex.1002, 56, and the Patent Office issued a notice of allowance. Ex.1002, 20-28. The Office cited limitations [1.0], [1.1], [1.2], [1.3], and [1.4] of claim 1 and limitations [9.0], [9.1], [9.2], [9.3], [9.5] and portions of [9.4] and [9.6] as allowable features. Ex.1002, 25-27. However, as shown in Section IX below, these limitations are well known features taught by prior art not considered during prosecution of the ’910 patent.

VI. EFFECTIVE PRIORITY DATE OF THE ’910 PATENT

For purposes of this petition, Petitioner applies March 28, 2006, as the priority date of the ’040 patent, without conceding that the ’040 patent is entitled to that date. All the prior art identified below predates March 28, 2006.

VII. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) as of the earliest possible priority date of the ’910 patent (March 28, 2006) would have been knowledgeable and familiar with the use of location determination in the provision of location-based services in a wireless communications network (*e.g.*, a cellular telephone network or Wi-Fi network). Such a POSITA would have had a bachelor’s degree in electrical engineering, computer science, computer engineering, or a related field, and two years of experience relating to research, design, and development of

wireless communications networks. Lack of professional experience may be remedied by additional education, and vice versa. Ex.1003 ¶¶24-26.

VIII. CLAIM CONSTRUCTION

Claim terms in IPRs are construed according to their "ordinary and customary meaning" to those of skill in the art. 37 C.F.R. §42.100(b). For purposes of this proceeding, Petitioner submits that no claim term requires express construction. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

IX. IDENTIFICATION OF HOW THE CLAIMS ARE UNPATENTABLE

A. Challenged Claims

Petitioner challenges all claims of the '910 patent (1-14).

B. Statutory Grounds for Challenges

Grounds	Claim(s)	Basis (pre-AIA §103)
#1	1-2 and 4-8	Kraufvelin and Hashimoto
#2	3	Kraufvelin, Hashimoto, and Huomo
#3	9-14	Kraufvelin, Hashimoto, and Andersson

U.S. Publication 2006/0135174 (Ex.1006, "**Kraufvelin**") was filed as PCT Application PCT/IB03/04387 on October 3, 2003, in the English language, designating the U.S., and is prior art under §102(e).

U.S. Publication 2005/0070283 (Ex.1008, "**Hashimoto**") published on March 31, 2005 and is prior art under §102(a).

U.S. Publication No. 2004/0203863 (Ex.1016, "**Huomo**") published on October 14, 2004 and is prior art at least under §§102(a)-(b).

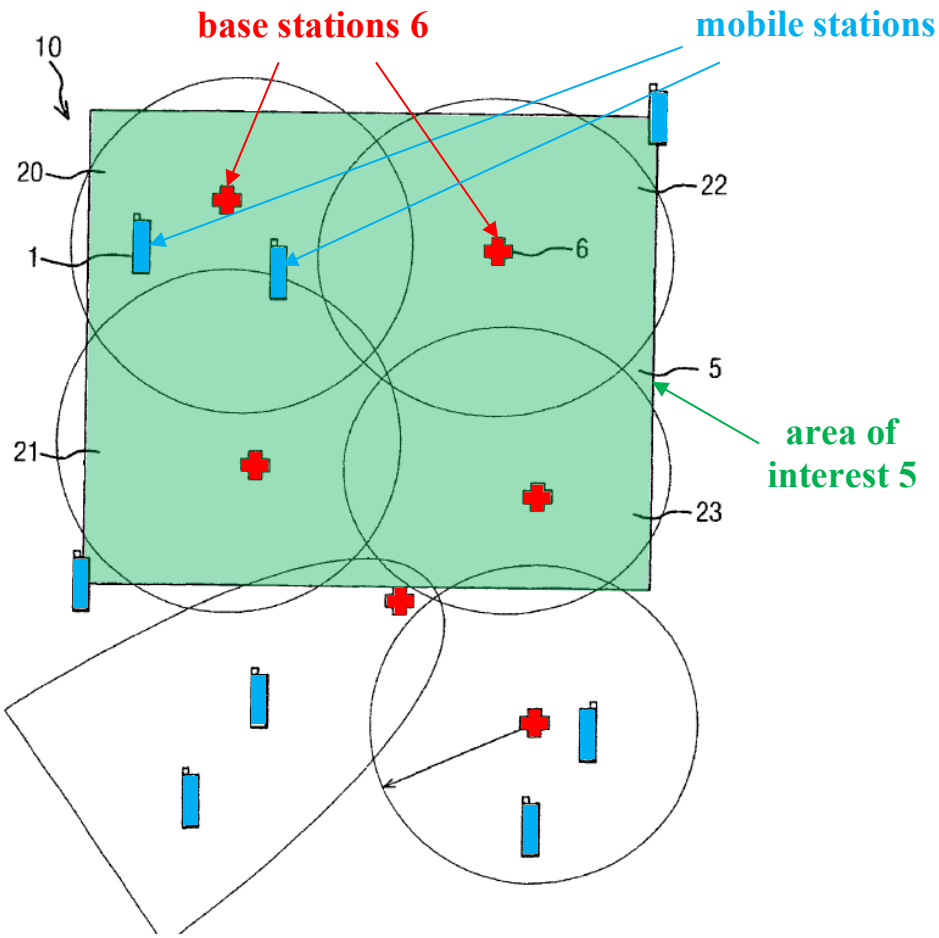
U.S. Patent 6,230,017 (Ex.1007, "**Andersson**") issued May 8, 2001 and is prior art under §§102(a)-(b).

C. Ground 1: Claims 1-2 and 4-8 are obvious under §103 over Kraufvelin and Hashimoto.

1. Kraufvelin

Kraufvelin describes "monitoring…a change in the presence status of a target mobile station relative to an area of interest." Ex.1006 ¶23.

Kraufvelin describes monitoring mobile stations with Figure 2 below. Mobile stations (blue) move through coverage areas of base stations 6 or cells (red). The base stations of cells 20-23 form an area of interest 5 (green). Ex.1006 ¶¶39- 41, 53.



Ex.1006, Detail of Fig. 2 (annotated)

The area of interest 5 is chosen by a client 8 (Figure 1), which "makes a request…for information that concerns one or more of the mobile stations." Ex.1006 ¶48. "The request indicates a geographical area of interest and the target subscriber." Ex.1006 ¶55.

"The geographical area" is "translated into a list of Cell Ids." Ex.1006 ¶56. "In FIG. 2 the area 5 is shown to be covered by the cells 20 to 23. The IDs of these cells would thus be included in the list." Ex.1006 ¶56.

"The list of cells may then be sent to the mobile station 1." Ex.1006 ¶60. When the mobile station moves into a new cell, it receives the cell ID of the new cell and "check[s] the new Cell ID against the list." Ex.1006 ¶60. "If there is [a] match, the mobile station 1 sends a report back to the network." Ex.1006 ¶¶60, 79-80, 46 (sending "[a]n area event [location services] LCS report indicating" the mobile station's location).

Kraufvelin's methods of monitoring the location of a mobile station may be used to provide "[d]ifferent kinds of services" such as "various commercial and non-commercial services and similar applications" including "send[ing] information and/or offer[ing] services to a mobile station only in a particular defined geographic area." Ex.1006 ¶12.

2. Hashimoto

Hashimoto describes a mobile station that, when entering a new cell, receives the new cell ID of the cell and "transmits a location updating request" to the network. Ex.1008, Abstract.

Hashimoto explains that base stations "periodically transmit[] system information called 'broadcast information' over a channel called 'BCCH.'" Ex.1008 ¶135. The broadcast information includes "the identification information (ID) of a cell called 'Cell-ID.'" Ex.1008 ¶135.

3. The Combination of Kraufvelin and Hashimoto

a) Implementing transmission of cell IDs by base stations in Kraufvelin's system based on Hashimoto

Kraufvelin's mobile station determines if it has entered an area of interest by receiving a new cell ID from the base station and checking whether it is included in the stored list of cell IDs corresponding to the area of interest. Ex.1006 ¶¶79-80. While Kraufvelin generally describes this process, Hashimoto provides conventional details, explaining that each base station "periodically transmits" its cell ID. Ex.1008 ¶135. In the combination, Kraufvelin's system implements this technique of periodically transmitting cell IDs based on Hashimoto. Ex.1003 ¶58.

b) Implementing reception of multiple cell IDs by a mobile station in overlapping coverage areas of multiple base stations in Kraufvelin's system based on Hashimoto

Kraufvelin illustrates multiple base stations with corresponding coverage areas forming an area of interest 5 and describes determining the mobile station's location in this area by comparing a received cell ID. Ex.1006 ¶¶79- 80, Fig. 2. Hashimoto explains this process of receiving cell IDs from base stations to determine location may be performed using multiple cell IDs from multiple base stations when the mobile station is in overlapping coverage of multiple base stations. Ex.1008, Fig. 1, ¶134. In the combination, Kraufvelin's mobile station implements the conventional technique of receiving cell IDs transmitted by multiple base stations and determining its location based on the received IDs.

Ex.1003 ¶59.

4. Reasons to Combine Kraufvelin and Hashimoto

It would have been obvious to a POSITA to combine the teachings of Kraufvelin and Hashimoto as described above. §IX.C.3; Ex.1003 ¶60.

a) Kraufvelin and Hashimoto are analogous art

Kraufvelin and Hashimoto are analogous to the '910 patent because they are in the same field of endeavor (i.e., monitoring the location of a mobile station relative to a geographical area). The '910 patent describes "monitoring the presence of a mobile station in at least one special area." Ex.1001, Abstract. Kraufvelin describes "monitoring…a change in the presence status of a target mobile station relative to an area of interest." Ex.1006 ¶23. Hashimoto monitors the location of a mobile station based on transmitted cell IDs. Ex.1008, Abstract (describing "location updating request"); Ex.1003 ¶61.

Kraufvelin and Hashimoto are also reasonably pertinent to a particular problem with which the inventor was involved (monitoring the location of a mobile station and providing location-based services). Ex.1001, 1:65-2:3; Ex.1006 ¶¶56-60, 12; Ex.1008, Abstract, ¶135; Ex.1003 ¶62.

b) Implementing transmission of cell IDs by base stations in Kraufvelin's system based on Hashimoto

Kraufvelin suggests that each base station repeatedly broadcasts its cell ID because "[w]hen the [user equipment] UE performs a cell handover," it "check[s]

the details of the new serving cell, including the cell ID" and "compare[s] the current cell ID or similar against one or more, target cell Ids in the list received." Ex.1006 ¶79. To the extent Kraufvelin does not explicitly describe that each base station broadcasts its cell ID, this is a conventional detail taught by Hashimoto. Ex.1008 ¶135; Ex.1003 ¶63.

Hashimoto's teachings of repeatedly transmitting a cell ID are a conventional implementation detail of cellular networks. Both Kraufvelin and Hashimoto are implementations of the 3G cellular standard. Ex.1006 ¶¶43 (describing "[t]he third generation (3G) systems" including Kraufvelin's "base station 6"), 46, 54-55 (incorporating by reference several 3G standard documents); Ex.1008 ¶13 (listing several 3G standard documents as prior art relevant to Hashimoto); Ex.1003 ¶64.

Both Kraufvelin and Hashimoto explain that multiple mobile stations enter and exit cells as they move throughout a network. Ex.1006, Fig. 2, ¶¶47-48 ("one **or more** of the mobile stations"); Ex.1008, Figs. 1-2 (illustrating mobile stations moving through cells BTS11, BTS12, etc.). Base stations broadcast their cell ID to allow each newly entered mobile station to recognize the cell identity/location. Ex.1008 ¶135. If the cell ID is not repeatedly broadcast, mobile stations entering the cell could not identify cells and send a location update. Ex.1006 ¶¶60, 79-80; Ex.1008, Abstract ("location updating request"); Ex.1003 ¶65.

Thus, a POSITA would have been motivated to implement functionality of base stations repeatedly broadcasting cell IDs in Kraufvelin's system to ensure that mobile stations entering a new cell receive the cell ID and determine their location. Ex.1006 ¶¶56-60, 79-83. Accordingly, the Kraufvelin-Hashimoto combination would have been the combination of prior art elements (Kraufvelin's base stations repeatedly transmitting a cell ID, as taught by Hashimoto) according to known methods (receiving a cell ID of an area of interest and finding a match within a prestored list) to yield the predictable result of a mobile station determining its location and sending a location update, according to conventional standards. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007); Ex.1003 ¶66.

Further, a POSITA would have had a reasonable expectation of success in combining Hashimoto's teachings of repeatedly transmitting cell IDs with Kraufvelin. Kraufvelin explains that when a mobile station enters a new cell, it receives the cell ID. Ex.1006 ¶¶79, 56, 60, 39. Hashimoto describes the same feature and explains that the base station sends the cell ID to the mobile station, along with "various parameters." Ex.1008 ¶135. Both Kraufvelin and Hashimoto describe standardized cellular network components and signals. Ex.1006 ¶¶43, 46, 54-55; Ex.1008 ¶13. For all these reasons, a POSITA would have been motivated to combine Hashimoto with Kraufvelin. Ex.1003 ¶¶67-68.

c) Implementing reception of multiple cell IDs by a mobile station in overlapping coverage areas of multiple base stations in Kraufvelin's system based on Hashimoto

Hashimoto's teachings of a mobile station receiving cell IDs of multiple base stations was also a conventional implementation detail of cellular networks. As explained above, both Kraufvelin and Hashimoto are implementations of the 3G cellular standard. Ex.1006 ¶¶43, 46, 54-55; Ex.1008 ¶13; Ex.1003 ¶69.

A POSITA would have been motivated to implement functionality based on Hashimoto's teachings of mobile stations receiving cell IDs from multiple base stations when within overlapping coverage areas of those base stations to ensure that mobile stations within an area of overlapping coverage would identify the overlap in coverage and select a base station for connection. Ex.1008 ¶134. Accordingly, the Kraufvelin-Hashimoto combination would have been the combination of prior art elements (Kraufvelin's monitoring the location of a mobile station and Hashimoto's description of a mobile station receiving cell IDs from multiple base stations) according to known methods (receiving a cell ID of an area of interest and finding a match within a prestored list of cell IDs) to yield the predictable result of a mobile station determining its location within an area of overlapping coverage and connecting to one base station, according to conventional standards. *KSR*, 550 U.S. at 416; Ex.1003 ¶70.

Further, a POSITA would have had a reasonable expectation of success in

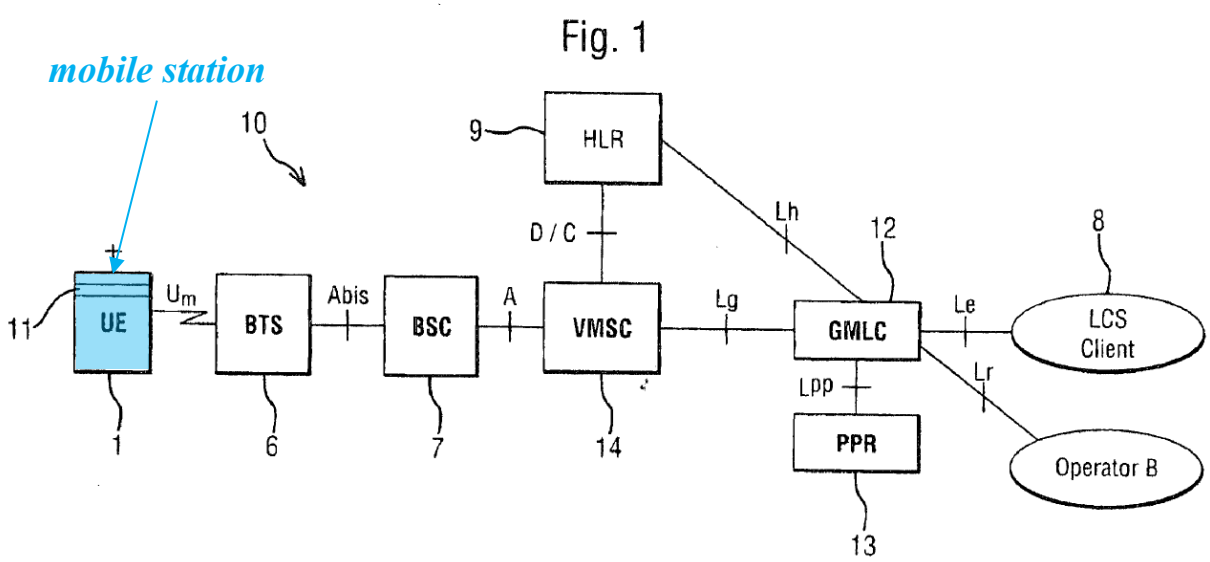
combining Hashimoto's teachings of receiving multiple cell IDs by a mobile station with Kraufvelin. Kraufvelin explains that when a mobile station enters a new cell, the mobile station receives the cell ID from the base station of the new cell. Ex.1006 ¶¶79, 56, 60, 39. Hashimoto describes the same feature and specifically explains that this process may occur when the mobile is within an area of overlapping coverage. Ex.1008 ¶134. For all these reasons, a POSITA would have been motivated to combine Hashimoto with Kraufvelin. Ex.1003 ¶71.

5. Claim 1

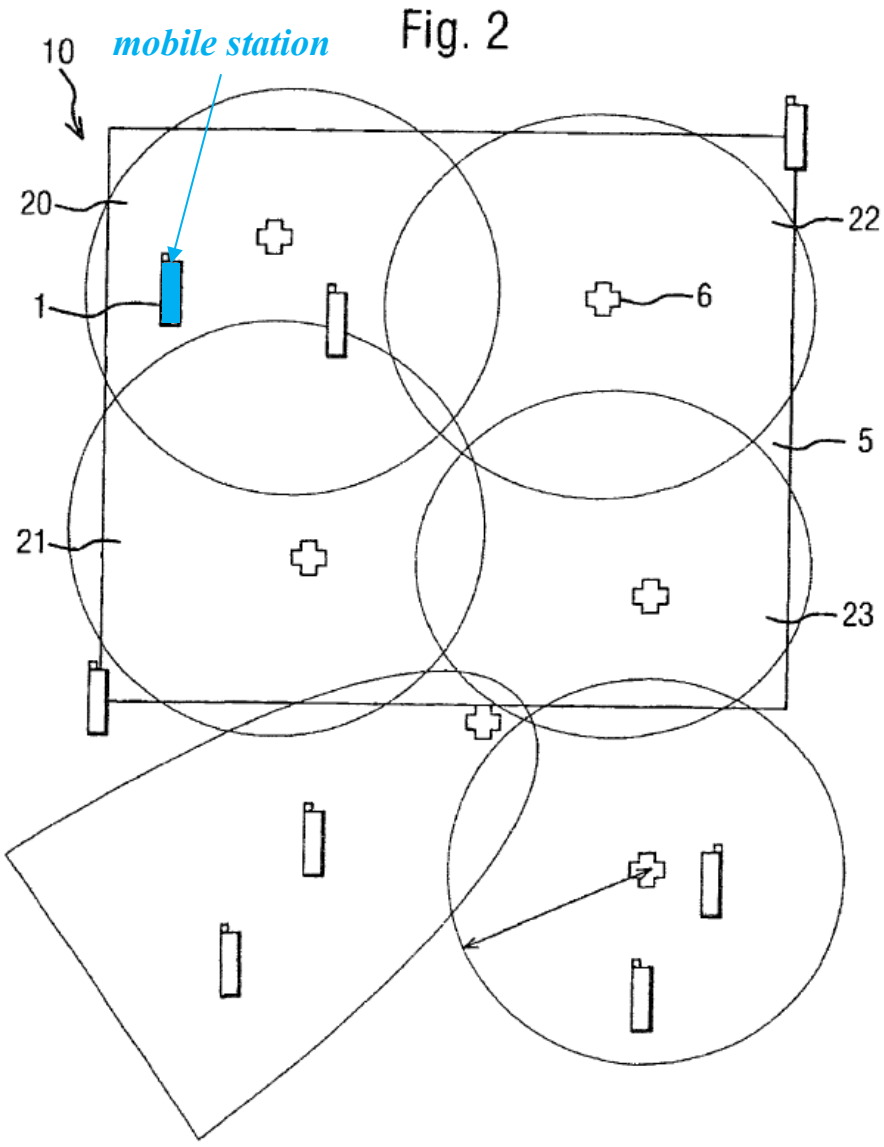
[1.0] ***A method associated with the use of a mobile station and at least first and second radio communication defining devices that respectively transmit first and second distinctive defining signals that at least partly define a special area by a sum or intersection of their coverage, the first and second distinctive defining signals respectively including first and second data, the method comprising:***

First, Kraufvelin describes *a method associated with the use of a mobile station and at least first and second radio communication defining devices*. Kraufvelin "provide[s] a system and **method** [that] provide information regarding the presence status of **a mobile station** relative a geographical area of interest" (*[a] method associated with the use of a mobile station*). Ex.1006 ¶¶29, 53; Ex.1003 ¶¶72-73.

Kraufvelin's "mobile station 1," or "user equipment" (UE) is illustrated in Figures 1, 2, and 4. Ex.1006 ¶¶48, 41-43; Ex.1003 ¶74.



Ex.1006, Fig. 1 (annotated)



Ex.1006, Fig. 2 (annotated)

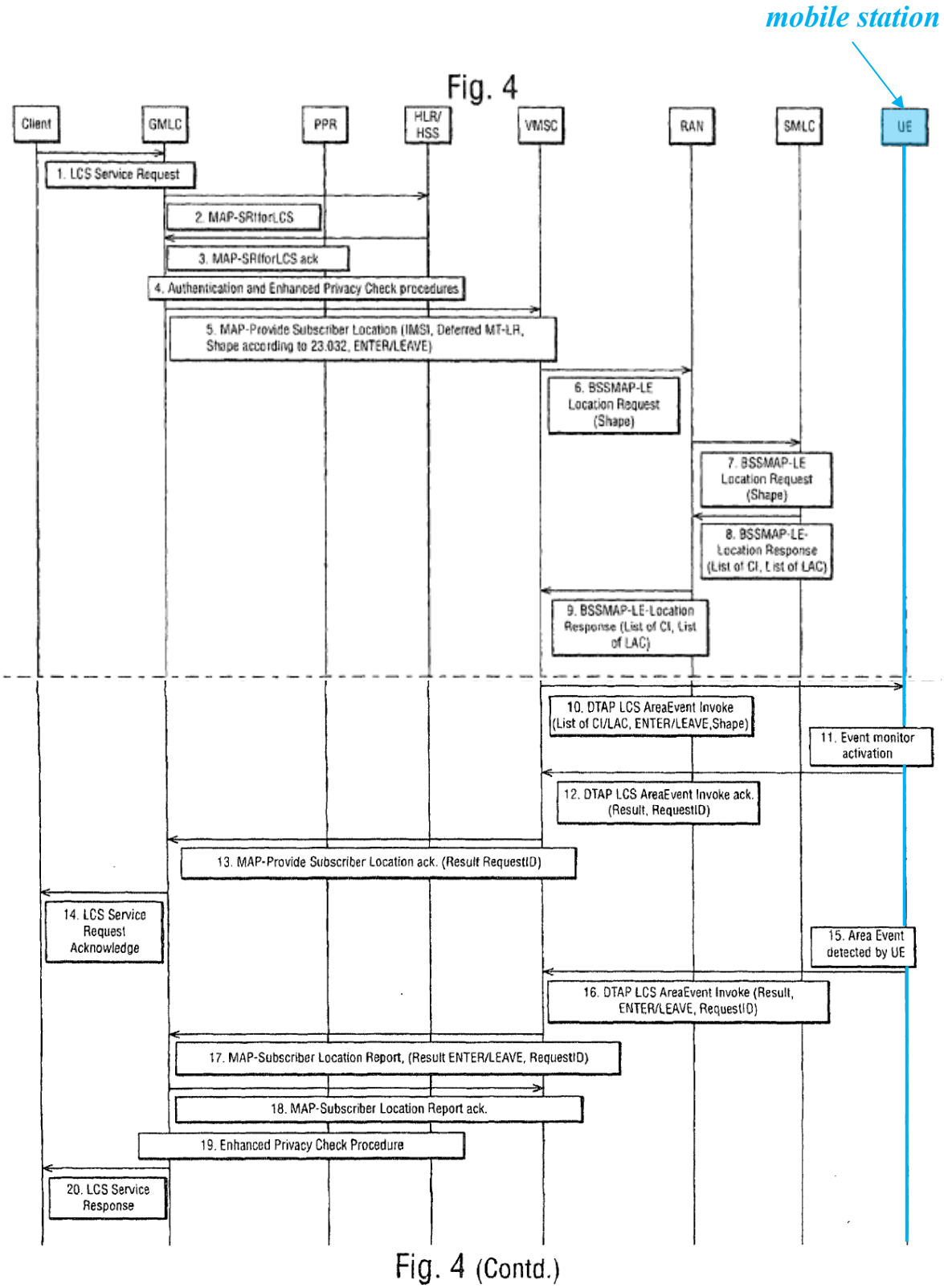
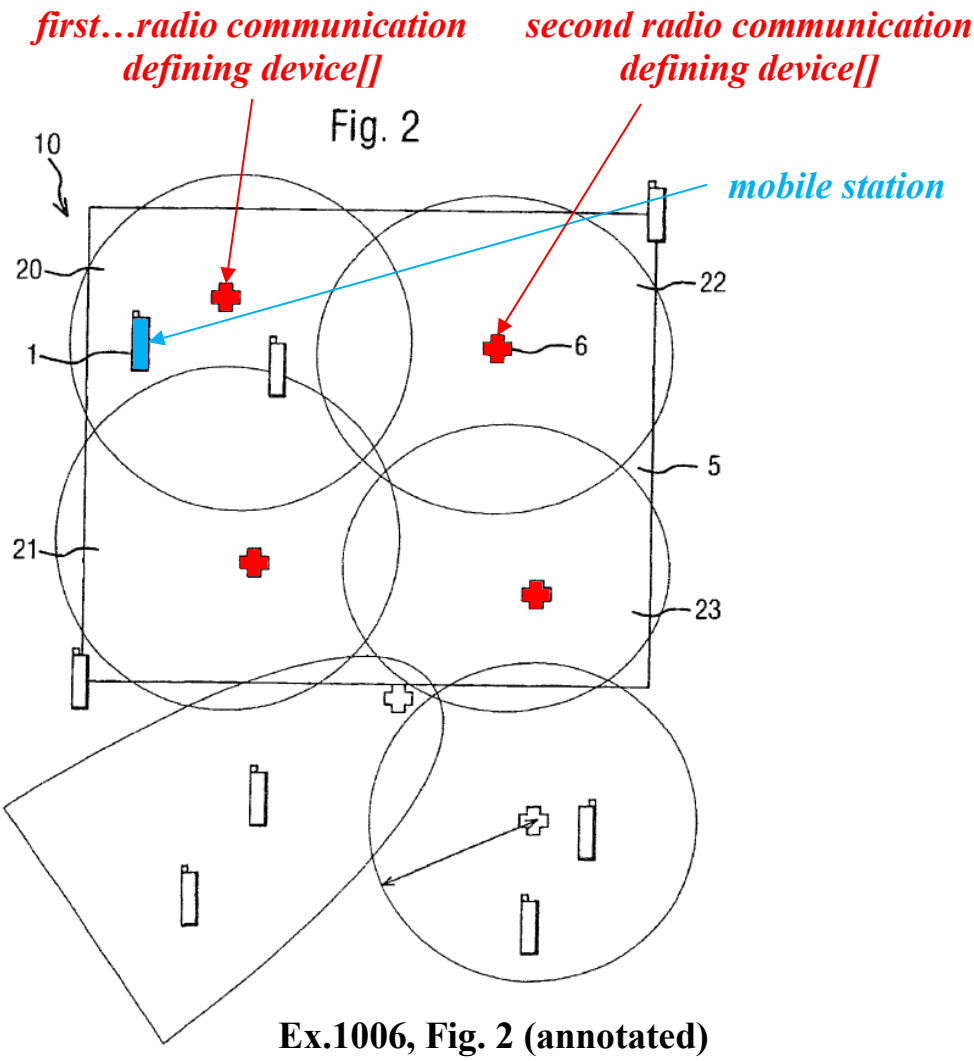


Fig. 4 (Contd.)

Ex.1006, Fig. 4 (annotated)

The method taught by Kraufvelin is associated with *the use* of the mobile station, by, for example, providing "[d]ifferent kinds of services" to the mobile station based on location, as well as "speech, data, messaging, other teleservices, user applications and supplementary services." Ex.1006 ¶¶12, 51; Ex.1003 ¶75.

Kraufvelin also describes multiple "base station[s] 6," or "base transceiver station[s] (BTS)" (each a *radio communication defining device*), two of which are shown in Figure 2 below, which render obvious *at least first and second radio communication defining devices*. Ex.1006 ¶¶39, 4; Ex.1003 ¶76.



Ex.1006, Fig. 2 (annotated)

Second, Kraufvelin's base stations *respectively transmit first and second distinctive defining signals that at least partly define a special area by a sum or intersection of their coverage*. In Kraufvelin, a client may monitor the location of a mobile station relative to an area of interest 5 by sending a request to Kraufvelin's system. Ex.1006 ¶¶16, 48, 55. The area of interest 5 is converted into a list of cell IDs covering the area of interest 5, and the list is stored on the mobile station. Ex.1006 ¶56. When the mobile station enters a new cell, the mobile station

receives the cell ID of the cell and "check[s] the new cell ID against the list." Ex.1006 ¶60. If the new cell ID is within the stored list, the mobile station determines that it is within the area of interest 5. Ex.1006 ¶¶60-61, 79-80; Ex.1003 ¶¶77-80.

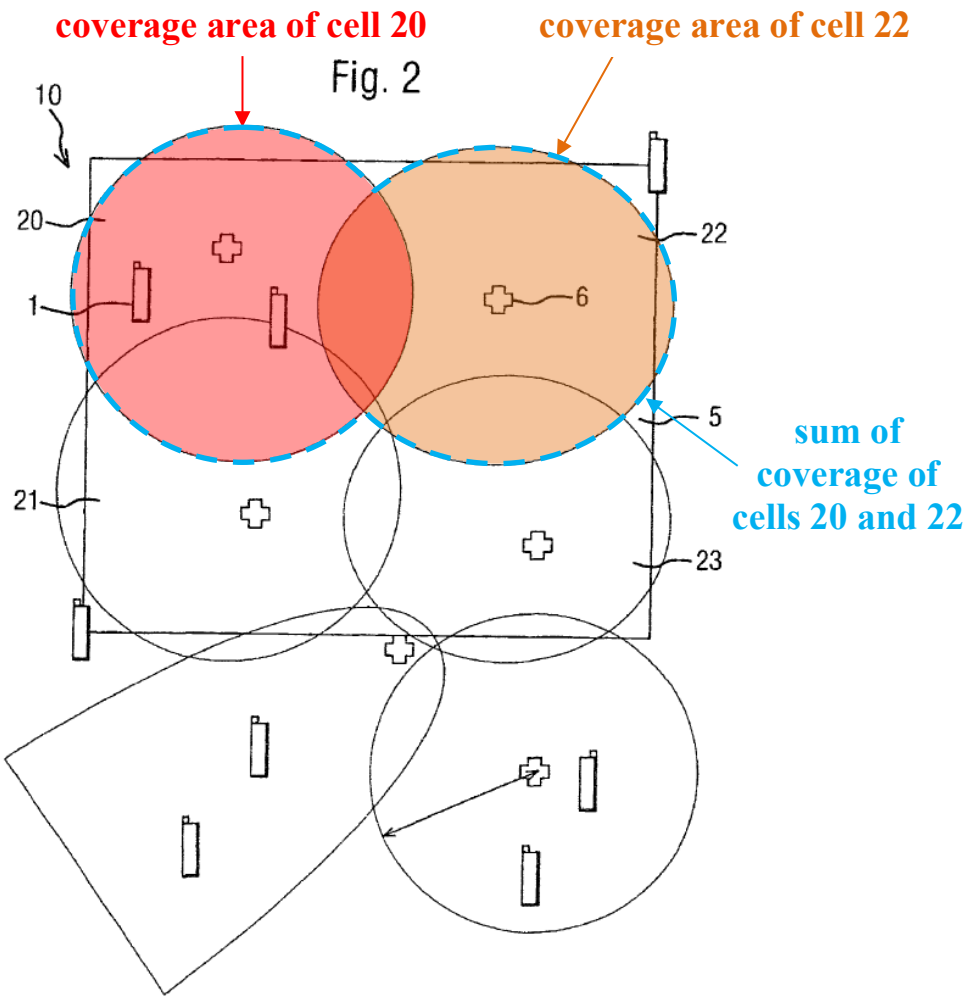
A broadcast cell ID is a *distinctive defining signal[]* if its respective base station is in the area of interest 5. "The geographical area 5 may be translated into **a list of Cell I[D]s**. In FIG. 2 the area 5 is shown to be covered by the **cells 20 to 23**. **The IDs of these cells would thus be included in the list [of Cell IDs]**." Ex.1006 ¶56. This list is "sent to the mobile station 1" and the mobile station "check[s] the new Cell ID against the list" to determine if it is within the area 5. Ex.1006 ¶60. Each cell ID broadcast by a base station in the list of Cell IDs is *a radio distinctive defining signal* because it defines at least a part of the area of interest 5. Ex.1006 ¶¶56, 60. For example, the signal transmitted by the base station of cell 20 renders obvious a *first…distinctive defining signal[]*. Ex.1003 ¶82. The signal transmitted by the base station of cell 22 renders obvious a *second distinctive defining signal[]*. Ex.1003 ¶¶81-82.

Third, Kraufvelin's base stations of cells 20 and 22 *transmit* the *first and second distinctive defining signals*. "When the UE performs a cell handover," it "check[s] the details of the new serving cell, including the cell ID." Ex.1006 ¶79. Because multiple mobile stations enter and exit different cells, and receive the cell

ID of the base station 6, Kraufvelin's base stations 6 *transmit* their respective cell IDs to the mobile stations entering its coverage. Ex.1003 ¶83. To the extent it is argued that Kraufvelin does not explicitly state that each base station broadcasts its cell ID, this is a conventional implementation detail taught by Hashimoto. Ex.1008 ¶135; Ex.1003 ¶83.

Hashimoto explains that mobile stations determine their location in a cell because base stations "inform the terminal of various parameters" including the "identification information (ID) of a cell called 'Cell-ID'" by "**periodically transmit[ting]** system information called 'broadcast information.'" Ex.1008 ¶135, Fig. 17. "**[P]eriodically transmit[ting]**" a cell ID renders obvious *transmit[ting]*. Ex.1003 ¶¶84-85.

Fourth, Kraufvelin explains that signals transmitted by the base stations of cells 20 and 22 *at least partly define a special area by a sum or intersection of their coverage*. The area of interest 5 is selected by the client 8. Ex.1006 ¶¶16, 48-49, 55. The coverage of the signal transmitted in cell 20 (*first…distinctive defining signal[]*) is highlighted below in red. The coverage of the signal transmitted in cell 22 (*second distinctive defining signal[]*) is highlighted in orange. The sum of the coverage of the *first and second distinctive defining signals* (shown with a blue dashed line) *at least partially defin[es]* the area of interest 5, specifically the upper half of the area of interest 5. Ex.1003 ¶86.



Ex.1006, Fig. 2 (annotated)

The sum of the coverage of signals transmitted from all the base stations within the area of interest 5 (cells 20-23) defines the area of interest 5. Ex.1006 ¶56. The sum of the coverage of cells 20 and 22 *at least partially defin[es]* the area of interest 5. In addition, while the coverage areas of cells 20-23 do not exactly match the rectangular shape of the area of interest 5, the coverage areas of cells may be adjusted to match more precisely, or the area of interest 5 may be adjusted to match the coverage areas of the cells. Ex.1006 ¶53; Ex.1003 ¶87.

Fifth, the Kraufvelin-Hashimoto combination renders obvious *the first and second distinctive defining signals respectively including first and second data*. Each base station servicing a cell broadcasts a unique "cell ID." Ex.1006 ¶¶9, 56, 60; Ex.1008 ¶135. In the example above, the cell ID transmitted by the base station of the cell 20 renders obvious *first…data*. Ex.1003 ¶¶88-89. The cell ID transmitted by the base station of the cell 22 renders obvious *second data*. Ex.1003 ¶¶88-89.

Thus, the Kraufvelin-Hashimoto combination renders obvious *[a] method* ("method," Ex.1006 ¶29) *associated with the use of a mobile station* (providing services to a mobile station 1) *and at least first and second radio communication defining devices* (base stations of cells 20 and 22) *that respectively transmit first and second distinctive defining signals* (signals transmitted by base stations of cells 20 and 22) *that at least partly define a special area by a sum or intersection of their coverage* (coverage area of cells 20 and 22 defining upper half of area of interest 5)*, the first and second distinctive defining signals respectively including first and second data* (signal transmitted by base station of cell 20 includes cell ID of cell 20 and signal transmitted by base station of cell 22 includes cell ID of cell 22). Ex.1003 ¶90.

[1.1] ***determining in the mobile station if the mobile station is receiving one or both of the first and second distinctive defining signals and***

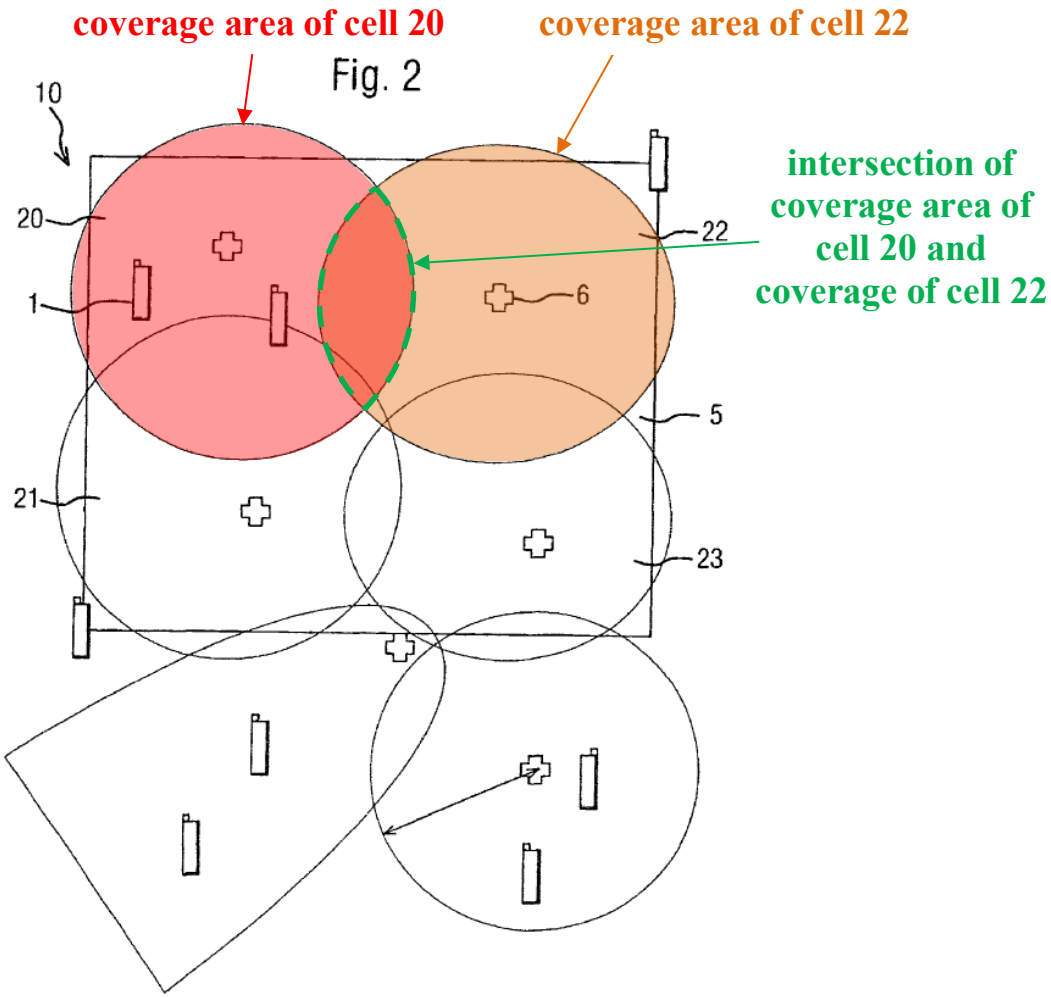
First, the Kraufvelin-Hashimoto combination renders obvious *determining*

in the mobile station if the mobile station is receiving…the first…distinctive defining signal[]. In Kraufvelin, "[w]hen the UE performs a cell handover the monitoring entity (ME) shall **check the details of the new serving cell, including the cell ID**" and "**compare the current cell ID or similar against one or more, target cell Ids in the list received from the network**." Ex.1006 ¶¶79, 60. In the example provided above, when the mobile station 1 enters the coverage area of cell 20, it receives the cell ID of cell 20 and compares it to the stored list. Ex.1006 ¶60. Because the cell ID of cell 20 is included in the list (Ex.1006 ¶56), comparing the received cell ID of cell 20 to the stored list renders obvious *determining in the mobile station* if it is receiving *the first…distinctive defining signal[]*. Ex.1006 ¶¶79-80; Ex.1003 ¶¶91-92.

Second, the Kraufvelin-Hashimoto also renders obvious *determining in the mobile station if the mobile station is receiving…the…second distinctive defining signal[]*. Kraufvelin explains that the same procedure of comparing a received cell ID to the stored list occurs every time the mobile enters a new cell, i.e., "performs a cell handover." Ex.1006 ¶79. Therefore, this comparison step also occurs when the mobile station enters cell 22 and the mobile station *determin[es]* if it is receiving the cell ID of cell 22 (*second distinctive defining signal[]*). Ex.1006 ¶79; Ex.1003 ¶93.

Third, when the mobile station is within the coverage area of both of the

cells 20 and 22—green outline below—the same procedure is performed to determine that the mobile station is receiving ***both*** *of the first and second distinctive defining signals* because it receives the cell IDs of both cells 20 and 22, as explained by Hashimoto below. Ex.1003 ¶94.

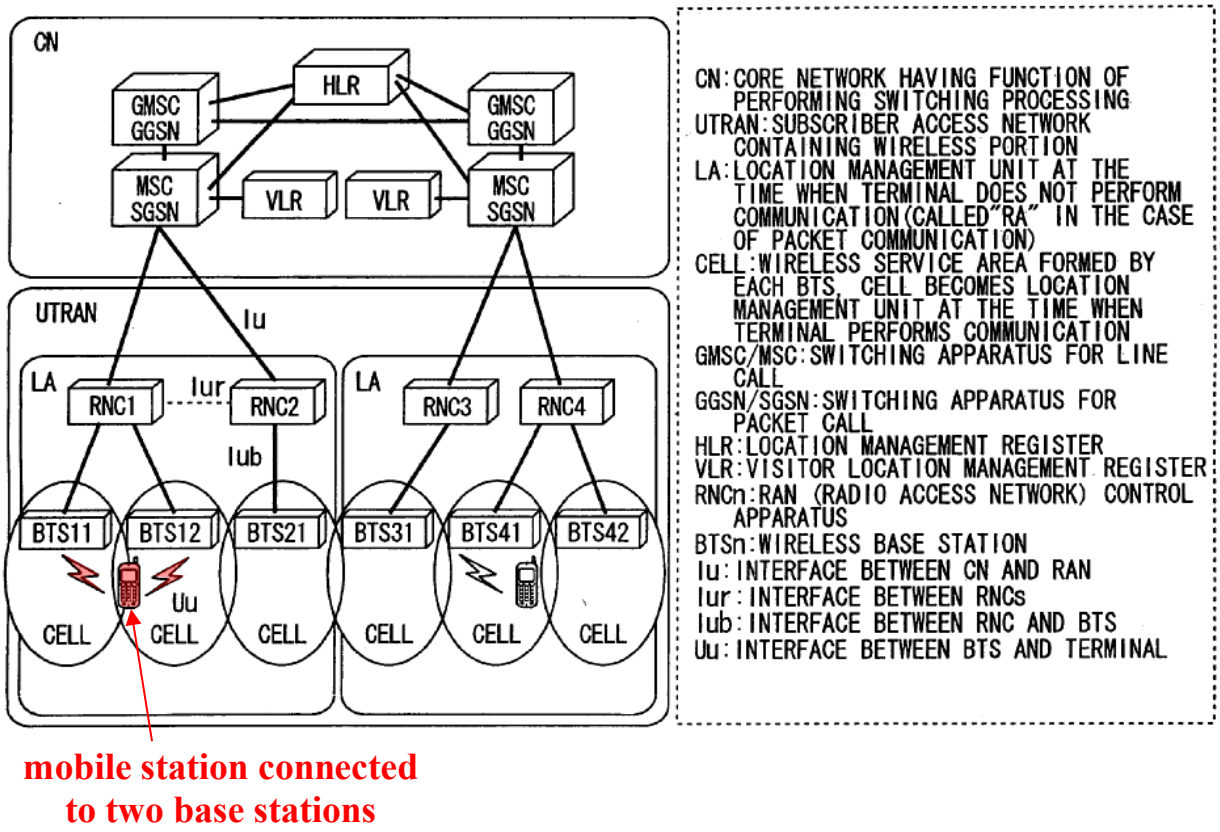


Ex.1006, Fig. 2 (annotated)

Hashimoto explains that a mobile station receives both of the multiple *distinctive defining signals* when within the coverage areas of multiple cells. "In usual cases, cells in a wireless network are provided so that **a part of a cell**

overlaps its adjacent cell in order to cover the whole region. Therefore, in each overlapping area, the terminal **is capable of receiving synchronization signals from multiple cells**." Ex.1008 ¶134. This is illustrated in Hashimoto's Figure 1 below, showing a mobile station within the coverage area of two cells (BTS11 and BTS12) and receiving signals from both base stations. Ex.1008, Fig. 1; Ex.1003 ¶¶95-96.

FIG. 1



Ex.1008, Fig. 1 (annotated)

Hashimoto explains that "the terminal is constructed so as to select one of the multiple cells in accordance with a certain logic." Ex.1008 ¶134. In the

Kraufvelin-Hashimoto combination, when the mobile station is within the intersecting coverage area of cells 20 and 22, the mobile station determines that it is receiving both the cell IDs of cells 20 and 22 and, as taught by Hashimoto, may determine with which base station to communicate. Ex.1008 ¶134; Ex.1003 ¶97.

Thus, the Kraufvelin-Hashimoto combination renders obvious *determining in the mobile station if the mobile station is receiving one…of the first and second distinctive defining signals* (comparing cell ID of cell 20 or cell 22 received by mobile station to list of stored cell IDs) and/or *determining in the mobile station if the mobile station is receiving…both of the first and second distinctive defining signals* (receiving signals from multiple base stations in an overlapping coverage area). Ex.1003 ¶98.

[1.2] ***determining in the mobile station, based on a previously obtained at least portion of one or both of the first and second data, whether or not the mobile station is present in the special area; and***

First, Kraufvelin explains that if a received cell ID matches one of the cell IDs in the stored list, the mobile station determines that "**the subscriber is ENTERing the area**" (area of interest 5) and sends a report to the network with that result:

> a) An area event LCS report **indicating a positive match** with the target cells, i.e. **the subscriber is ENTERing the area**[.]

Ex.1006 ¶80; Ex.1003 ¶99.

By this process, the mobile station determines whether it has entered the area of interest 5 (*determining in the mobile station…whether or not the mobile station is present in the special area*). Ex.1006 ¶¶79-80. As explained at [1.0], the cell ID of cell 20 discloses *first…data* and the cell ID of cell 22 discloses *second data*. Ex.1006 ¶¶56, 60. As explained at [1.1], this process occurs when the mobile station is within the coverage area of cell 20, cell 22, or an intersection of the two. Ex.1006 ¶¶56, 60, 79-80; Ex.1008 ¶134. This determining is performed by the "the monitoring entity (ME)" of the mobile station. Ex.1006 ¶79; Ex.1003 ¶100.

Therefore, Kraufvelin's process of comparing received cell IDs of cell 20 and/or 22 and finding "a positive match" in the stored list discloses *determining in the mobile station, based on…one or both of the first and second data, whether or not the mobile station is present in the special area*. Ex.1006 ¶¶79-80; Ex.1003 ¶101.

Second, Kraufvelin describes that the mobile station performs the above-described process of comparing a received cell ID (cell IDs of cells 20 and/or 22) after the mobile station has received the list of cell IDs for the area of interest 5. Specifically, the process of generating and sending the list of cell IDs to the mobile station is shown at Figure 4, steps 1-10. After the mobile station receives this list, it begins monitoring for new cell IDs (step 11) and determines that it has entered the area of interest 5 (step 15). Ex.1006, Fig. 4; Ex.1003 ¶102.

sending list of cell IDs corresponding to area of interest 5 to mobile station

determining…whether or not the mobile station is present in the special area

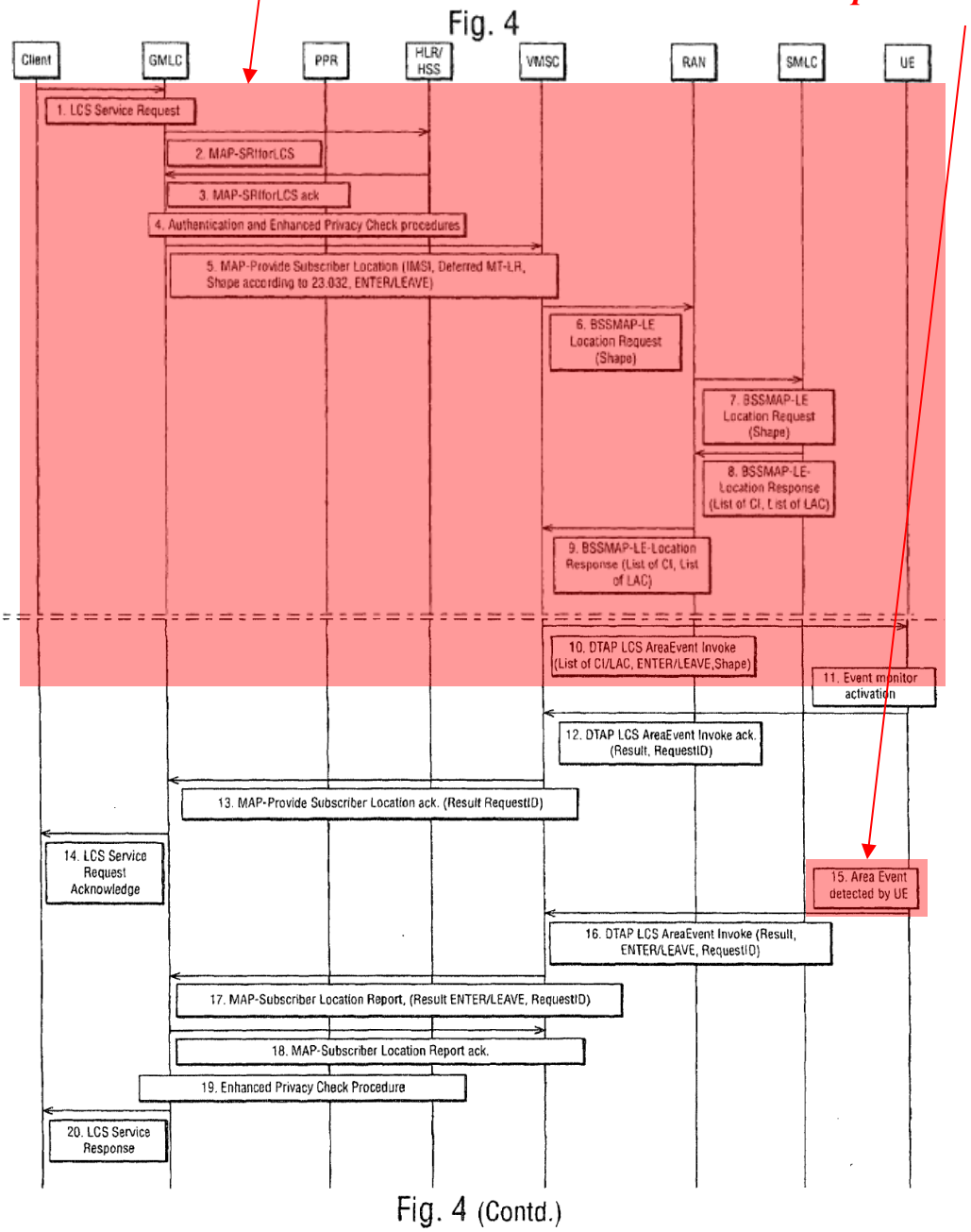


Fig. 4 (Contd.)

Ex.1006, Fig. 4 (annotated)

At step 15, the mobile station performs the above-described comparison step. Ex.1006 ¶¶79-80. Therefore, Kraufvelin describes determining that the

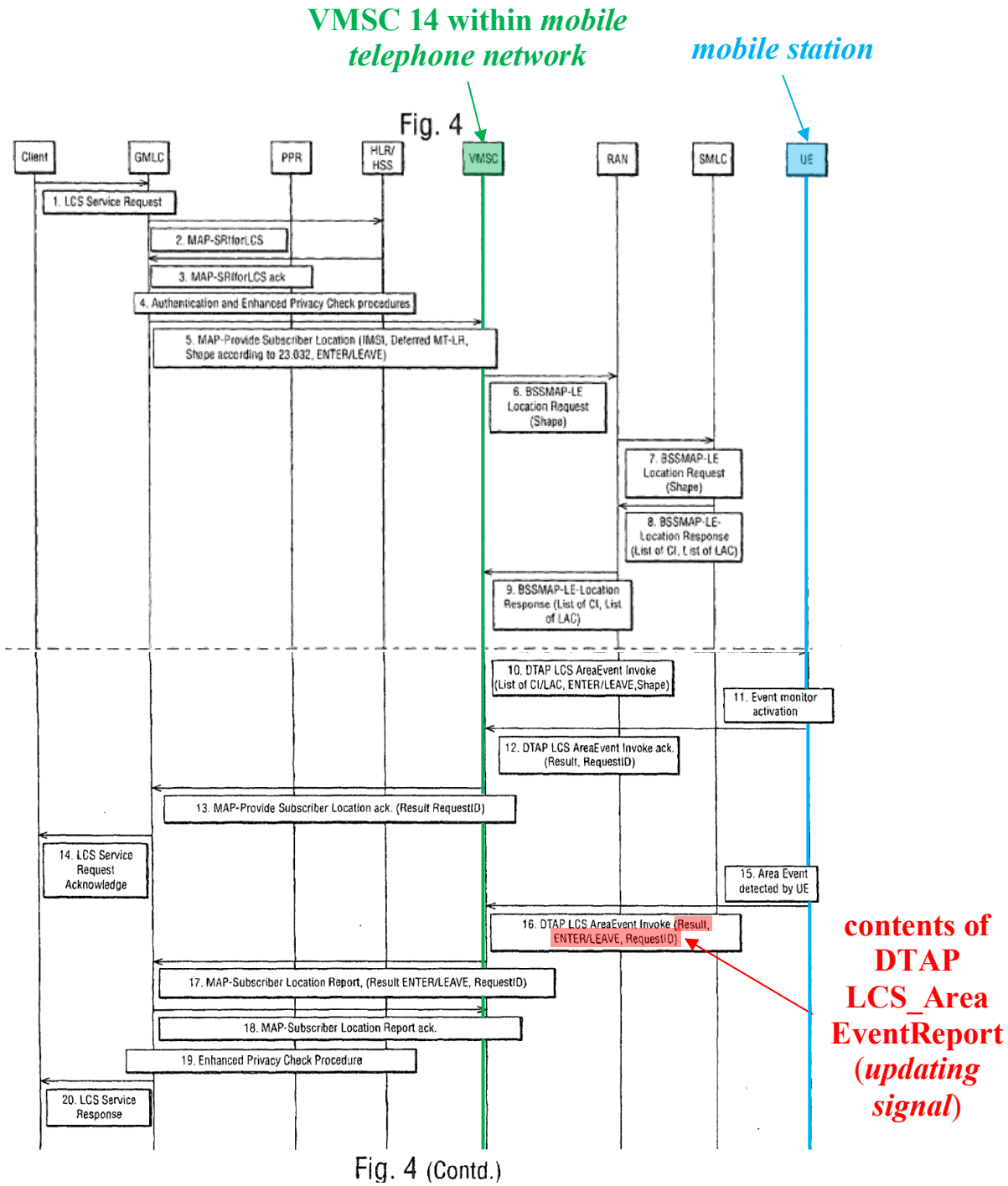
mobile station is within the area of interest 5 *based on a previously obtained at least portion of one or both of the first and second data*. Ex.1003 ¶103.

Thus, the Kraufvelin-Hashimoto combination renders obvious *determining in the mobile station* (monitoring entity (ME) of mobile station determines)*, based on a previously obtained at least portion of one or both of the first and second data* (using the stored list of cell IDs of cells 20-23)*, whether or not the mobile station is present in the special area* (whether a newly received cell ID matches the cell IDs 20-23 in the list showing that "the subscriber is ENTERing the area"). Ex.1003 ¶104.

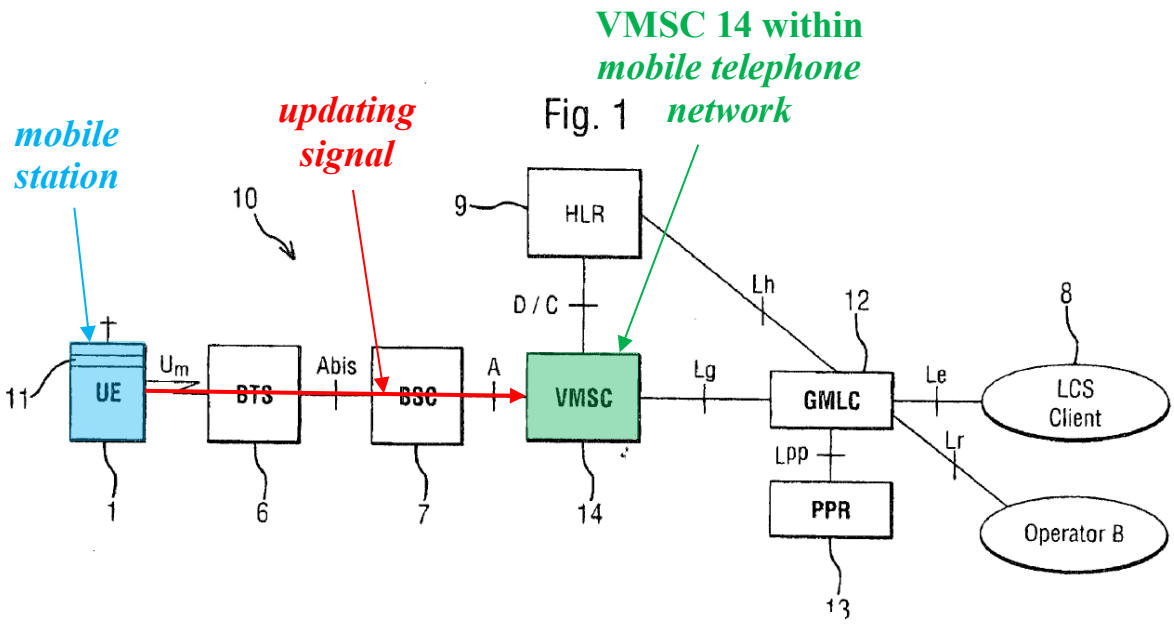
[1.3] *sending from the mobile station via a mobile telephone network an updating signal to one or more servers of a provider of presence related services about the mobile station's presence in the special area,*

First, the Kraufvelin-Hashimoto renders obvious *sending from the mobile station via a mobile telephone network an updating signal.* In Kraufvelin, if the mobile station determines that it has entered a cell of the area of interest 5, it sends "a DTAP LCS-AreaEventReport…to the MSC/SGSN, see step 16 [in Figure 4]." Ex.1006 ¶82. The DTAP LCS-AreaEventReport "may include the original LDR reference, the GMLC address, the time that the event occurred and the current serving cell ID. Information relating to the area event or UE status may optionally be included in this report." Ex.1006 ¶82. In Figure 4 below, the DTAP LCS-AreaEventReport includes the "Result, ENTER/LEAVE," indicating whether the

mobile station entered or left the area of interest 5, and the "Request ID." Ex.1006 ¶80, Fig. 4. Any of the contents of the DTAP LCS-AreaEventReport renders obvious *an updating signal* because they indicate an updated location of the mobile station, i.e., whether the mobile station is "ENTERing the area" or "LEAVEing the area." Ex.1006 ¶80. This report is sent from the mobile station to the VMSC 14, which is part of the *mobile telephone network*. Fig. 4; Ex.1003 ¶105.



Ex.1006, Fig. 4 (annotated)



Ex.1006, Fig. 1 (annotated)

The VMSC 14 shown in Figure 1 above is "part of a cellular public land mobile network (PLMN) 10." Ex.1006 ¶38. With the GMLC 12, the VMSC 14 is "in the core network side of the communication system 10." Ex.1006 ¶46. Therefore, the VMSC 14 is a part of the *mobile telephone network*. Ex.1003 ¶106.

Second, Kraufvelin describes *sending from the mobile station…to one or more servers of a provider of presence related services*. As shown in Figure 4, above, the mobile station sends the LCS_AreaEventReport to the VMSC 14. Ex.1006, Fig. 4 (step 16), ¶80. After the VMSC 14 (part of the *mobile telephone network*) has received the contents of the LCS_AreaEventReport (*updating signal*), the VMSC 14 compiles the contents into another report, the "MAP-SUBSCRIBER-LOCATION-REPORT," and sends the compiled report to the

GMLC 12, which then sends the contents of the report, indicating the location of the mobile station, to the LCS Client 8. Ex.1006 ¶¶83, 48 ("The location server node 12 may provide location information to a client 8."), 61, Fig. 4 (step 20); Ex.1003 ¶107.

As explained below, the GMLC 12 and LCS client 8 are *one or more servers*. The GMLC 12 is a server *of a provider of presence related services* because it provides the service of a location information about a mobile station to the client 8. Ex.1006 ¶¶83, 48, 61, Fig. 4 (step 20); Ex.1003 ¶108.

In addition, the LCS client 8 is a server *of a provider of presence related services* because the LCS client 8 may provide services to the mobile station based on the location it received from the GMLC 12. Ex.1006 ¶¶12, 51. Specifically, Kraufvelin explains:

> **Different kinds of services are possible** if such a mechanism would be in place…. For example, various organisations or even individuals may want to **send information and/or offer services to a mobile station** only in a particular defined geographic area and/or to a certain type of subscriber in a particular geographical area. More detailed examples of these include location based **push services** like advertisements and parents monitoring the whereabouts of their children.

Ex.1006 ¶12; Ex.1003 ¶108.

Kraufvelin further explains that the LCS client 8 may be any entity to provide services to the mobile station based on the mobile station's location. Ex.1006 ¶55 ("[T]he client 8, **such as location-based service** sends a location request towards the mobile network 10."); Ex.1003 ¶109.

Thus, the Kraufvelin-Hashimoto combination renders obvious *sending from the mobile station via a mobile telephone network* (sending from the mobile station 1 to the VMSC 14) *an updating signal* (contents of DTAP LACS-AreaEventReport) *to one or more servers of a provider of presence related services about the mobile station's presence in the special area* (forwarding contents of report from VMSC 14 to GMLC 12 and LCS client 8). Ex.1003 ¶110.

[1.4] ***the sending of the updating signal being uncorrelated to any mobile station phone call establishment,***

As explained at [1.3], Kraufvelin describes *sending…the updating signal* from the mobile station to the VMSC 14. Ex.1006, Fig. 4 (step 16). As explained in more detail at [1.5], below, Kraufvelin's LCS report is sent at various times such as "every 10-15 minutes," when the mobile station enters or leaves the area of interest, or "after it has been camping on" the area of interest. Ex.1006 ¶¶80, 101. Therefore, the sending of the LCS report, which includes *the updating signal*, is not based on the mobile station making a call, i.e., *uncorrelated to any mobile station phone call establishment*. Ex.1006 ¶¶80, 101; Ex.1003 ¶¶111-112. Accordingly, Kraufvelin's process is performed when the mobile station is idle.

Ex.1006 ¶¶97 ("A mobile terminal changes cells quite often **in idle mode.**"), 98-106. Kraufvelin also explains that this process is performed "**independent from the network operators**." Ex.1006 ¶93; Ex.1003 ¶113.

[1.5] ***the updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists[1] [sic] from the special area, and (iii) when the mobile station remains in the special area.***

the updating signal being sent at least one of (i) periodically

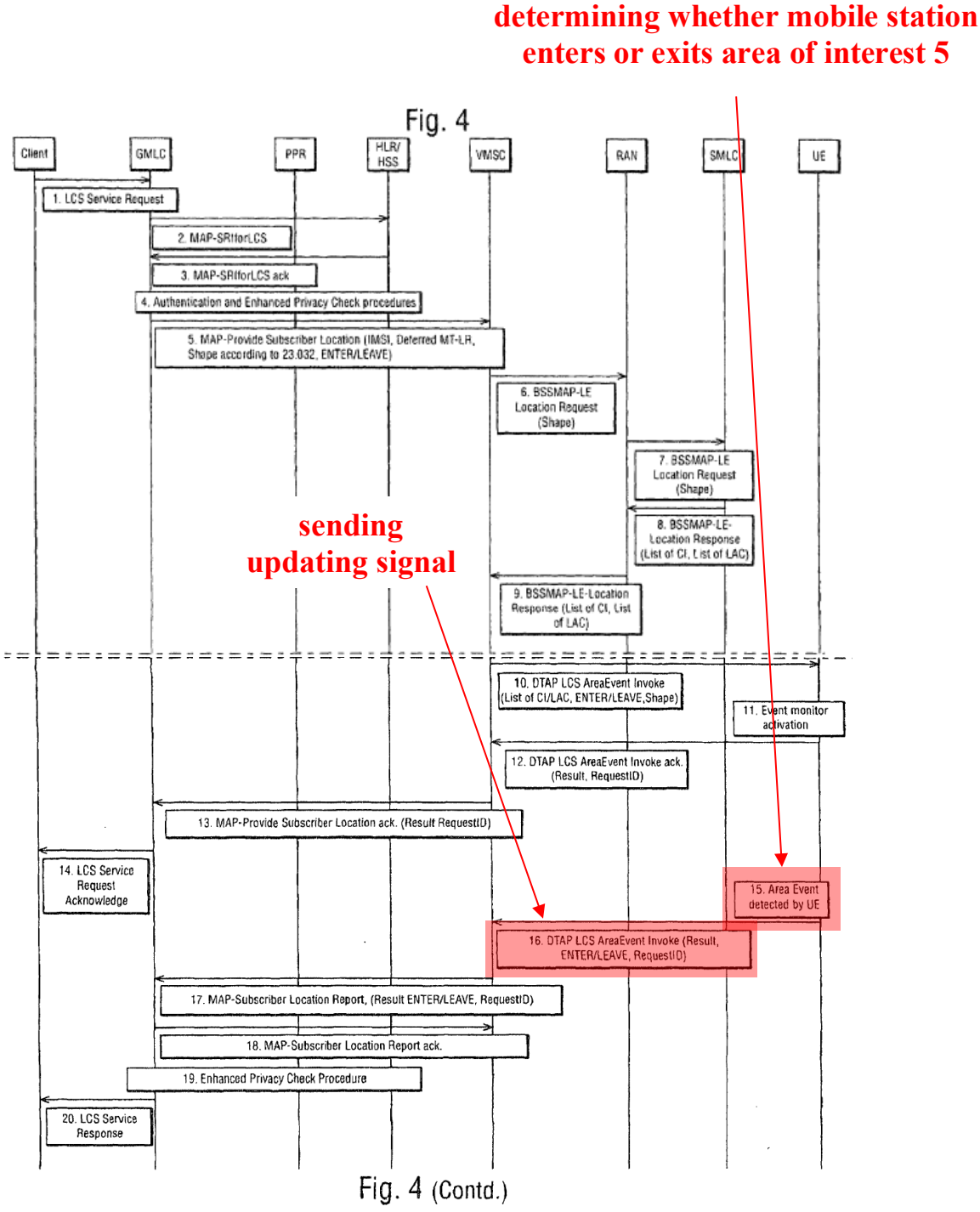
Kraufvelin explains that if the mobile station is stationary for an extended period of time, "[i]n case of permanent area event reporting," the mobile station will send the LCS-AreaEventReport at "a predetermined time interval, e.g., **every 10-15 minutes**, **24 hours**." Ex.1006 ¶101; Ex.1003 ¶¶114-115.

(ii) at times recent to when the mobile station enters into or exists from the special area

Kraufvelin's mobile station may also send the report when it enters or exits the area of interest 5, including "[a]n area event LCS report indicating a positive match…i.e. the subscriber is **ENTERing the area**" or "indicating a negative match…i.e. the subscriber is **LEAVEing the area**." Ex.1006 ¶80. As shown in Figure 4 below, this report is sent at step 16 after the mobile station determines that it has *enter[ed] into or [exited] from* the area of interest 5 at step 15. Ex.1003

[1] In this proceeding, Petitioner understands the term "*exists*" to mean "*exits*."

¶116.



Ex.1006, Fig. 4 (annotated)

(iii) when the mobile station remains in the special area,

Kraufvelin also explains that rather than sending the report immediately after entering a cell of the area of interest, the mobile station may generate and send the report "**after it has been camping on, or using, the relevant cell for a predetermined time period, e.g. 2 minutes**." Ex.1006 ¶101; Ex.1003 ¶¶117-118.

These timing configurations are used when "the mobile changes cells quite frequently" and "may be advantageously used to prevent the mobile or SIM card from reporting area changes too frequently." Ex.1006 ¶99; Ex.1003 ¶119.

6. Claim 2

[2.0] ***The method according to claim 1, wherein the updating signal comprises the result of a previous determination performed by the mobile station about the mobile station's presence in the special area.***

As explained at [1.2], Kraufvelin describes *determining…whether or not the mobile station is present in the special area*. If there is "a positive match" between a received cell ID and a cell ID in the stored list, the mobile station determines that it "is ENTERing the area." Ex.1006 ¶¶79-80. The result of this determination is included in the "DTAP LCS-AreaEventReport" "sent to the MSC/SGSN." Ex.1006 ¶82; Ex.1003 ¶¶120-121.

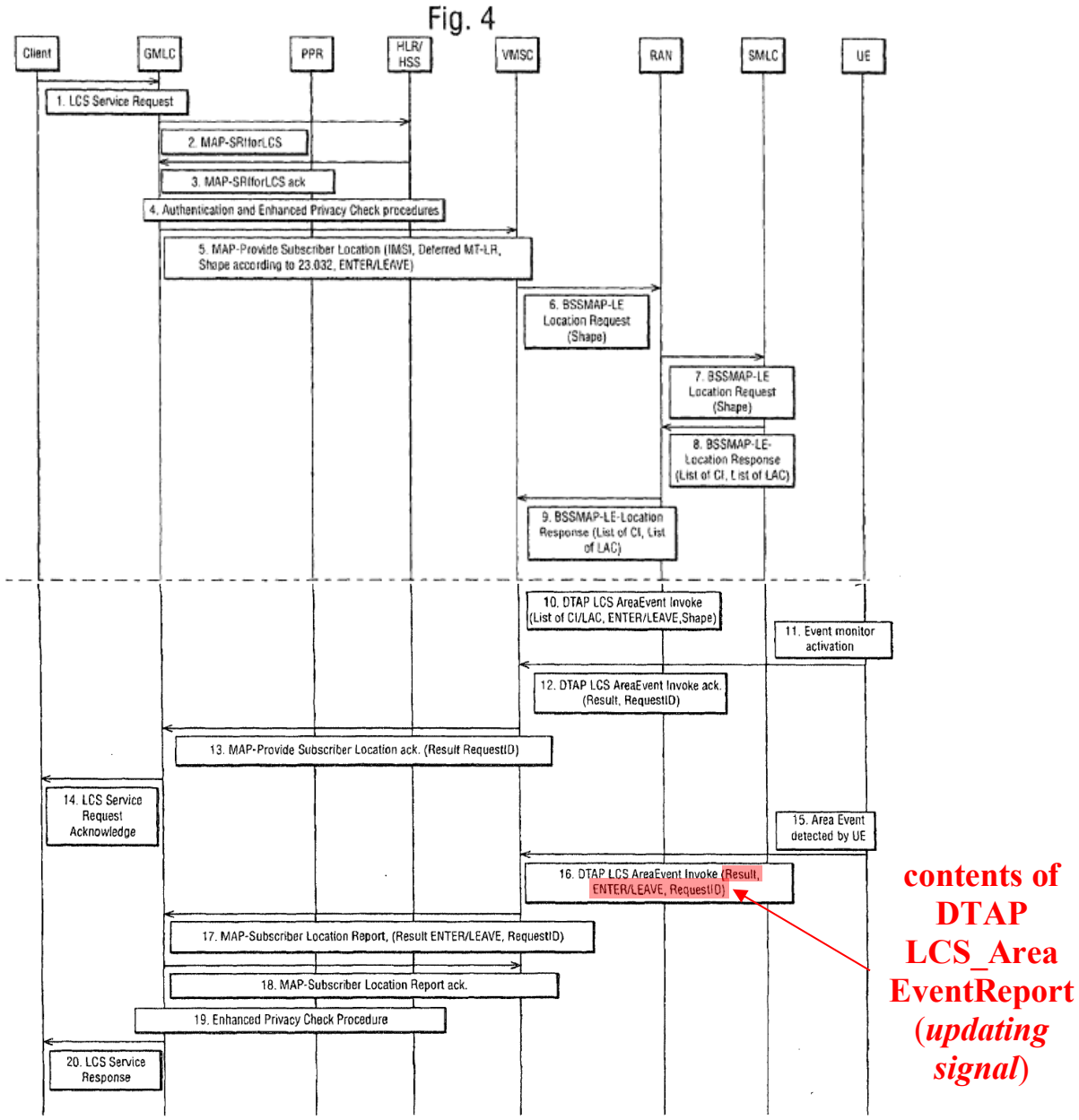


Fig. 4 (Contd.)

Ex.1006, Fig. 4 (annotated)

Because the determining at step 15 is performed before sending the result at step 16, and because the contents of the report at step 16 includes the result of the determination at step 15, the Kraufvelin-Hashimoto combination renders obvious

the updating signal comprises the result of a previous determination performed by the mobile station. Ex.1006, Fig. 4 (steps 15 and 16), ¶¶79-83; Ex.1003 ¶122.

Thus, the Kraufvelin-Hashimoto combination renders obvious *the updating signal* (contents of DTAP LCS-AreaEventReport) *comprises the result of a previous determination performed by the mobile station about the mobile station's presence in the special area* (indicating that mobile station has "ENTERed" the area of interest 5). Ex.1003 ¶123.

7. Claim 4

[4.0] ***The method according to claim 1, wherein the mobile station enables or disables one or more functions related to a presence related service upon receiving enabling or disabling instructions from the provider of presence related services.***

First, Kraufvelin describes *the mobile station enabl[ing] or disabl[ing] one or more functions*, including an "area event monitoring application." Ex.1006 ¶¶12, 82. As explained at [1.1], the monitoring entity of the mobile station executes an "area event monitoring application" to determine the mobile station's presence within area of interest 5. Ex.1006 ¶79. This location information is then used to provide "[d]ifferent kinds of services" to the mobile station including "various commercial and non-commercial services and similar applications." Ex.1006 ¶12. Because the area location information is used to provide location-specific services, it is *related to a presence related service*. Ex.1006 ¶¶82, 12; Ex.1003 ¶¶124-125.

Second, the mobile station *enables or disables* the area event monitoring

application *upon receiving enabling or disabling instructions from the provider of presence related services*. As explained at [1.3], the GMLC 12 and/or LCS client 8 are services of *provider[s] of presence related services*. [1.3]; Ex.1006 ¶¶83, 48, 61, 12, 51. As explained at [1.0], the LCS client 8 sends a request for location monitoring to the system indicating the mobile station and the area of interest 5. [1.0]; Ex.1006 ¶¶16, 48, 55. The area of interest 5 is "translated into a list of Cell Ids" and "sent to the mobile station 1." Ex.1006 ¶¶56, 60. This activation of the area event monitoring application is illustrated at step 11 of Figure 4 and renders obvious *enabl[ing]…one or more functions…upon receiving enabling…instructions*. Ex.1003 ¶126.

Kraufvelin also describes disabling the area event monitoring application. The area event monitoring application may be disabled upon request of the LCS client 8 if the LCS client 8 no longer wishes to monitor location. Ex.1006 ¶¶89-91, Fig. 15. Kraufvelin describes a request for location-monitoring as a "deferred location request." Ex.1006 ¶62. Figure 15 "illustrates the procedures for **cancelling** a Deferred Location Request." Ex.1006 ¶89. At step 6, "[t]he MSC may…send a DTAP LCS-AreaEventInvoke message…to the UE carrying the RequestID and **an indication that the corresponding Deferred Location Request is cancelled**." Ex.1006 ¶91, Fig. 15. This deactivation of the area event monitoring application renders obvious *disabl[ing] one or more functions…upon receiving…disabling*

instructions. Ex.1003 ¶¶127-129.

Thus, the Kraufvelin-Hashimoto combination renders obvious *the mobile station* (mobile station 1) *enables or disables one or more functions related to a presence related service* (enabling area event monitoring application or disabling area event monitoring application) *upon receiving enabling or disabling instructions from the provider of presence related services* (enabling after receiving list of cell IDs corresponding to area of interest 5 or disabling after receiving cancelation request from LCS Client 8/GMLC 12). Ex.1003 ¶130.

8. Claim 5

[5.0] ***A non-transitory computer readable medium storing computer readable program code for causing a processor of a mobile station to perform a method associated with the use of at least first and second radio communication defining devices that respectively transmit first and second distinctive defining signals that at least partly define a special area by a sum or intersection of their coverage, the first and second distinctive defining signals respectively including first and second data, the method comprising:***

First, [5.0] is similar to [1.0]. Ex.1065, 1. As explained at [1.0], the Kraufvelin-Hashimoto combination renders obvious *a method*. Ex.1006 ¶¶29, 53; [1.0]. Kraufvelin's method is associated with *first and second radio communication defining devices* (base stations of cells 20 and 22). Ex.1006 ¶¶39, 4, Fig. 2; [1.0]. As also explained at [1.0], the base stations of cells 20 and 22 *respectively transmit first and second distinctive defining signals that at least partly define a special area by a sum or intersection of their coverage, the first and*

second distinctive defining signals respectively including first and second data. [1.0]; Ex.1065, 1; Ex.1003 ¶131.

Second, Kraufvelin explains that its mobile station 1 includes a memory, which is *[a] non-transitory computer readable medium*. Ex.1006 ¶¶11 (storing "DEGA information…in a SIM/USIM (subscriber identity module/UMTS SIM) of the mobile station"), 73 (storing "the list of CGIs, and other possible information to the memory thereof"); Ex.1003 ¶132.

Third, Kraufvelin's mobile station includes *a processor*. "The user equipment such as the mobile station 1 may be provided with…a processor unit." Ex.1006 ¶¶42, 94; Ex.1003 ¶142. Kraufvelin also explains that the mobile station executes software stored in the memory which is executed by the processor. Ex.1006 ¶¶13 (describing an "application running in the Subscriber Identity Module (SIM) of the mobile station"), 51 ("user applications"), 82 (describing an "area event monitoring application"), 93 ("an application running in the controller means of the mobile station"). Executing software stored on the mobile station with the processor of the mobile station renders obvious *storing computer readable program code for causing a processor of a mobile station to perform* various functions, including the method claimed. Ex.1003 ¶133.

Thus, the Kraufvelin-Hashimoto combination renders obvious *[a] non-transitory computer readable medium* (memory of mobile station) *storing*

computer readable program code (applications executed by mobile station) *for causing a processor of a mobile station* (processor unit of mobile station) *to perform a method* ("method," Ex.1006 ¶29). Ex.1003 ¶134.

[5.1] ***determining in the mobile station if the mobile station is receiving one or both of the first and second distinctive defining signals and***

[5.1] is identical to [1.1]. Ex.1065, 1. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at [1.1]. Ex.1003 ¶135.

[5.2] ***determining in the mobile station, based on a previously obtained at least portion of one or both of the first and second data, whether or not the mobile station is present in the special area; and***

[5.2] is identical to [1.2]. Ex.1065, 1. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at [1.2]. Ex.1003 ¶136.

[5.3] ***sending from the mobile station via a mobile telephone network an updating signal to one or more servers of a provider of presence related services about the mobile station's presence in the special area,***

[5.3] is identical to [1.3]. Ex.1065, 2. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at [1.3]. Ex.1003 ¶137.

[5.4] ***the sending of the updating signal being uncorrelated to any mobile station phone call establishment,***

[5.4] is identical to [1.4]. Ex.1065, 2. The Kraufvelin-Hashimoto

combination renders it obvious for at least the same reasons described at [1.4]. Ex.1003 ¶138.

[5.5] ***the updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists [sic] from the special area, and (iii) when the mobile station remains in the special area.***

[5.5] is identical to [1.5]. Ex.1065, 2. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at [1.5]. Ex.1003 ¶139.

9. Claim 6

[6.0] ***The non-transitory computer readable medium storing computer readable program code according to claim 5 that further causes the processor to enable or disable one or more functions in the mobile station related to a presence related service upon the mobile station receiving enabling or disabling instructions from the provider of presence related services.***

As explained at [5.0], the Kraufvelin-Hashimoto combination renders obvious *[t]he non-transitory computer readable medium storing computer readable program code…that…causes the processor to* perform the functions described by Kraufvelin. [5.0]; Ex.1003 ¶140.

The remainder of claim 6 is similar to claim 4. Ex.1065, 2. The Kraufvelin-Hashimoto combination renders it obvious for the same reasons described at claim 4. Ex.1003 ¶141.

10. Claim 7

[7.0] ***A mobile station capable of receiving first and second distinctive defining signals respectively from first and second radio communication defining devices, the first and second distinctive defining signals at least partly defining a special area by a sum or intersection of their coverage, the first and second distinctive defining signals respectively including first and second data, the mobile station comprising:***

[7.0] recites similar features as [1.0] and [5.0], but adds *[a] mobile station capable of receiving first and second distinctive defining signals respectively from first and second radio communication defining devices*. Ex.1065, 1. The Kraufvelin-Hashimoto combination renders these features obvious. Ex.1003 ¶142.

As explained at [1.0], the Kraufvelin-Hashimoto combination renders obvious *a mobile station* (mobile station 1). Ex.1006 ¶¶48, 41, Figs. 1-2, 4. As also explained at [1.0], the Kraufvelin-Hashimoto combination renders obvious *first and second distinctive defining signals respectively from first and second radio communication defining devices* (signals sent from base stations of cells 20 and 22). Ex.1006 ¶¶39, 4, Fig. 2; Ex.1003 ¶143.

The Kraufvelin-Hashimoto combination also explains that its mobile station is *capable of receiving* the signals including cell IDs of cells 20 and 22. "When the UE performs a cell handover the monitoring entity (ME) shall check the details of the new serving cell," which is received by the mobile station from the base stations. Ex.1006 ¶79. "The term base station will be used in this document to encompass all elements which transmit to and/or receive signals from mobile

stations 1 or the like via the air interface. Likewise, **the wireless stations or mobile stations are able to** transmit signals to and **receive signals from the respective base station** via wireless communication with the base stations." Ex.1006 ¶39; Ex.1003 ¶144.

Thus, the Kraufvelin-Hashimoto combination renders obvious *[a] mobile station* (mobile station 1) *capable of receiving* ("mobile stations are able to…receive signals from the respective base station") *first and second distinctive defining signals* (signals transmitted by base stations of cells 20 and 22) *respectively from first and second radio communication defining devices* (base stations of cells 20 and 22). Ex.1003 ¶145.

[7.1] ***an electronic storage medium that stores at least a portion of the first and second data; and***

First, Kraufvelin's mobile station 1 includes a memory, which renders obvious *an electronic storage medium*. Ex.1006 ¶¶11 (storing "DEGA information…**in a SIM/USIM** (subscriber identity module/UMTS SIM) of the mobile station"), 73 (storing "the list of CGIs, and other possible information **to the memory thereof**"); Ex.1003 ¶146.

Second, the memory of the mobile station 1 *stores at least a portion of the first and second data*. As explained at [1.0], the cell ID of cell 20 renders obvious *the first…data* and the cell ID of cell 22 renders obvious *the…second data.* [1.0]. These cell IDs are included in the list of cell IDs stored on the mobile station.

Ex.1006 ¶¶56 ("In FIG. 2 the area 5 is shown to be covered by the **cells 20 to 23**. **The IDs of these cells would thus be included in the list**."), 60 ("**The list of cells** may then be sent **to the mobile station 1**."); Ex.1003 ¶¶147-148.

Thus, the Kraufvelin-Hashimoto combination renders obvious *an electronic storage medium* (memory) *that stores at least a portion of the first and second data* (storing cell IDs of cells 20 and 22, part of the cell IDs of cells 20-23 of the stored list). Ex.1003 ¶149.

[7.2] ***a processor adapted to process the first and second distinctive defining signals to determine, based on at least portion of one or both of the first and second data, whether or not the mobile station is present in the special area,***

First, as explained at [5.0], Kraufvelin's mobile station 1 includes "a processor unit" which renders obvious *a processor*. Ex.1006 ¶¶42, 94; Ex.1065, 1; Ex.1003 ¶150.

Second, the processor of the mobile station 1 processes signals received. For example, "[w]hen the UE performs a cell handover the monitoring entity (ME) shall **check the details of the new serving cell, including the cell ID**" and "**compare the current cell ID or similar against one or more, target cell Ids in the list received from the network**." Ex.1006 ¶¶79, 60; Ex.1003 ¶151.

Kraufvelin describes that if the received cell ID matches one of the cell IDs in the stored list, the mobile station determines that it is within the area of interest 5 and sends a report to the network, which may include:

> a) An area event LCS report **indicating a positive match** with the target cells, i.e. **the subscriber is ENTERing the area**; or
>
> b) An area event LCS report indicating a negative match with the target cells, i.e. the subscriber is LEAVEing the area.

Ex.1006 ¶80; Ex.1003 ¶152.

When the mobile station enters cell 20, it receives the signal containing the cell ID of cell 20 (*first…distinctive defining signal[]*) and compares this cell ID to the stored list. Ex.1006 ¶79. If there is "a positive match," the processor determines that the mobile station is "ENTERing the area" of interest 5. Ex.1006 ¶80. This process of comparing the cell ID for cell 20 to the stored list of cell IDs renders obvious *process[ing] the first…distinctive defining signals to determine, based on at least portion of…the first…data, whether or not the mobile station is present in the special area*. Ex.1003 ¶153.

The same process is performed when the mobile station enters any cell, i.e., "[w]hen the UE performs a cell handover." Ex.1006 ¶79. Therefore, when the mobile station enters the coverage area of cell 22, it receives the signal containing the cell ID of cell 22 (*second distinctive defining signal[]*) and compares it to the stored list. Ex.1006 ¶79. This process of comparing the received cell ID for cell 22 to the stored list renders obvious *process[ing] the…second distinctive defining*

signals to determine, based on at least portion of…the…second data, whether or not the mobile station is present in the special area. Ex.1003 ¶154.

As explained at [1.1] above, in the Kraufvelin-Hashimoto combination, Kraufvelin's mobile station may receive both the cell ID of cell 20 and cell 22 when it is within overlapping coverage areas of both cells and determine its presence in the special area based on both *the first and second distinctive defining signal*s including *one or both of the first and second data*. Ex.1006, Fig. 2; Ex.1008 ¶134, Fig. 1; Ex.1003 ¶¶155-156.

Thus, the Kraufvelin-Hashimoto combination renders obvious *a processor* (processor unit) *adapted to process the first and second distinctive defining signals to determine, based on at least portion of one or both of the first and second data, whether or not the mobile station is present in the special area* (receiving cell ID of cell 20 and/or cell 22, comparing to stored list of cell IDs, and determining that the mobile station is within the area of interest 5 if there is a match). Ex.1003 ¶157.

[7.3] ***the processor further adapted to send from the mobile station via a mobile telephone network an updating signal to one or more servers of a provider of presence related services about the mobile station's presence in the special area,***

First, as explained at [5.0] and [7.2], Kraufvelin's mobile station includes "a processor unit." Ex.1006 ¶¶42, 94; Ex.1003 ¶158.

Second, as explained at [1.3], Kraufvelin's mobile station is configured to *send from the mobile station via a mobile telephone network an updating signal to*

one or more servers of a provider of presence related services about the mobile station's presence in the special area. [1.3]; Ex.1065, 2; Ex.1006 ¶82 ("a DTAP LCS-AreaEventReport"), Fig. 4 (step 16, "Result, ENTER/LEAVE," indicating whether the mobile station entered or left the area of interest 5). The Kraufvelin-Hashimoto combination renders obvious [7.3] for at least the same reasons described at [1.3], above. Ex.1003 ¶159.

[7.4] ***the sending of the updating signal being uncorrelated to any mobile station phone call establishment,***

[7.4] is identical to [1.4]. Ex.1065, 2. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at [1.4]. Ex.1003 ¶160.

[7.5] ***the updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists [sic] from the special area, and (iii) when the mobile station remains in the special area.***

[7.5] is identical to [1.5]. Ex.1065, 2. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at [1.5]. Ex.1003 ¶161.

11. Claim 8

[8.0] ***The mobile station according to claim 7, wherein the processor is adapted to enable or disable one or more functions related to a presence related service upon the mobile station receiving enabling or disabling instructions from the provider of presence related services.***

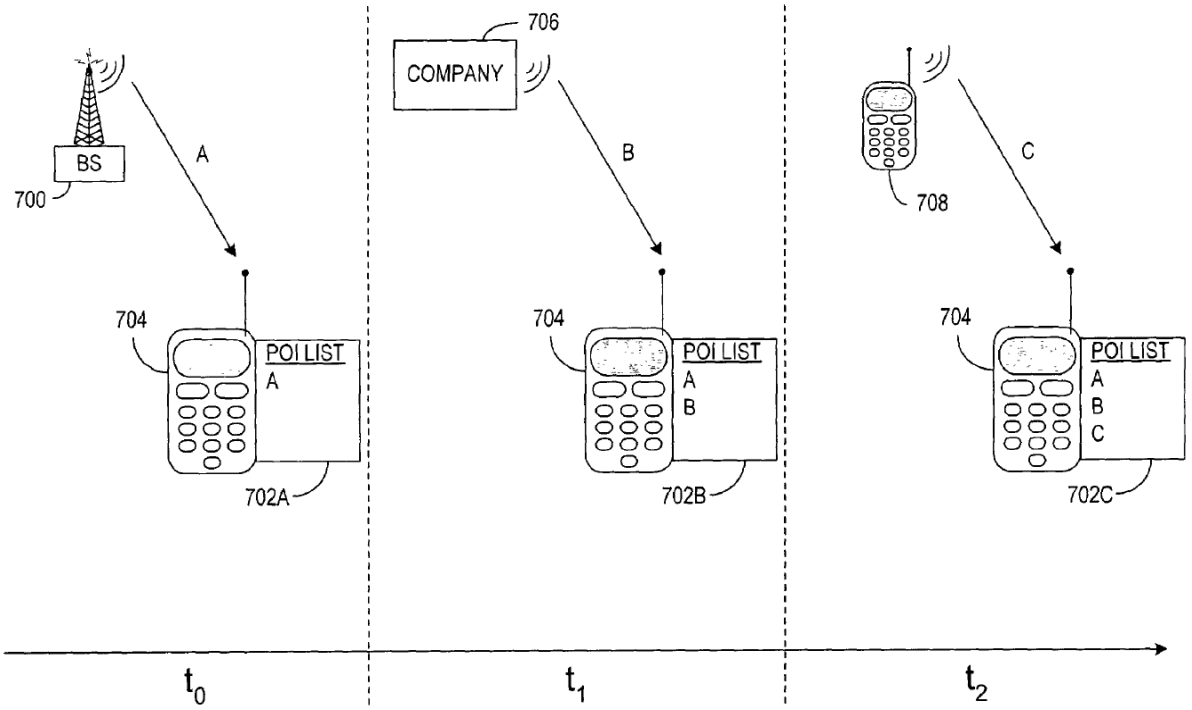
As explained at [7.0], the Kraufvelin-Hashimoto combination renders

obvious a mobile station. As explained at [7.2], Kraufvelin's mobile station includes a processor. The remainder of claim 8 is similar to claim 4. Ex.1065, 2. The Kraufvelin-Hashimoto combination renders it obvious for at least the same reasons described at claim 4. Ex.1003 ¶162.

D. Ground 2: Claim 3 is obvious under §103 over Kraufvelin, Hashimoto, and Huomo.

1. Huomo

Huomo describes "facilitating location based triggering of actions, applications, services, and the like on wireless devices." Ex.1016, Abstract. Locations are defined using "base station identifiers in a cellular network" or "identifier[s]" "provided by an access point" using a "short-range wireless service, such as Bluetooth, Wireless Local Area Network (WLAN), etc." Ex.1016 ¶10. As shown in Figure 7, "[a]t a first time," "the mobile terminal user is within a cellular network cell, and receives an identifier 'A' from a base station 700." Ex.1016 ¶53. Later, "[t]he user may then travel to a new location," "at which time a company 706, such as a retail store, provides a radio frequency identifier 'B' to the mobile terminal 704." Ex.1016 ¶53.



Ex.1016, Fig. 7.

A mobile terminal receives the identifiers associated with "Points of Interest (POI)." Ex.1016 ¶36. "One or more actions, applications, services, etc. may then be linked to each POI." Ex.1016 ¶36. For example, "a user's re-entry into an area/cell 110, 112, 114 where a POI has been stored can automatically invoke an application(s) or other action(s)." Ex.1016 ¶36.

2. Reasons to Combine Huomo with Kraufvelin and Hashimoto

A POSITA would have been motivated to combine the teachings of Huomo with the Kraufvelin-Hashimoto combination to more granularly define locations

for providing services. For example, a special area may be defined by the coverage area of a WiFi network of "a retail store or mall," or "an airport," which may be smaller than the coverage of a cellular base station, allowing more precise definition of a special area. Ex.1016 ¶¶57-58; Ex.1003 ¶165.

Huomo is analogous art to the '910 patent. Huomo is in the same field of endeavor because it relates to systems and methods for monitoring the location of a wireless device for providing location-based services. Ex.1016, Abstract. Huomo is reasonably pertinent to a particular problem with which the inventor of the '910 patent was involved (monitoring the location of a wireless device and providing location-based services), describing "location-based service and application triggering for users" "without imposing heavy burdens on the network infrastructure." Ex.1016, Abstract, ¶5; Ex.1003 ¶166.

A POSITA would have been motivated to modify the Kraufvelin-Hashimoto combination to designate special areas using coverage areas of both cellular-network and short-range wireless technologies, as taught by Huomo. Huomo explains that "the accuracy of the identified location substantially corresponds to the size of the cell," and "further distinguish[es] subsections of a cell using a smaller scale wireless service such as Bluetooth, a WLAN, etc." Ex.1016 ¶41. Huomo describes triggering services based on "a retail store" in a mall and "information specific to" "a particular airline." Ex.1016 ¶¶57-58. Thus, a POSITA

would have been motivated to apply Huomo's teachings for the benefit of using short-range wireless technologies to designate smaller and more precise special areas. Ex.1003 ¶¶167-168.

A POSITA would have had a reasonable expectation of success. Huomo explains that it was known to define geographical locations using both cellular and short-range wireless technologies. Ex.1016 ¶¶10, 41. This is confirmed by other prior art of the time. Ex.1046, ¶7; Ex.1017, Abstract; Ex.1003 ¶169.

The Kraufvelin-Hashimoto-Huomo combination would have been the combination of prior art elements (Kraufvelin's location-monitoring) according to known methods (based on establishing areas of interest defined by coverage areas of access points of different wireless technologies, taught by Huomo) to yield the predictable result of defining smaller and more precise areas of interest. *KSR*, 550 U.S. at 416; Ex.1003 ¶170.

Accordingly, a POSITA would have found it obvious to modify the Kraufvelin-Hashimoto system to use both cellular network and short-range wireless technologies, like the system taught by Huomo. Ex.1003 ¶171.

3. Claim 3

[3.0] ***The method according to claim 1, wherein the frequency of the updating signal is different from the frequency of the distinctive defining signal.***

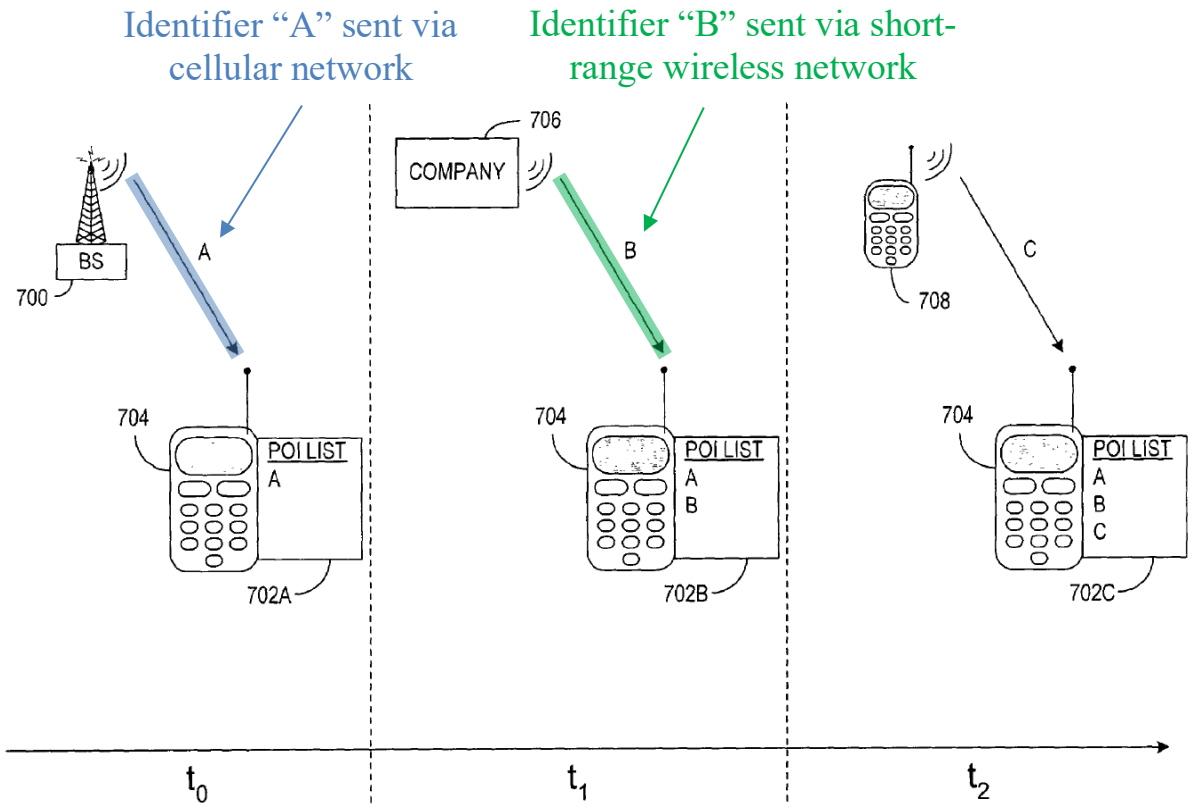
As explained at [1.0] and [1.1], the Kraufvelin-Hashimoto combination renders obvious *first and second distinctive defining signals* (signals transmitted

from base stations of cells 20 and 22). As explained at [1.3], Kraufvelin also describes sending an *updating signal* (contents of LCS-AreaEventReport). While Kraufvelin describes these signals transmitted in the context of cellular communications, Kraufvelin explains that the same signal transmission steps "are also applicable to any other cellular communication system," including those of different frequency ranges. Ex.1006 ¶119. Huomo provides a well known example of such as system. Ex.1003 ¶¶172-173.

Huomo discloses a system that provides location-based services using "cellular network" communications as well as "smaller-scale wireless services" corresponding to "short-range wireless services, such as Wireless Local Area Networks (WLAN), Bluetooth, or other radio technologies." Ex.1016 ¶¶28, 40. Huomo explains that "[a]t a first time," "the mobile terminal user is within a cellular network cell, and receives **an identifier 'A' from a base station 700**" (*distinctive defining signal*). Ex.1016 ¶53. Later, "[t]he user may then travel to a new location," "at which time a company 706, such as a retail store, **provides a radio frequency identifier 'B' to the mobile terminal 704**" (*distinctive defining signal*). Ex.1016 ¶53; Ex.1003 ¶173.

Like Kraufvelin, Huomo explains that a wireless device (*mobile station*) may receive "base station identifiers in a cellular network" as well as an identifier "provided by an access point serving" a "short-range wireless service" area.

Ex.1016 ¶10. Figure 7 shows the different signals received by Huomo's mobile terminal. Ex.1003 ¶174.



Ex.1016, FIG. 7 (annotated)

In the Kraufvelin-Hashimoto-Huomo combination, Kraufvelin and Huomo render obvious a system of location-based services where a mobile station receives a "radio frequency identifier" (*distinctive defining signal*) using "short-range wireless services, such as Wireless Local Area Networks (WLAN), Bluetooth, or other radio technologies," as taught by Huomo, then sends an *updating signal* using cellular communications, as taught by Kraufvelin. At the time of invention, it

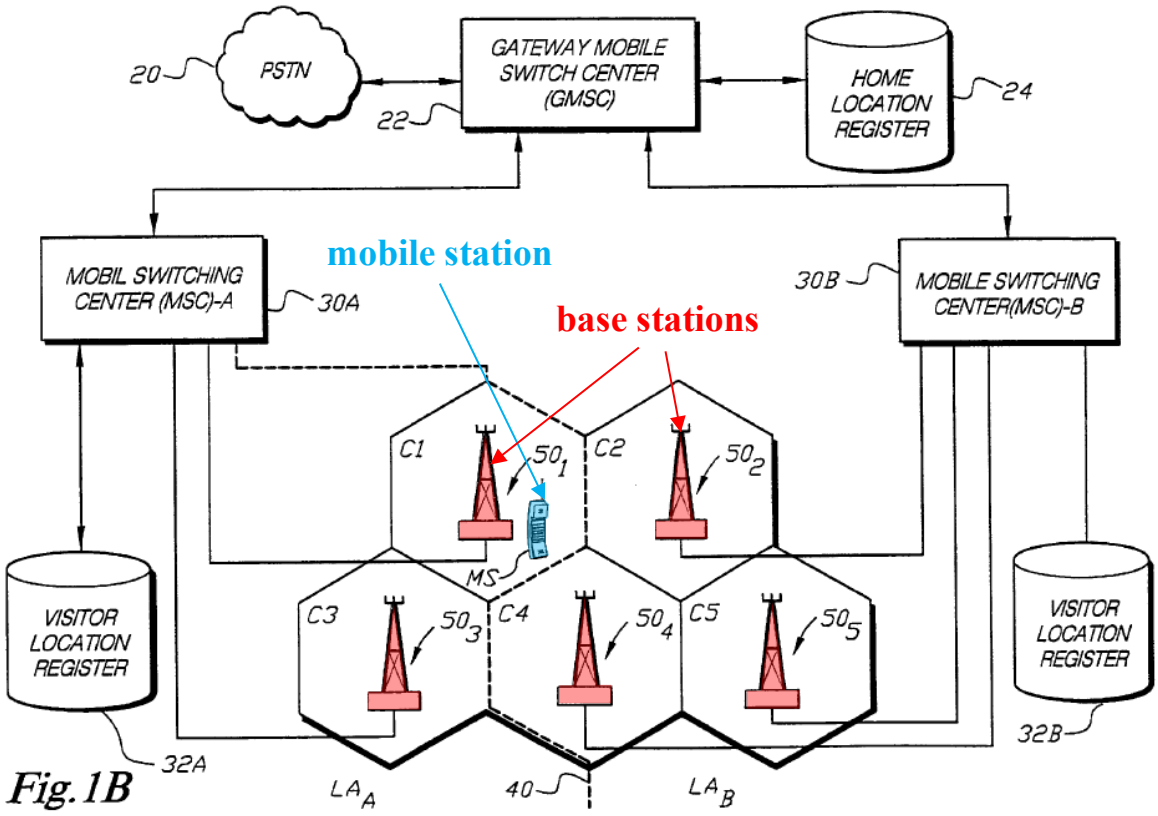
was well known that cellular communications and short-range wireless communications operated at different frequencies. Ex.1046 ¶7; Ex.1017, Abstract; Ex.1003 ¶175.

Accordingly, the combination of Kraufvelin's teachings of a cellular signal transmitted from the mobile station to the mobile telephone network and Huomo's teachings of a short-range wireless signal transmitted from the access point to the mobile station, together, render obvious *wherein the frequency of the updating signal is different from the frequency of the distinctive defining signal*. Ex.1003 ¶176.

E. Ground 3: Claims 9-14 are obvious under §103 over Kraufvelin, Hashimoto, and Andersson.

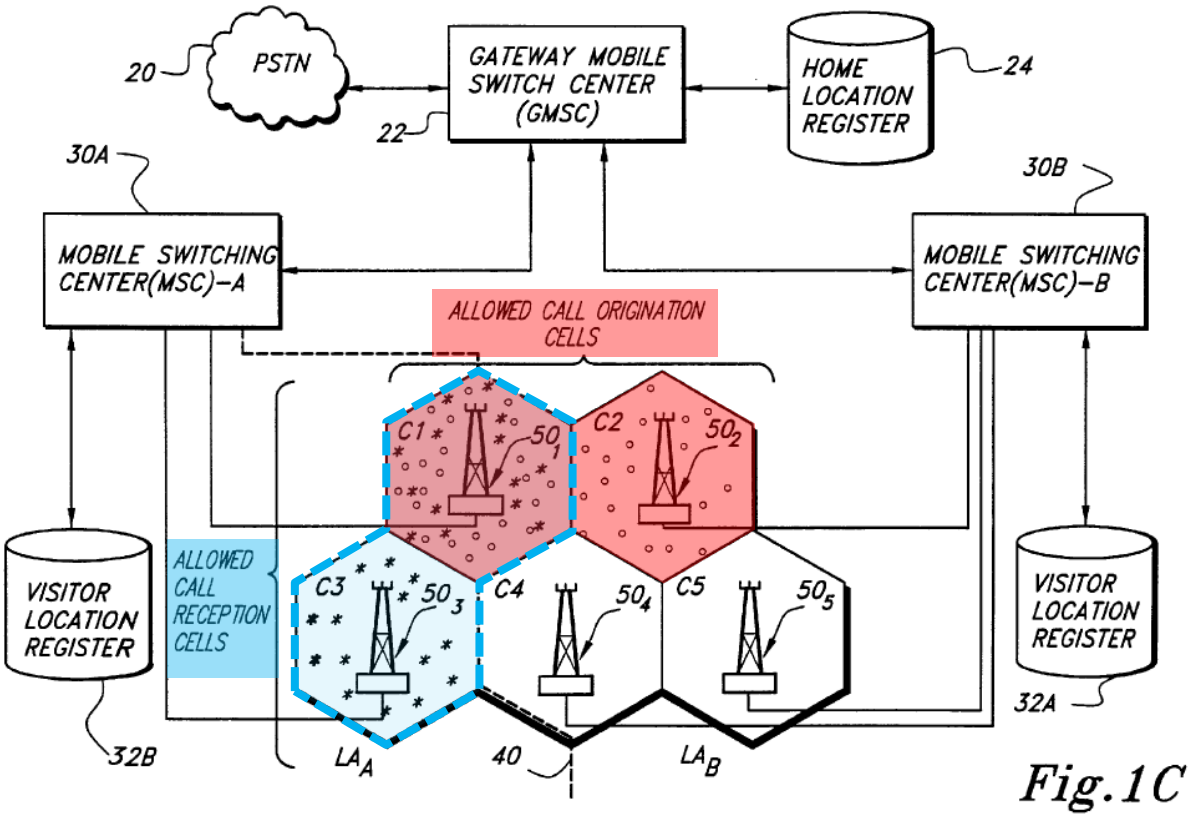
1. Andersson

Andersson describes monitoring the location of a mobile station (blue) as it moves between the coverage areas of different base stations or cells (red) relative to an area of interest. Ex.1007, Figs. 1A-1C, 2:52-57, 4:16-21, 6:67-7:2.



Ex.1007, Fig. 1B (annotated)

Multiple areas of interest may be defined. For example, as shown in Figure 1C below, the mobile station may only place calls in cells C1 and C2 (red) and may only receive calls in cells C1 and C3 (blue). Ex.1007, 7:63-8:1. Andersson refers to this restriction as a "hard restriction." Ex.1007, 6:63-7:7. Andersson also describes a "soft restriction" in which different tariffs rates are applied to the mobile station in preconfigured areas. Ex.1007, 8:52-67.



Ex.1007, Fig. 1C (annotated)

2. Reasons to Combine Andersson with Kraufvelin and Hashimoto

In the Kraufvelin-Hashimoto combination, the mobile station receives a list of cell IDs corresponding to an area of interest 5 and determines its location within the area of interest 5 by comparing a newly received cell ID to the stored list. Ex.1006 ¶¶79-80. Combined with Andersson's teachings, the mobile station stores lists of cell IDs corresponding to multiple areas of interest, i.e., an "Allowed Cells List #1" and an "Allowed Cells List #2." Ex.1007, Fig. 2B. In the Kraufvelin-Hashimoto-Andersson combination, multiple areas of interest are defined such that

a mobile station may determine its presence in any or all of the areas of interest. Ex.1007, Fig. 1C, 7:63-8:1 (describing "a first set of cells (e.g., cell C1 and C2, as in FIG. 1A)" and "a second set of cells (e.g., cells C1 and C3)"); Ex.1003 ¶179.

Andersson is analogous to the '910 patent because it is in the same field of endeavor (i.e., providing location-based services to a mobile station). Andersson describes monitoring a mobile station's location within multiple areas of interest and providing location-based services and/or reduced tariffs. Ex.1007, Figs. 2A-2D, 8:52-67; Ex.1001, Abstract, 11:10-14. Additionally, Andersson is reasonably pertinent to a particular problem with which the inventor of the '910 patent was involved (i.e., monitoring the location of a wireless device and providing location-based services). Ex.1007, Figs. 1C, 2B-2D, 6:54-59, 7:24-29; Ex.1003 ¶¶180-181.

A POSITA would have been motivated to implement functionality in the mobile station to store the information of multiple areas of interest, based on the teachings of Andersson. Ex.1006 ¶¶56-60; Ex.1007, Figs. 1C, 2B-2D (illustrating multiple allowed cells lists), 6:54-59, 7:24-29; Ex.1003 ¶195. A POSITA would have recognized that doing so would provide greater flexibility to a client, such as Kraufvelin's LCS client 8, in specifying what location information it should receive regarding the presence of the mobile station. For example, the client may offer different services based on the location of the mobile station in different special areas. Ex.1006 ¶12. In addition, multiple different clients may request to

monitor the location of a mobile station in different special areas and implementing Andersson's teachings would provide this added functionality. Ex.1006 ¶¶12, 46 (describing "different applications or clients 8"); Ex.1007, Figs. 1C, 2B-2D, 6:54-59, 7:24-29; Ex.1003 ¶182.

In addition, this combination represents a simple combination of prior art elements (multiple lists of allowed cells corresponding to different areas of interest, described by Andersson), according to known methods to yield predictable results (monitoring the presence of a mobile station in multiple areas of interest). *KSR*, 550 U.S. at 416; Ex.1003 ¶183.

A POSITA would have had a reasonable expectation of success in making such a combination because both Kraufvelin and Andersson describe monitoring the presence of mobile stations in areas of interest based on comparing cell IDs to stored lists. Ex.1006 ¶¶56-60, 79-80; Ex.1007, 6:1-7. Indeed, the Kraufvelin-Hashimoto-Andersson combination is nothing more than "the predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417; Ex.1003 ¶184.

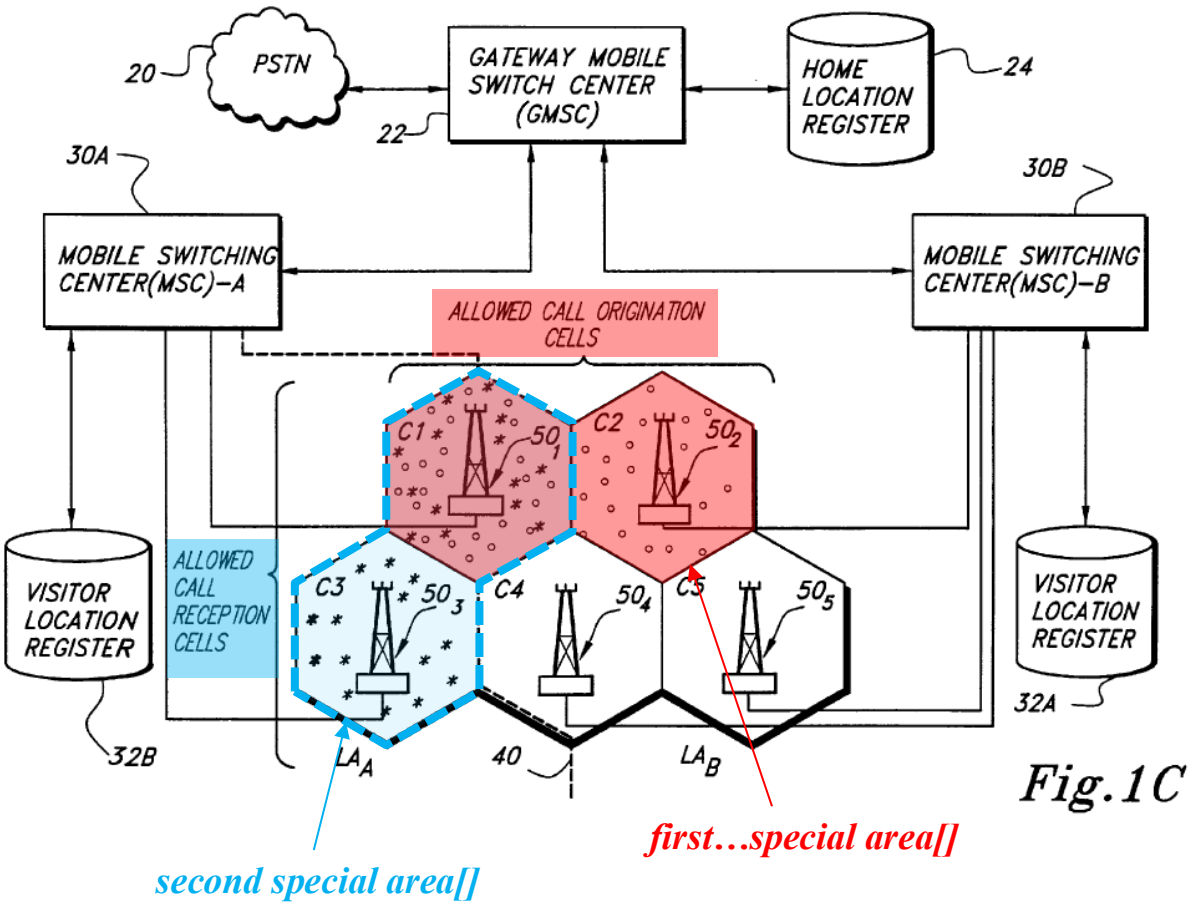
3. Claim 9

[9.0] ***A method associated with a mobile station receiving first and second distinctive defining signals respectively from first and second radio communication defining devices, the first and second distinctive defining signals at least partly define first and second special areas, respectively, by their coverage, each of the first and second distinctive defining signals respectively including first and second data, the method comprising:***

As explained at [1.0], the Kraufvelin-Hashimoto combination renders obvious *[a] method associated with a mobile station*. [1.0]; Ex.1006 ¶29 ("a system and **method**"). Kraufvelin in combination with Hashimoto explains that the mobile station *receiv[es] first and second distinctive defining signals* (signal transmitted by the base station of cell 20 and signal transmitted by the base station of cell 22). [1.0]; Ex.1006 ¶¶56-60; Ex.1008 ¶135 ("periodically transmit"). As explained at [1.0], the signals transmitted by the base stations of cells 20 and 22 *at least partly define [a] special area[]…by their coverage*. [1.0]; Ex.1006 ¶¶16, 48-49, 55. The Kraufvelin-Hashimoto-Andersson combination renders obvious *each of the first and second distinctive defining signals respectively including first and second data* (cell ID of cell 20 and cell ID of cell 22). [1.0]; Ex.1006 ¶¶9, 56, 60; Ex.1003 ¶185.

Monitoring a mobile station in more than one area of interest (i.e., *first and second special areas*) was well known, as taught by Andersson. Andersson describes a system in which the location of the mobile station is monitored relative to two different areas of interest, "a first set of cells (e.g., cell C1 and C2, as in

FIG. 1A)" and "a second set of cells (e.g., cells C1 and C3)." Ex.1007, 7:63-8:1. Cells C1 and C2 (red) below, include "a first set of cells" (*first…special area[]*) in which the mobile station may originate calls. Ex.1007, 7:63-8:1. Cells C1 and C3 (blue) form "a second set of cells" (*second special area[]*) in which the mobile station may receive calls. Ex.1007, 7:63-8:1; Ex.1003 ¶186.



Ex.1007, Fig. 1C (annotated)

Like Kraufvelin, the location of Andersson's mobile station is monitored based on cell identifiers sent from base stations within the special areas. Ex.1007, 6:1-7 ("mobile station MS detect[ing]" a new identity "[i]n cell C2" and "send[ing]

a location update request" reflecting the new location). The new cell ID is checked against both the "allowed cells list #1" (*first…special area[]*) and the "allowed cells list #2" (*second special area[]*). Ex.1007, 6:54-59 ("check[ing]" the location of the mobile station "in an allowed cell"), 7:24-29. The allowed cells lists #1 and #2 are illustrated below. Ex.1003 ¶¶187-188.

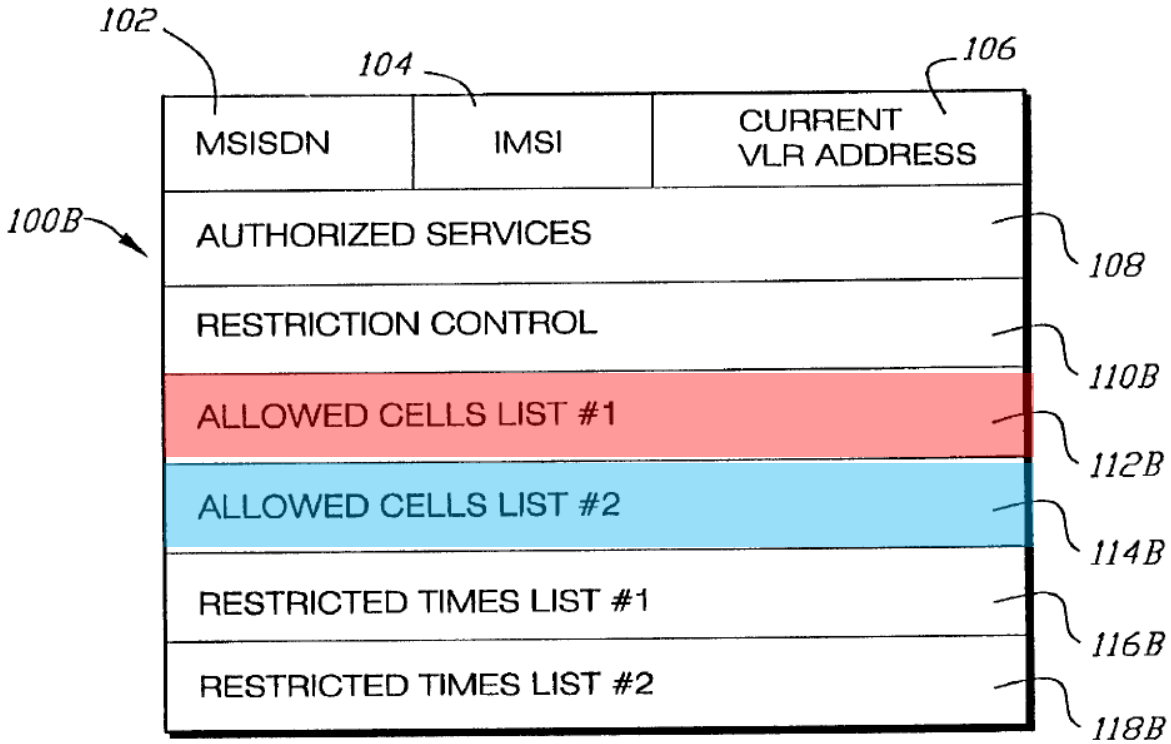


Fig.2B

Ex.1007, Fig. 2B (annotated)

Based on Andersson, it would have been obvious that the base stations of cells C1 and C2 (*first…special area[]*) transmit a *first…distinctive defining signal* including identification numbers of the cells C1 and C2, defining a first special

area and the base stations of cells C1 and C3 (*second special area[]*) transmit a *second distinctive defining signal* including identification numbers of the cells C1 and C3, defining a second special area. Ex.1007, 4:18-25, 4:44-47, 6:1-7; Ex.1003 ¶189.

Thus, the Kraufvelin-Hashimoto-Andersson combination renders obvious *[a] method* ("method," Ex.1006 ¶29) *associated with a mobile station* (providing services to a mobile station 1) *receiving first and second distinctive defining signals respectively from first and second radio communication defining devices* (signals transmitted by base stations of cells C1 and C2 and cells C1 and C3, respectively)*, the first and second distinctive defining signals at least partly define first* (cells C1 and C2) *and second special areas* (cells C1 and C3)*, respectively, by their coverage, each of the first and second distinctive defining signals respectively including first* (cell IDs of cells C1 and C2) *and second data* (cell IDs of cells C1 and C3). Ex.1003 ¶190.

[9.1] ***receiving and processing one or more defining signals in the mobile station to determine, based on a previously obtained at least portion of the first data, whether the one or more defining signals are one or more first distinctive defining signals and to determine whether or not the mobile station is present in the first special area,***

As explained at [1.1], Kraufvelin's mobile station includes a "monitoring entity (ME)" that "check[s] the details of the new serving cell" and includes "area event monitoring functionality." Ex.1006 ¶79. In the Kraufvelin-Hashimoto-

Andersson combination, the "details of the new serving cell" include the Cell ID, which is periodically transmitted. Ex.1008 ¶135; Ex.1003 ¶191.

When the mobile station receives the list of Cell IDs, it sends an acknowledgment indicating that it is "**waiting for a trigger event**." Ex.1006 ¶76, claims 1-2 ("activating monitoring"); Ex.1003 ¶192. This acknowledgment is illustrated at step 12 below, with step 11 illustrating mobile station monitoring:

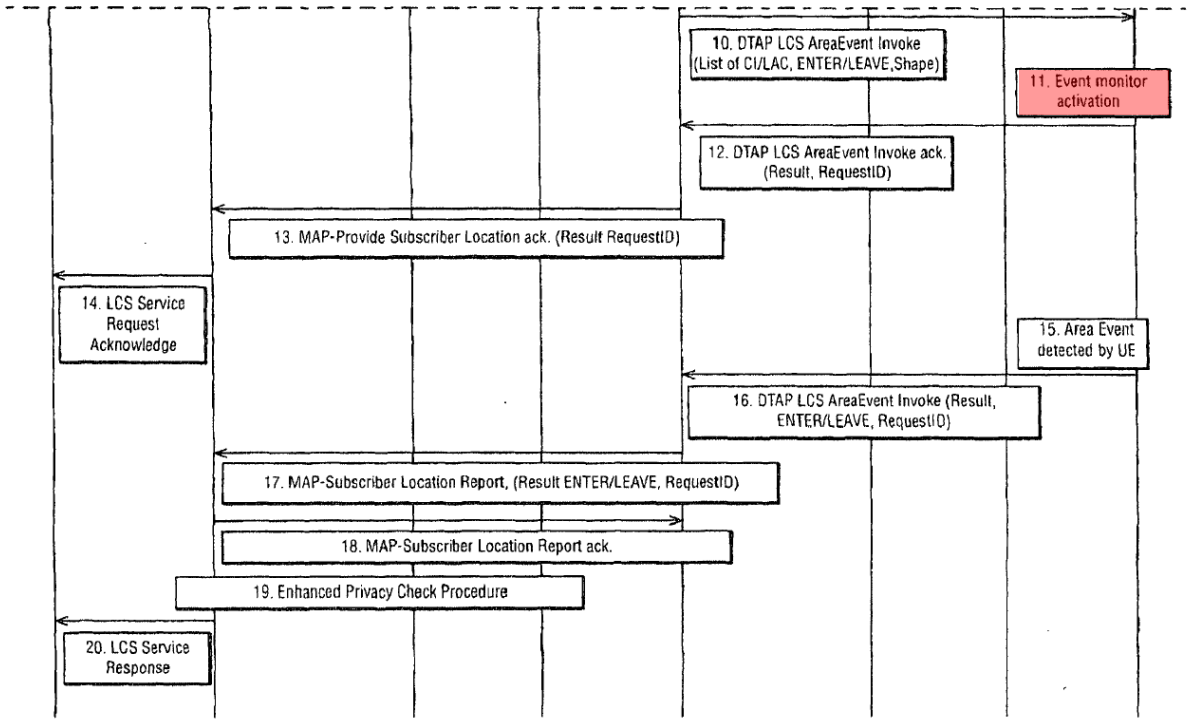


Fig. 4 (Contd.)

Ex.1006, Fig. 4 (annotated)

When the mobile station enters a new cell, it receives the cell ID. Ex.1006 ¶79; Ex.1008 ¶135. The cell ID transmitted by each base station within the cell is a *defining signal[]* because it defines the area of coverage of the cell. [1.0]; Ex.1003

¶193.

Kraufvelin describes receiving a cell ID and comparing it to the stored list of cell IDs (*receiving and processing one or more defining signals in the mobile station*). Ex.1006 ¶79. Because the stored list of cell IDs is received by the mobile station before the comparison is performed (Ex.1006, Fig. 4 (steps 1-11, sending list of cell IDs to mobile station, performed before step 15, detecting entrance to area of interest 5)) this comparison is *based on a previously obtained at least portion of the first data*. By this comparison, Kraufvelin's mobile station determines whether the received cell ID (*whether the one or more defining signals*) is one of the cell IDs in the stored list (*are one or more first distinctive defining signals*). Ex.1006 ¶¶79-80. In the example provided at [1.1], the cell ID of the cell 20 corresponds to *a first…distinctive defining signal*. [1.1]. This step is performed *based on a previously obtained at least portion of the first data*. [1.2]; Ex.1006, Fig. 4. Therefore, when the mobile station enters cell 20, the mobile station finds a match in the prestored list of cell IDs and determines that the mobile station is "ENTERing" the area of interest 5. Ex.1006 ¶¶79-80. In the Kraufvelin-Hashimoto-Andersson combination, when the mobile station enters either cell C1 or C2, it compares the ID received to the Allowed Cells Lists #1 and #2. Ex.1007, Fig. 2B. If the mobile station entered cell C2, it determines that it has entered the "first set of cells" (*first…special area[]*) because cell C2 is included in the

Allowed Cells List #1. Ex.1003 ¶194.

Thus, the Kraufvelin-Hashimoto-Andersson combination renders obvious *receiving and processing one or more defining signals in the mobile station* (mobile station receives signals from base stations within cells C1 and/or C2) *to determine, based on a previously obtained at least portion of the first data, whether the one or more defining signals are one or more first distinctive defining signals* (mobile station checks for a match between received cell ID with the cell IDs of Allowed Cells List #1) *and to determine whether or not the mobile station is present in the first special area* (determining that mobile station is within first set of cells if there is a match between received cell ID and Allowed Cells List #1). Ex.1003 ¶195.

[9.2] ***receiving and processing one or more defining signals in the mobile station to determine, based on a previously obtained at least portion of the second data, whether the one or more defining signals are one or more second distinctive defining signals and to determine whether or not the mobile station is present in the second special area,***

[9.2] is identical to [9.1], simply applying the same steps described at [9.1] to *the second special area*. Ex.1065, 3. [9.2] is, therefore, rendered obvious by the same analysis presented at [9.1], as well as the analysis below. As explained at [9.0], the Kraufvelin-Hashimoto-Andersson combination renders obvious multiple special areas, including a "first set of cells" and a "second set of cells." Ex.1007, 7:63-8:1; Ex.1003 ¶196.

The same process is performed relative to the second special area. When the mobile station enters either cell C1 or C3, the mobile station compares the ID received to the Allowed Cells Lists #1 and #2. Ex.1007, Fig. 2B. If the mobile station entered cell C3, it determines that it has entered the "second set of cells" (*second special area[]*) because cell C3 is included in the Allowed Cells List #2. Ex.1003 ¶197.

[9.3] ***sending from the mobile station via a mobile telephone network, when the mobile station determination refers to the first special area, a first updating signal to one or more servers of a first provider of presence related services about the mobile station's presence in the first special area,***

[9.3] is identical to [1.3], except [9.3] additionally recites *a **first** updating signal*, *a **first** provider of presence related services*, and *the **first** special area*. Ex.1065, 2-3. As explained at [9.0] above, the Kraufvelin-Hashimoto-Andersson combination renders obvious multiple special areas, including a "first set of cells" and a "second set of cells" and the techniques described by Kraufvelin relative to one special area are equally and predictably applied to additional special areas. Ex.1007, 7:63-8:1; Ex.1003 ¶198.

[9.4] ***the sending of the first updating signal being uncorrelated to any mobile station phone call establishment, the updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists [sic] from the first special area, and (iii) when the mobile station remains in the first special area; and***

[9.4] is identical to [1.4] and [1.5], except [9.4] additionally recites *the **first** updating signal*, and *the **first** special area.* Ex.1065, 2-4. As explained at [9.0]

above, the Kraufvelin-Hashimoto-Andersson combination renders obvious multiple special areas, including a "first set of cells" and a "second set of cells" and the techniques described by Kraufvelin relative to one special area are equally and predictably applied to additional special areas. Ex.1007, 7:63-8:1; Ex.1003 ¶199.

[9.5] ***sending from the mobile station via a mobile telephone network, when the mobile station determination refers to the second special area, a second updating signal to one or more servers of a second provider of presence related services, different than the first provider of presence related services, about the mobile station's presence in the second special area,***

[9.5] is identical to [1.3] and [9.3], except [9.5] recites *a* ***second*** *updating signal*, *a* ***second*** *provider of presence related* services, different than the first provider of presence related services, and *the* ***second*** *special area*. Ex.1065, 2-4. As explained at [9.0] above, the Kraufvelin-Hashimoto-Andersson combination renders obvious multiple special areas, including a "first set of cells" and a "second set of cells" and the techniques described by Kraufvelin relative to one special area are equally and predictably applied to additional special areas. Ex.1007, 7:63-8:1; Ex.1003 ¶200.

The Kraufvelin-Hashimoto-Andersson combination also renders obvious *the second provider of presence related services* may be ***different than*** *the first provider of presence related services*. Specifically, Kraufvelin explains that the "location services (LCS) node 12" may "provid[e] location services for **different**

applications or **clients 8**." Ex.1006 ¶46. In the Kraufvelin-Hashimoto-Andersson combination, the different special areas described by Andersson (first set of cells and second set of cells) correspond to areas of interest specified by different clients providing different location-specific services to a mobile station. Ex.1006 ¶12 ("[d]ifferent kinds of services are possible" including "various commercial and non-commercial services"). Ex.1003 ¶¶201-202.

[9.6] ***the sending of the updating signal being uncorrelated to any mobile station phone call establishment, the second updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists [sic] from the second special area, and (iii) when the mobile station remains in the second special area.***

[9.6] is identical to [1.4] and [1.5], and [9.4], except [9.4] additionally recites *the* ***second*** *updating signal*, and *the* ***second*** *special area*. Ex.1065, 2-4. As explained at [9.0] above, the Kraufvelin-Hashimoto-Andersson combination renders obvious multiple special areas, including a "first set of cells" and a "second set of cells" and the techniques described by Kraufvelin relative to one special area are equally and predictably applied to additional special areas. Ex.1007, 7:63-8:1; Ex.1003 ¶203.

4. Claim 10

[10.0] ***The method according to claim 9, wherein the first updating signal is sent with information related to the result of a previous determination performed by the mobile station about the mobile station's presence in the first special area.***

Claim 10 is substantially similar to claim 2, except claim 10 additionally

recites *the **first** updating signal* and *the **first** special area*. Ex.1065, 2, 4. As explained at claim 2, Kraufvelin's mobile station determines that it is within a special area by comparing a received cell ID to the stored list and that the result of that determination is included as contents of the "DTAP LCS-AreaEventReport." Claim 2, [1.2]; Ex.1006 ¶¶79-80, 82. This report indicating the mobile station's presence in a special area is sent after the determination is performed. Claim 2; Ex.1006, Fig. 4 (steps 15 and 16); Ex.1003 ¶204.

In addition, as explained at claim 9 above, the Kraufvelin-Hashimoto-Andersson combination explains that a mobile station may determine its location in one or multiple special areas, including a "first set of cells" and a "second set of cells" and the techniques performed relative to one special area are equally and predictably applied to additional special areas. Ex.1007, 7:63-8:1; Ex.1003 ¶205.

5. Claim 11

[11.0] ***The method according to claim 9, wherein the second updating signal is sent with information related to the result of a previous determination performed by the mobile station about the mobile station's presence in the second special area.***

Claim 11 is similar to claims 2 and 10, except claim 11 recites *the **second** updating signal* and *the **second** special area*. Ex.1065, 2, 4. Claim 11 is rendered obvious by the analysis presented at claims 2 and 10 for the same reasons. The Kraufvelin-Hashimoto-Andersson combination explains that a mobile station may determine its location in one or multiple special areas, including a "first set of

cells" and a "second set of cells" and the techniques described relative to one special area are equally and predictably applied to additional special areas. Ex.1007, 7:63-8:1; Ex.1003 ¶206.

6. Claim 12

[12.0] ***A non-transitory computer readable medium storing computer readable program code for causing a processor of a mobile station to perform a method associated with the mobile station receiving first and second distinctive defining signals that at least partly define first and second special areas, respectively, by their coverage, each of the first and second distinctive defining signal respectively including first and second data, the method comprising:***

First, as explained at [5.0] above, the Kraufvelin-Hashimoto combination renders obvious *[a] non-transitory computer readable medium storing computer readable program code for causing a processor of a mobile station to perform a method*. [5.0]; Ex.1065, 1, 3; Ex.1003 ¶207.

Second, as explained at [9.0] above, the Kraufvelin-Hashimoto-Andersson combination renders obvious *a method associated with the mobile station receiving first and second distinctive defining signals that at least partly define first and second special areas, respectively, by their coverage, each of the first and second distinctive defining signal respectively including first and second data*. [9.0]; Ex.1003 ¶¶208-209.

[12.1] ***receiving and processing one or more defining signals in the mobile station to determine, based on a previously obtained at least portion of the first data, whether the one or more defining signals are one or more first distinctive defining signals and to determine whether or not the mobile station is present in the first special area,***

[12.1] is identical to [9.1]. Ex.1065, 3. The Kraufvelin-Hashimoto-Andersson combination renders it obvious for at least the same reasons described at [9.1]. Ex.1003 ¶210.

[12.2] ***receiving and processing one or more defining signals in the mobile station to determine, based on a previously obtained at least portion of the second data, whether the one or more defining signals are one or more second distinctive defining signals and to determine whether or not the mobile station is present in the second special area,***

[12.2] is identical to [9.2]. Ex.1065, 3. The Kraufvelin-Hashimoto-Andersson combination renders it obvious for at least the same reasons described at [9.2]. Ex.1003 ¶211.

[12.3] ***sending from the mobile station via a mobile telephone network, when the mobile station determination refers to the first special area, a first updating signal to one or more servers of a first provider of presence related services about the mobile station's presence in the first special area,***

[12.3] is identical to [9.3]. Ex.1065, 3. The Kraufvelin-Hashimoto-Andersson combination renders it obvious for at least the same reasons described at [9.3]. Ex.1003 ¶212.

[12.4] ***the sending of the first updating signal being uncorrelated to any mobile station phone call establishment, the updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists [sic] from the first special area, and (iii) when the mobile station remains in the first special area; and***

[12.4] is identical to [9.4]. Ex.1065, 4. The Kraufvelin-Hashimoto-Andersson combination renders it obvious for at least the same reasons described at [9.4]. Ex.1003 ¶213.

[12.5] ***sending from the mobile station via a mobile telephone network, when the mobile station determination refers to the second special area, a second updating signal to one or more servers of a second provider of presence related services, different than the first provider of presence related services, about the mobile station's presence in the second special area,***

[12.5] is identical to [9.5]. Ex.1065, 4. The Kraufvelin-Hashimoto-Andersson combination renders it obvious for at least the same reasons described at [9.5]. Ex.1003 ¶214.

[12.6] ***the sending of the updating signal being uncorrelated to any mobile station phone call establishment, the second updating signal being sent at least one of (i) periodically, (ii) at times recent to when the mobile station enters into or exists [sic] from the second special area, and (iii) when the mobile station remains in the second special area.***

[12.6] is identical to [9.6]. Ex.1065, 4. The Kraufvelin-Hashimoto-Andersson combination renders it obvious for at least the same reasons described at [9.6]. Ex.1003 ¶215.

7. Claim 13

[13.0] ***The non-transitory computer readable medium storing computer readable program code according to claim 12 that further causes the processor to send the first updating signal with information related to the result of a previous determination performed by the mobile station about the mobile station's presence in the first special area.***

Claim 13 is substantially similar to claim 10. Ex.1065, 4. As explained at [12.0] above, the Kraufvelin-Hashimoto-Andersson combination renders obvious *[a] non-transitory computer readable medium storing computer readable program code*. [12.0]. The remaining language of claim 13 is substantially similar to claim 10 and the Kraufvelin-Hashimoto-Andersson combination renders it obvious for the same reasons described at claim 10. Ex.1003 ¶216.

8. Claim 14

[14.0] ***The non-transitory computer readable medium storing computer readable program code according to claim 12 that further causes the processor to send the second updating signal with information related to the result of a previous determination performed by the mobile station about the mobile station's presence in the second special area.***

Claim 14 is substantially similar to claim 11. Ex.1065, 4. As explained at [12.0] above, the Kraufvelin-Hashimoto-Andersson combination renders obvious *[a] non-transitory computer readable medium storing computer readable program code*. [12.0]. The remaining language of claim 14 is substantially similar to claim 11 and the Kraufvelin-Hashimoto-Andersson combination renders it obvious for the same reasons described at claim 11. Ex.1003 ¶217.

X. CONCLUSION

Petitioner has established a reasonable likelihood that the Challenged Claims are unpatentable.

Respectfully submitted,

Dated: September 11, 2025
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XI. MANDATORY NOTICES

A. Real party-in-interest

Pursuant to 37 C.F.R. §42.8(b)(1), Petitioner certifies that the real party-in-interest is Apple Inc.

B. Related matters

Pursuant to 37 C.F.R. §42.8(b)(2), to the best knowledge of the Petitioner, the '910 patent is or was involved in the following cases:

Case Heading	Number	Court	Filed
Avant Location Technologies LLC v. Apple Inc.	2-24-cv-00757	EDTX	Sep. 13, 2024
Avant Location Technologies LLC v. Fibar Group SA et al.	2-24-cv-00165	EDTX	Mar. 8, 2024
Avant Location Technologies LLC v. Samsung Electronics Co., Ltd. et al.	2-24-cv-00133	EDTX	Feb. 23, 2024
Avant Location Technologies LLC v. Ecobee Technologies ULC d/b/a Ecobee	2-24-cv-00354	EDTX	Jul. 31, 2023

C. Lead and back-up counsel and service information

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Please address all correspondence in this proceeding to lead and back-up counsel. Petitioner consents to service in this proceeding by email at the addresses above.

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Petitioner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 13,977. Pursuant to 37 C.F.R. §42.24(d), this word count excludes the table of contents, table of authorities, mandatory notices under §42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: September 11, 2025

/ Scott T. Jarratt /
Scott T. Jarratt
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CERTIFICATE OF SERVICE

The undersigned certifies that, in accordance with 37 C.F.R. §42.6(e) and 37 C.F.R. §42.105, service was made on Patent Owner as detailed below.

Date of service	September 11, 2025
Manner of service	Priority Mail Express
Documents served	Petition for *Inter Partes* Review Under 35 U.S.C. §312 and 37 C.F.R. §42.104 of U.S. 9,042,910; Petitioner's Power of Attorney; Petitioner's Exhibit List; Exhibits 1001-1008, 1016-1019, 1021, 1046, and 1068.
Persons served	Venable LLP P.O. Box 34385 Washington, DC 20043-9998

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