

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Foursquare Labs, Inc.
Petitioner

v.

BoardActive Corporation,
Patent Owner

IPR2023-00919
Patent US10,692,108 B1

SUPPLEMENTAL DECLARATION OF DR. STEVEN GOLDBERG

I, Dr. Steven Goldberg, Ph.D., hereby declare the following:

1. I adopt my statements from my earlier declaration in this proceeding, Exhibit 1002, including but without limitation, my statements of introduction, background and qualifications, materials used, legal framework, technology background, overview of prior art, description of the patent-in-suit and challenged claims, opinions, and conclusion. EX1002. However, I reserve the right to additionally support and/or correct my statements herein and with respect to my earlier declaration, including at deposition.

2. I have reviewed the Exhibits 2002 and 2003. I have been requested by counsel for Petitioner to consider whether the Exhibits 2002 and 2003 indicate that in Adharapurapu's (Ex. 1008) design if a mobile device takes the same path (twice) through the same cells sites, the use of overlapping coverage areas or different services, such as a service with UTRAN cell, would necessarily result in different cells being used. As I discuss below, it is my opinion that this is untrue, and the point is irrelevant to the issue of whether Adharapurapu in view of Felt (and alternatively with Geer) renders the claims obvious.

3. Initially, it is unclear to me that there is sufficient support that Exhibit 2003 is actually a technically valid source to rely on. Page 1 of Exhibit 2003 states plainly that "[t]he present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented." Therefore, a

POSITA would not understand this document to provide reliable real-world, actively used or leveraged technology, and cannot and should not be relied-upon for valid assertions of GSM implementations, and certainly not in the IPR2023-00919 matter.

4. Additionally, I note that Exhibit 2003 is directed to the radio subsystem link control and does not go into any detail as to the cellular reuse pattern and/or cell site location or topology. Section 2, entitled “General”, Page 9 of 107, summarizes what is addressed in the document. It includes handover, RF power control, radio link failure, cell selection and reselection and CTS mode tasks. It does not include material information regarding the cell reuse pattern, cell site location, overlap, or topology.

5. I also note that Exhibit 2002 lacks any quantitative measure of the amount of overlap that may or may not be present in a GSM network. Exhibit 2002 merely provides a picture, on page 3, which purports to show “the limits” of the overlapping coverage. However, there are no quantitative statements regarding how much the overlap advises which cell sites are used and/or when a handover to an adjacent cell would occur. It is my opinion that a POSITA would not recognize these pages as disclosing a reliable measure of whether or not a mobile unit was using a given cell site.

6. I understand from instruction of counsel for Foursquare that the Patent Owner has argued in reliance upon Exhibit 2002 that overlapping cells causes the

selected cellular stations to vary, and similarly in reliance on Exhibit 2003 that selection between different performance levels, such as GSM vs. UTRAN can cause selected stations to vary. It is my opinion that this position is a false illustration and overstates the issues. For example purposes only, I have presumed that the Figure 1.1 of Ex. 2002 shows overlapping coverage between a given adjacent pair of cellular coverage areas. Even presuming that the selection of a particular cellular station from an overlap area may experience variability under changing conditions, it is important to note that selection of one station over the other would depend on external factors such as on the geographical topology, the weather, the time of year, and network activity, among other factors. For example, assuming all things being equal, a POSITA would then understand that for a mobile device moving on a given course of travel through the area of overlap in multiple instances, in only a fraction of the time in which the external factors coalesced to influence station selection would there be a likelihood that one base station would be needed over another.

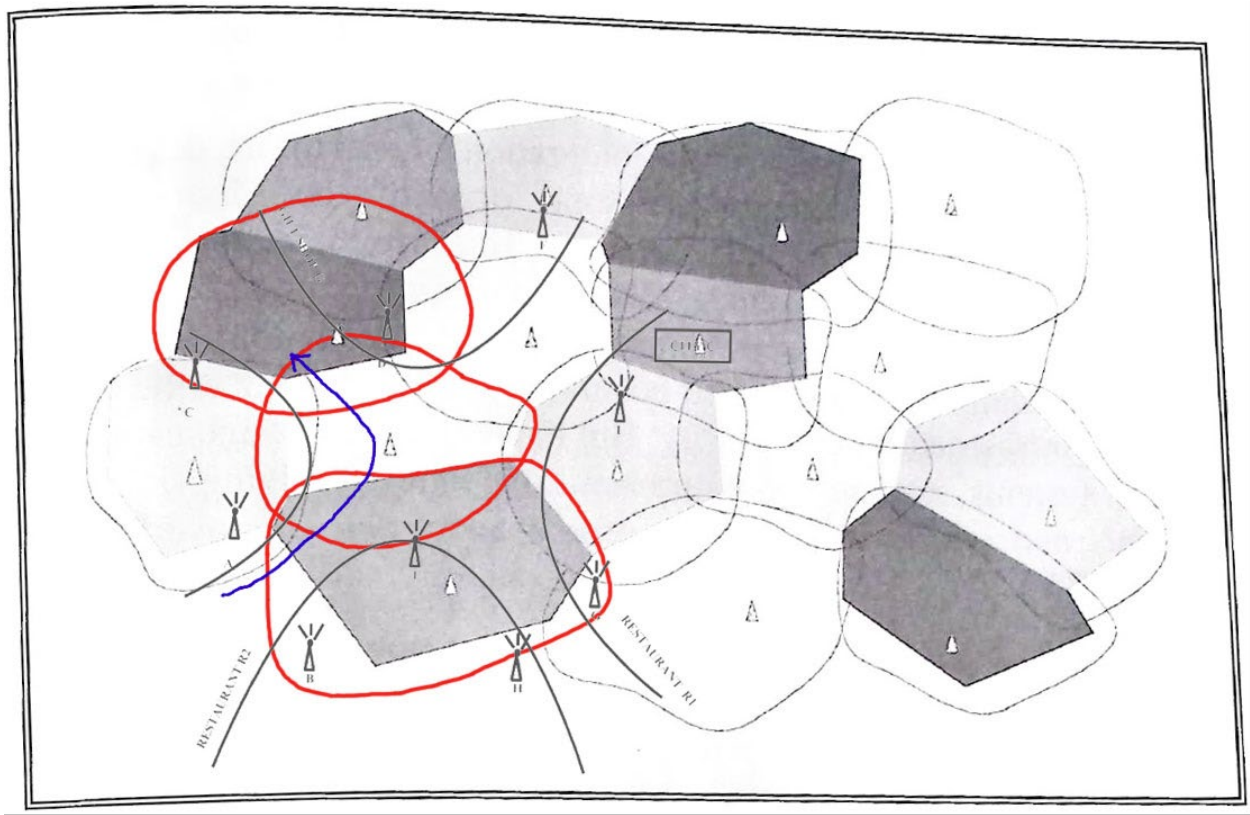
7. For example, a cellular base station's coverage can have varying strength across its coverage area based on the type of terrain in a given area, i.e. suburban, urban, hilly, or dense city. Heavy rain or very high network traffic occurring one day in a particularly mountainous area could hypothetically cause selection of a second cellular station coverage area that overlaps the station selected the predominant number of times. However, over a mobile device's course of travel

through a number of cell base stations coverage areas, selection of the series of cell base stations being accessed is far more highly correlated to the “course of travel.” Even presuming that cellular station variability were significant, which has not been established and with which I disagree for the reasons mentioned herein, the combined area of coverage of two overlapping cellular stations would still provide indication of the mobile device user being located within particular proximity to locations of interest, based on their combined coverage area.

8. With stationary cellular base stations and vehicles traveling on fixed roads and highways, on a given road or highway, at a given time of time of day and time of year, a mobile device would access the same cellular base station and/or sector antenna a vast majority of the instances following the same course of travel, if not every instance. In individual instances where the same course of travel at two different times faced specific conditions at one of the two times which lead to a different base station being selected, this is the minority or outlier instance, and a POSITA would readily understand that the same course of travel would select the same series of base stations in ordinary operations. A POSITA would understand that the supplemental availability of other stations does not detract from ordinary cellular station operations. Additionally, service providers have some incentive for designs that favor consistent use of stations even amid overlapping coverage. For example, along a course of a series of stations X, Y, Z originally intended to provide

sufficient support, if transient weather conditions (like heavy rains) were later discovered to cause too much disruption too often to station Y, for example, the network servicer may add supplemental station Q with partial coverage overlap with station Y. Yet, with the benefit of additional knowledge about the transient issue, the service provider can install station Q with preferred location and with lower required power than legacy stations X, Y, Z, reducing the equipment costs of the station Q intended for specific needs. Therefore, amid normal conditions, the higher power of station Y would virtually always cause preference of station Y over station Q for the overlapping area.

9. Additionally, I note that overlaying Adharapurapu's FIG. 3 over Figure 1.1 of Exhibit 2002 illustrates that courses of travel can be defined as only having coverage overlap in the direction of travel between two coverage areas, as shown below. For example, Adaharapurapu's course of travel A->D->C (blue) can be orientated to only cross three identified coverage areas of Exhibit 2002.



10. Although both images are exemplary, this illustrates that any uncertainty about which station would be selected is limited to only two possible stations, even under changing station coverage in the small overlap areas. The overlap could even be used to more precisely locate the user at a given moment in time because the possible use of both stations for the same location indicates specific location itself. Still further, each of the three (red) traversed cellular coverage areas include a portion of traversed area which does not include overlap at which no uncertainty would exist about which station is selected. The result is that the non-overlap portions traversed are akin to Adharapurapu's spacing between cellular stations, and conforms to its architecture. Additionally, the decision under atypical circumstances

make a change to select a different one of the overlapping cellular stations, for example due to heavy rain, does not by itself eliminate that the other overlapping cellular station (which would normally be selected without rainy conditions), could still provide an indication of location even if that other station were determined not to be used for continued cellular communications at that time due to the rain. In other words, the switch between stations for abnormal conditions doesn't necessarily mean that the normally-selected station can't be additionally used for location purposes.

11. Similarly, it is untrue that the hypothetical reselection of higher performance service, such as selection of UTRAN over GSM of Exhibit 2003, would necessarily result in variation in the station. First, both levels of performance are often provided from the same cellular station, which alone defeats the accusation of station variability. Secondly, even presuming different service levels were provided by different stations, with all things equal, the same higher level service would be consistently selected, resulting in no variance. Finally, even presuming selection of stations did incur variance, for example, from transient weather conditions, this would be in the minority of instances, and would not affect that ordinary conditions would cause consistent station selection.

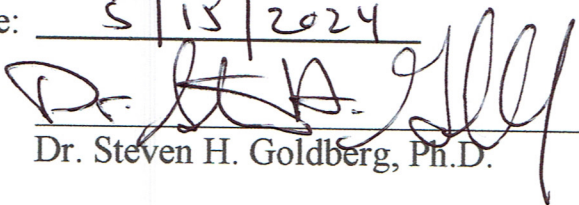
12. Thus, for at least these reasons, I disagree that Exhibits 2002 and 2003 can support that Adharapurapu would be incapable of meeting the first and second

location aspects of claim 1, such as in elements 1(e) & (f). A POSITA would expect the same cellular base stations to be selected under ordinary circumstances for a given course of travel even taken multiple times. Even presuming that variability would allow the same course of travel to select an overlapping base station under particular conditions, POSITA would understand that this would not be the normal case. Thus, the distinction about overlapping cellular coverage areas is irrelevant. Even assuming that Adharapurapu was required to use the GSM/UTRAN technology implemented according to Exhibits 2002 and/or 2003, Adharapurapu's design (in view of Felt, and alternatively with Geer) would still meet the claim terms (including elements 1(e) & (f)) as I discussed in my earlier declaration.

13. It has also not been established that Adharapurapu would be limited to GSM. Adharapurapu itself also mentions "CDMA, EDGE, GPRS etc." EX1005, 3:47-48. Additionally, POSITA would understand Adharapurapu's general techniques not as beholden to a specific technology for implementation.

CONCLUSION

I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: 5/15/2024
By:  PH.D.
Dr. Steven H. Goldberg, Ph.D.