

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC.,

Petitioner v.

KONINKLIJKE KPN N.V.,

Patent Owner

IPR2023-00582
Patent No. 8,660,560

EXPERT DECLARATION OF DR. RADOSTIN PACHAMANOV

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I. INTRODUCTION

1. I have been retained as a technical expert by Koninklijke KPN N.V., (“Patent Owner”) and asked to provide my objective and unbiased opinions concerning U.S. Patent No. 8,660,560 (“the ’560 Patent”). Specifically, I have been asked to provide my opinions on the patentability of the ’560 Patent in view of certain prior art references, the state of the art at the time of the claimed invention, and the knowledge of a person of ordinary skill in the art at the time of the claimed inventions. I have also been asked to provide my opinions on the arguments set forth in a Petition for *Inter Partes* Review of the ’560 Patent in IPR2023-00582, which was filed by Petitioner Ericsson Inc. (“Petitioner”).

II. BACKGROUND AND QUALIFICATIONS

2. In forming the opinions expressed in this Declaration, I have considered and relied upon my education, background, and experience. In addition, I have reviewed and relied upon additional materials in preparation of this Declaration, as described below.

3. My experience, qualifications and education are detailed in my curriculum vitae (“CV”), a copy of which is submitted as Exhibit 2002. My CV also lists publications on which I am a named author and identifies parties on behalf of whom I have previously provided expert testimony.

4. I graduated with a BSc in Electrical Engineering with a focus in Telecommunications Networks from the Technical University of Sofia (Bulgaria) in 2002. In 2008, I received a Ph.D. in Telecommunications Engineering from the same university. My doctoral studies focused on telecommunications traffic engineering, Quality of Service (QoS) assurance and traffic management in broadband cellular mobile networks.

5. From January 2008 to July 2013, I was employed by Ericsson in Sofia, Bulgaria. While at Ericsson, I worked as a Solution Architect responsible for the complete Ericsson portfolio of products and solutions in its Billing, Fulfillment, Assurance; TV & Media Management; and System Integration solution areas. As a Solution Architect I designed and worked on the implementation of various technical solutions such as billing data consolidation and end-to-end DVB-S2 Satellite TV systems for a major telecommunications carrier in Bulgaria. I also acted as a Technical Lead of a large system integration project for a border surveillance system providing security for an external European Union border. Between 2011 and 2013, I also served as an Account Manager and was commercially responsible for the complete Ericsson portfolio in Bulgaria.

6. In October 2013, I moved to Elysium Digital, a technical litigation consulting company located in Boston, Massachusetts, specializing in providing computer science and electrical engineering expertise in legal disputes involving

intellectual property, computer forensics, and other high-tech subject matters. Elysium Digital was acquired by Stroz Friedberg in 2015, and Stroz Friedberg was acquired by Aon, plc. in 2018. I currently serve as a Director at Aon's Intellectual Property Solutions department.

7. Since joining Elysium Digital, I have worked on more than 50 technical matters related to telecommunications, television systems, data forensics, electronic devices, and computer networks.

III. LEGAL STANDARDS

8. I am not an attorney. For purposes of this Declaration, I have been informed about certain aspects of the law that are relevant to my opinions, as set forth below.

A. Patentability

9. I understand that for an invention claimed in a patent to be valid and patentable, it must be, among other things, new and not obvious in light of what was known and came before it. That which was known or came before the invention claimed is generally referred to as "prior art."

10. I understand that there are two ways in which prior art may render a patent claim unpatentable. First, the prior art can be shown to "anticipate" the claim. Second, the prior art can show that the claim was obvious to a person of ordinary skill in the field of the invention at the time the invention was made.

11. I understand that, for a patent claim to be “anticipated” by the prior art, each and every element or requirement of the claim must be found, expressly or inherently, in a single prior art reference. Further, I understand that anticipation requires that the single prior art reference must disclose the elements of the claim arranged or combined in the same way as in the claim.

12. It is my understanding that whether a claimed invention is obvious is a question of law, with underlying factual inquiries that are determined from the perspective of a person of ordinary skill in the art at the time of the claimed invention.

13. It is my understanding that a claimed invention is obvious if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art (a “POSITA”).

14. It is my understanding that obviousness requires consideration of the following underlying factual inquiries:

- determining the scope and content of the prior art
- ascertaining the differences between the claimed invention and the prior art;
- resolving the level of ordinary skill in the art; and
- evaluating objective evidence or “secondary considerations” of non-

obviousness, such as commercial success, long-felt but unresolved needs, failure of others, industry praise, and unexpected results.

15. It is my understanding that a reference must be analogous art to the claimed invention in order to be properly considered for use in an obviousness inquiry. It is my understanding that a reference is analogous art to the claimed invention if:

- the reference is from the same field of endeavor as the claimed invention (even if it addresses a different problem); or
- the reference is reasonably pertinent to the problem faced by the inventor (even if it is not in the same field of endeavor as the claimed invention).

16. It is my understanding that whether a reference is reasonably pertinent turns on how the problem faced by the inventor is reflected, either explicitly or implicitly, in the specification.

17. It is my understanding that the following are exemplary rationales that may support a conclusion of obviousness:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;

- Use of known techniques to improve a similar method or product in the same way;
- Applying a known technique to a known method or product ready for improvement to yield predictable results;
- Obvious to try – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art; and
- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

18. In addition to the above, I understand that a person of ordinary skill in the art may resort to logic, judgment and common sense available to him or her at the time of the invention to find a claim feature obvious, even if the prior art relied on does not explicitly state or teach that feature. I understand that when common sense is relied on to find a feature obvious, the reasoning for that conclusion must be articulated with sufficient clarity.

19. I also understand that a patent claim is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. An obviousness determination requires finding both that a skilled artisan would have

been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so. I understand that it is important to be careful not to allow hindsight reconstruction of references to produce the claimed invention, without any explanation as to how or why the references would be combined to produce the claimed invention.

20. Regarding “objective evidence” or “secondary considerations,” I understand that for such evidence to be relevant to the obviousness of a claim, there must be a causal relationship (called a “nexus”) between the claim and the evidence. I also understand that such objective evidence may include: commercial success of products covered by the patent claims; long-felt need for the invention; failed attempts by others to solve the problem addressed by the invention; copying of the invention by others in the field; unexpected results achieved by the invention; praise of the invention; the taking of licenses under the patent by others; expressions of surprise by experts and those skilled in the art at the making or use of the invention; and that the patentee proceeded contrary to the accepted wisdom of the prior art.

21. I understand that a person of ordinary skill is also a person of ordinary creativity. I further understand that the obviousness analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, but instead can take into account “ordinary innovation” that does no more than yield

predictable results, which are inferences and creative steps that a person of ordinary skill in the art would be understood to employ.

22. I understand that sometimes it will be necessary to look to interrelated teachings of multiple patents and publications; the effects of demands known to the relevant field or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art. I understand that all these issues may be considered to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

B. Prior Art

23. I understand that for purposes of this proceeding, prior art includes patents and printed publications in or outside the United States before the effective filing date of the claimed invention. I also understand that prior art includes U.S. patents, published U.S. patent applications, and published international applications (pursuant to the Patent Cooperation Treaty) that themselves have an effective filing date before the effective filing date of the claimed invention, as long as they name another inventor.

24. I also understand that prior art may include any public disclosure, including any products in public use, on sale, or otherwise available to the public, before the effective filing date of the claimed invention. I understand that information that constitutes prior art generally must be information that was publicly

disclosed before the effective filing date of the claimed invention. I understand that there may be exceptions to what is prior art but have been instructed that they are not relevant for purposes of my opinions here.

C. Inherency

25. I understand that if a prior art reference does not expressly set forth a particular claim element, the prior art may still disclose that element if it is “inherent” in its disclosure. To establish inherency, it is my understanding that evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference. It is my understanding that inherency may not be established by probabilities or possibilities. In other words, it is my understanding that the mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency.

26. I understand that under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform a claimed method, then the method will be considered to be anticipated by the prior art device. I also understand that when the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process.

D. Person of Ordinary Skill In The Art

27. I understand that “a person of ordinary skill in the art” or POSITA is a hypothetical person who is presumed to have known the relevant art at the time of the invention. I understand that the term “person having ordinary skill in the art” or POSITA is sometimes used synonymously. Such a person would necessarily have the capability of understanding any scientific and engineering principles applicable to the pertinent art.

28. I understand that factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the following:

- a. the educational level of the inventor;
- b. the type of problems encountered in the art;
- c. prior art solutions to those problems;
- d. the rapidity with which innovations are made;
- e. the sophistication of the technology; and
- f. the educational level of active workers in the field.

29. I understand that a person of ordinary skill in the art is not a real person, but rather is a hypothetical individual having the qualities reflected by the factors above. This hypothetical person has knowledge of all prior art in the relevant field

as if it were arranged on a workshop wall and takes from each reference what it would teach to a person of ordinary skill in the art.

30. I understand that a person of ordinary skill in the art is a person of ordinary creativity, not an automaton. In many cases a person of ordinary skill will be able to fit the teachings of multiple prior art references together like pieces of a puzzle.

31. I understand that a person of ordinary skill in the art can collaborate with one or more other persons of ordinary skill in the art for one or more aspects with which the other person may have superior expertise, experience, and/or knowledge.

E. Claim Construction

32. It is my understanding that claim construction, or the interpretation of the claims of a patent, is ultimately a question of law. I have been informed that claim terms are generally presumed to carry their ordinary and customary meaning. However, I understand that a patent applicant is his own lexicographer and is entitled to provide alternate definitions of words in common usage, but if the patent applicant uses a term that is in common usage without providing an alternate definition, then that term should generally be understood as having its common meaning.

33. I understand that a person of ordinary skill in the art is deemed to read a claim term not only in the context of the particular claim in which the disputed

term appears, but in the context of the entire patent specification and the “file history” of the patent developed during examination by the Patent Office.

34. I understand that the claims, the specification, and the file history are referred to as “intrinsic evidence,” and are to be read as a person of ordinary skill in the art at the time of the invention would have done at the time of the alleged invention.

35. In addition to the intrinsic evidence, I understand that the court or tribunal may also consider other relevant evidence, which is called “extrinsic evidence,” concerning relevant scientific principles, the meaning of technical terms, and the state of the art. Such evidence includes the testimony of expert witnesses. Although extrinsic evidence may be used to resolve ambiguities that may exist after reviewing the intrinsic evidence, I understand that extrinsic evidence cannot be used to contradict a claim construction that is clear from the intrinsic evidence.

36. I understand that some claims are independent, and that those independent claims are complete by themselves. Other claims refer to these independent claims, or other dependent claims, and are “dependent” on those claims. The dependent claims include all of the limitations of the claims on which they depend.

IV. EXHIBITS

37. One exhibit (Exhibit 2003) referenced in my declaration is a copy of 3GPP TS 36.300 V.8.9.0 (2009-06), Release 8. This exhibit is a true and correct copy of that document as published at

https://www.3gpp.org/ftp/Specs/archive/36_series/36.300/ and more specifically at the link for 36300-890.zip present on that page:

https://www.3gpp.org/ftp/Specs/archive/36_series/36.300/36300-890.zip. Further, an expert in my field would reasonably rely on the facts or data set forth in this document in forming the opinions provided here. I am not aware of any information or reason to doubt the accuracy or truth of the contents of this document.

V. BASES FOR OPINIONS

38. The opinions set forth in this Declaration are my own. In forming the opinions herein, I have considered the exhibits to the Petition for *Inter Partes Review* filed against the '560 Patent, as well as the additional materials cited in this Declaration (including exhibits to the Patent Owner's Preliminary Response cited herein), and my education, training, and experience.

39. My analysis of the materials relating to this matter is ongoing and I will continue to review any new material that is provided to me. This Declaration represents certain opinions that I have formed to date and the bases for those opinions. I reserve the right to revise, supplement, and/or amend my opinions based

on new information presented to me and on my continuing analysis of the materials cited herein or later provided to me.

VI. TECHNOLOGY BACKGROUND OF THE '560 PATENT AND THE ASSERTED GROUNDS

A. The '560 Patent

40. The '560 Patent explains that the base station within each cell of a wireless access network stores a neighbor cell list (NCL), which it broadcasts within the cell. The NCL, as its name suggests, generally contains a listing of the first cell's neighboring cells for which a user terminal connected to the first cell should send measurement reports. In some cases, a cell may maintain separate lists for neighbors within the same network (an intra-network NCL), and those in cooperating networks (an inter-network NCL). Exhibit 1001, 1:32-48.

41. Mobile user terminals (e.g., cellular telephones) can receive and store the NCL. The terminals are always scanning the frequency spectrum for certain signals, to determine which cell they should use for transmission (i.e., they "camp on" that cell). *Id.*, 1:32-48. The measurements on cells from the NCL reported by user terminals can be used by the network to make a decision whether or not a mobile terminal should be handed over to another cell so that acceptable service may be maintained. This process is referred to as "handover" (in active mode). *Id.*, 1:32-48,

6:63-7:3. Cell “reselection” is similar, but done when the terminal is in idle mode. *Id.*, 1:32-48.

42. Traditionally, populating and optimizing NCLs was done manually (off-line) using various tools, such as predictive optimization algorithms, when a new base station is installed. *Id.*, 1:49-51. However, these tools were not perfect, and thus required network operators to perform subsequent testing to determine appropriate handover areas and to update the NCL with the correct list of neighboring cells. Exhibit 1005 [0024]. However, this solution was flawed given that networks and conditions affecting signal quality would gradually change, rendering the once-optimized NCL out-of-date. *Id.*

43. Thus, at the time of the invention, automated NCL optimization was being investigated. Exhibit 1001, 1:49-55. Automated processes were described in technical specifications of the 3rd Generation Partnership Project (3GPP), a consortium of telecommunications standards organizations and other organizations. *Id.*, 1:51-58. Those specifications disclosed an automatic neighbor relation (ANR) function which finds new neighbors and removes outdated neighbors from a neighbor relations table (NRT). *Id.*; *see also* Exhibit 2003 at 129. Under the ANR function, the base station instructs a user terminal to look for neighboring cells, and the terminal then provides a physical cell identifier of detected cells to the base station. The base station then instructs the terminal to read and report back the cell

global identifier and further cell information from the detected cells. The base station then updates the NRT using the reported information. Exhibit 1001, 1:56-2:7.

44. The claimed invention improved the state of the art by limiting, in a novel way, the group of user terminals which are requested to search for neighboring cell information. More specifically, the invention allows requests for neighboring cell information to be directed to user terminals in the regions where cell reselection and handover are about to occur. *Id.*, 3:37-47. In one embodiment, location information from the user terminals is used as a criterion for selecting the terminals requested to search for neighboring cell information. *Id.*, 5:25-27.

45. This feature is an improvement over the prior art because it tunes the amount of cell information reporting. *Id.*, 5:11-24. This relates to a trade-off between the measurement overhead (signaling load) and the potential for neighbor cell list optimization. *Id.* For example, if an operator wants to increase NCL optimization, the invention allows for selection of more terminals to report the required information, which increases the signaling those terminals must undertake (which has additional affects such as shortened battery life, etc.). Conversely, an operator may forego increased optimization to reduce unnecessary signaling over then network(s). *Id.*, 7:44-48.

B. Summary of the Asserted Grounds

46. I understand that Petitioner asserts a single ground of invalidity, as shown below:

Ground	Claims	Prior Art
1	1, 6-8	<i>Amirijoo</i> and <i>3GPP TR 32.816</i>

1. US Patent Application Publication No. 2009/0191862A1 (“Amirijoo”)

47. Amirijoo (Exhibit 1005) is the primary asserted reference. Amirijoo relates to a somewhat similar issue as the ’560 Patent. Both Amirijoo and the ’560 Patent relate to automatic (versus manual) updating of the neighbor relations list (NRL) or neighbor cell list. Exhibit 1005 [0024]-[0026]. Amirijoo’s disclosure applies to handovers not only between different radio access technologies (RATs), but also to handovers in radio access networks using different radio frequencies. For that reason, it refers to “inter-RAT/frequency” to inclusively refer to either. *Id.*, [0073]-[0074].

48. Unlike the ’560 Patent, which is focused on ways to lower the measurement and signaling load and radio resource usage imposed on user devices required for automatic list updating as previously discussed, Amirijoo is focused on when and how the terminal and base station communicate to enable updating the list. Amirijoo explains that a mobile station (user terminal) meeting appropriate triggering conditions performs the required measurements of signal quality during

“reading gaps.” Exhibit 1005, Abstract, [0080]. The reading gap is a time period in which the mobile station does not receive information from the serving base station. *Id.*, Abstract, [0021], [0032]. In order to perform the required measurements, the mobile station must tune into the frequency it is measuring, and stop listening to the serving base station, for the time needed to measure the desired information. *Id.* [0090]. Amirijoo details various ways in which the network and mobile terminal may coordinate (or not) the reading gap with transmission gaps (when the serving base station is not transmitting to the mobile terminal). *Id.* [0021], [0090]-[0098].

2. 3GPP Technical Report 32.816 v1.0.0 (“TR 32.816”)

49. 3GPP Technical Report 32.816 v1.0.0 (“TR 32.816,” Exhibit 1007) is the secondary asserted reference. TR 32.816 is a 3GPP technical report pertinent to Operations and Maintenance and Network Management in Long Term Evolution (LTE) / System Architecture Evolution (SAE) networks. The report is intended to provide a study on the existing UMTS (Universal Mobile Telecommunications System) management standards and practices for the purposes of deciding on which of those shall be reused, changed, or abandoned in LTE/SAE and make recommendations about that. The asserted version of TR 32.816 is v1.0.0. The high-level topics listed in the report relate to, e.g., automatic installation of network elements, self-organizing networks, site management, configuration management, fault management, performance management.

50. As part of the “Self organis[sic]ing network” topic the authors list a number of use cases, one of them called “Optimis[sic]ation of the neighbourhood list” which provides recommendations on input information that should be consider when optimizing the NCL in self-organizing networks. Exhibit 1007 at 11. Another use case is “Handover Optimis[sic]ation” which is intended to recommend input sources, algorithms and actions to be performed in a self-organizing network for improving the handover process. Exhibit 1007 at 13.

VII. LEVEL OF ORDINARY SKILL IN THE ART

51. I have not been asked to provide an opinion on the level of ordinary skill in the art at the time of the invention. For purposes of this Declaration only, I have instead been asked by Patent Owner to apply the definition of a person having ordinary skill in the art (“POSITA”) proposed by Petitioner:

A person of ordinary skill in the art at the time of the alleged invention of the ’560 Patent (“POSITA”), which for purposes of this proceeding is on or around October 7, 2009, would have had a B.S. in Electrical Engineering or a related field with at least three years of experience designing, developing, and/or testing telecommunication systems. Exhibit 1002, ¶¶31–37. A POSITA would also have familiarity with the wireless standards and protocols related to data transmission and network management. *Id.*, ¶33. More education may supplement practical experience or *vice versa. Id.*

Petition, 11.

52. My experience and qualifications meet and/or exceed that of a POSITA as described in Section II above. My education combined with my substantial experience designing, developing, and/or testing telecommunication systems, and my familiarity with wireless standards and protocols related to data transmission and network management, qualifies me to provide an expert opinion as to the understanding of a POSITA.

53. All references to a POSITA here are made pursuant to the definition above. However, my application of that definition is not a reflection of my agreement or disagreement with it. I reserve the right to provide my own opinion on the level of ordinary skill should there be further proceedings.

VIII. OPINIONS ON CLAIM CONSTRUCTION

54. I understand that Petitioner proposes constructions for two terms, “updating means . . . using the received cell information” and “location information from . . . the detected user terminals.” Petition at 8-11. Petitioner asserts that no other terms require construction. *Id.* at 7. I do not have an opinion at this time on whether Petitioner’s proposed constructions are accurate.

55. I have been asked to apply the plain and ordinary meaning to a POSITA of all claim terms at issue, as well as to apply and discuss Petitioner’s proposed constructions where appropriate. To the extent I believe an explanation of the plain

and ordinary meaning may be helpful, I have provided it where appropriate below. My references to Petitioner's constructions should not be taken as an endorsement of those constructions. I reserve the right to provide constructions of any of the claim terms should a trial be instituted.

IX. OPINIONS ON VALIDITY

56. Petitioner and Dr. Mahon rely on the combination of Amirijoo and TR 32.816 in asserting that the invention disclosed in the '560 Patent was unpatentable because it was known to a POSITA at the time of invention. It is my opinion that although both Amirijoo and TR 32.816 relate to updating the Neighbour Cell List – NCL in cellular networks, neither of the references, alone or in combination as asserted in Ground 1, disclose or suggest the challenged claims (1 and 6-8) of the '560 Patent.

57. More specifically, TR 32.816 discusses the input information that could be relevant and should be considered for optimizing the handover procedure and respectively the related neighbor cell list. *See, e.g.*, Exhibit 1007 at 11, 14. TR 32.816 does not disclose any methods or apparatus for the collection or management of the information for the purposes of updating NCL/NRL. Amirijoo on the other hand explores a specific situation related to establishing and maintaining NRLs in situations where handover may be performed between different frequencies or between cells belonging to different Radio Access Networks (RATs). *See, e.g.*,

Exhibit 1005, [0025] (“Even though NRL management has been automated for one type or RAT, the problem of establishing NRLs for different RATs/frequencies has not been solved before.”), [0026] (“What is needed therefore, and an object of this invention, are apparatus, methods, and techniques for establishing and managing inter-RAT measurements and information, such as that utilized by a neighbor relation list for inter-RAT/frequency mobility.”).

58. Even though Amirijoo discloses methods and apparatus for detecting new inter-RAT/frequency neighbor base stations and updating the existing NRL with information about those, the substance of its disclosure and the proposed methods and apparatus are around the specific arrangements that need to be provided for the mobile stations to be able to retrieve the neighbor base station CGI (Cell Global Identifier) with little or no disturbance of the ongoing traffic in the serving RAT/frequency. This is achieved by introducing the “transmission gaps” and respectively “reading gaps” which are used by the mobile stations for obtaining this information. *See, e.g.*, Exhibit 1005, [0090]-[0114]; Figs. 5, 7-12, 14. Amirijoo’s disclosure is entirely focused on proposing different methods for measuring the CGI in an inter-RAT/frequency scenario. *See also id.*, claims 1-32. Therefore, Amirijoo’s teachings are focused on acquiring the CGI of newly discovered inter-RAT/frequency neighbor cell and updating it in the serving cell’s NRL with minimal disturbance of the ongoing traffic in the serving RAT/frequency, rather than

detection and subsequent selection of specific user terminals suitable for performing measurements on available neighboring cells that may be candidates for handover, but are not yet accounted for and therefore present in the serving base station's NCL (as required by Claim 1 and 6-8 of the '560 Patent).

59. Consequently, as further explained below, Amirijoo's methods and apparatus for detecting new inter-RAT/frequency neighbor base stations and acquiring their respective CGIs to update base station's NRL do not disclose or teach important components and functionality of the claimed system for updating neighbor cell lists of the '560 Patent related to detecting user terminals to be transferred to another base station and selecting and requesting only a part of the user terminals to perform measurements and report cell information on neighboring cells. This functionality allows the network to perform targeted measurements using particular user terminals for the purposes of updating the NCL as required by Claim 1 and its dependent claims of the '560 Patent, and is missing in Amirijoo. The disclosures of TR 32.816 do not cure these deficiencies in Amirijoo.

A. Claim 1

60. Claim 1 is reproduced below, using Petitioner's nomenclature for the specific claim elements ([1pre], [1a], etc.):

[1pre] A system for updating a neighbour cell list in a telecommunications architecture comprising a first wireless

access network having a first wireless access node for which at least one first neighbour cell list is defined and a second wireless access network having a second wireless access node for which at least one second neighbour cell list is defined, the system comprising:

[1a] a detector configured for detecting user terminals to be transferred from the first wireless access node of the first wireless access network to the second wireless access node of the second wireless access network;

[1b] a selector configured for selecting a part of the user terminals;

[1c] a request generator configured for requesting from the first wireless access node one or more of the selected user terminals to report cell information of a plurality of wireless access nodes of at least one of the first wireless access network and the second wireless access network;

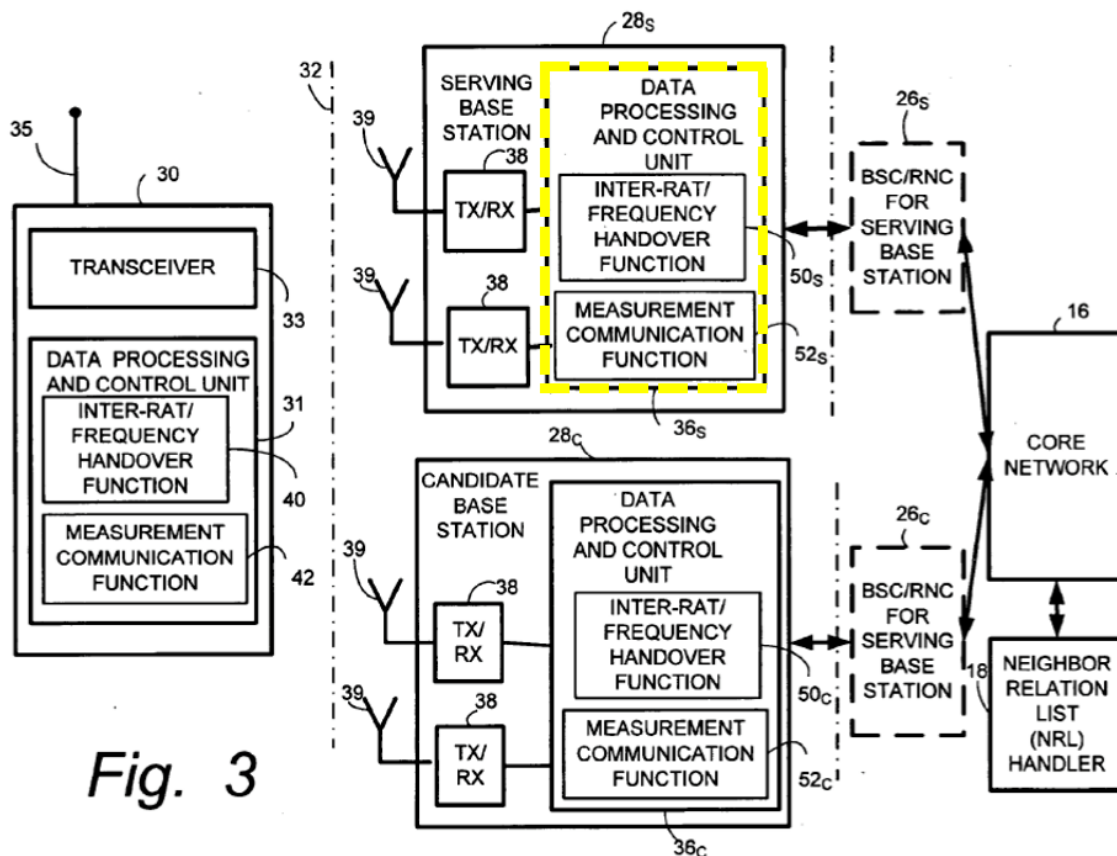
[1d] a receiver configured for receiving the cell information from the one or more of the selected user terminals;

[1e] and updating means configured for updating at least one of the first neighbour cell list and the second neighbour cell list using the received cell information.

1. Claim [1a]

61. The Petition cites only to Amirijoo for element 1[a]. Petition at 28-30. Petitioner identifies the serving base station's "data processing and control unit,"

component 36_s in Figure 3, as the claimed detector. *Id.* at 30; *see* Fig. 3 (annotated below to identify 36_s).



62. Amirijoo teaches that this unit “comprise[s] inter-RAT/frequency handover function 50 and measurement communication function 52.” *Id.* (quoting Exhibit 1005 [0077]). The inter-RAT/frequency handover function 50 “is invoked when it is determined that a handover is to occur.” *Id.* The measurement communication function 52 “controls communications with mobile station (MS) 30 for requesting or obtaining measurements or information (e.g., measurements or information for potential handover purposes).” *Id.*

63. The specification of the '560 Patent discloses the “detector” of the system for updating a neighbor cell list as described in Claim 1 as a system component that implements a specific function – to discover mobile terminals that are to be transferred to a different cell and for which cell reselection or handover will be performed. *See, e.g.*, Exhibit 1001, 2:17-22; 7:31-36 (“[D]etector 10 . . . recognizes that mobile terminal 3 requires a cell reselection or handover to [the second node].”). The detector identifies such terminals and provides this information to the rest of the system, which then selects a part of the user terminals and requests them to perform measurements to eventually discover, e.g., neighbor base stations which may not be currently known by the serving base stations, but which may be suitable to be added to the NCL for future cell reselections/handovers. *Id.* at 7:37-52. Therefore, the purpose of the detector is to identify a set of mobile terminals that are in a state that requires cell reselection or handover.

64. The components identified by Petitioner are not used by Amirijoo’s system to identify (detect) user terminals to be transferred to another cell, which are potential candidates to be used for measurements, and to provide this information to a different system component. First, Amirijoo’s measurement communication function controls communications with mobile stations, for the purposes of requesting or obtaining measurements or information, including for potential handover purposes. Exhibit 1005 [0077]. This function—controlling

communications—does not meet the claim element, as there is no suggestion that it includes detecting or recognizing mobile stations for which a cell reselection or handover is indicated (i.e., terminals to be transferred from a first node to a second node).

65. Similarly, Amirijoo does not describe the inter-RAT/frequency handover function 50, except stating that this function is “invoked when it is determined that a handover is to occur” and that it (as well as the measurement communication function 52) can comprise a controller or processor. Exhibit 1005 [0077]-[0078]. This description indicates that the handover function is for actually performing the handover, but there is nothing indicating that it detects that handover is required or even is about to occur. I have identified nothing in Amirijoo stating that this function actually recognizes or identifies user terminals requiring handover. Nor does Amirijoo identify what actually performs the function of determining that a handover is to occur.

66. Based on these deficiencies, it is my opinion that the identified component and functions of Amirijoo (and therefore Ground 1, as asserted in the Petition), as taught in Amirijoo, do not teach or suggest claim 1[a]. I note that Amirijoo does teach that inter-RAT/frequency measurements may be initiated when certain triggering conditions are met. Exhibit 1005 [0079]. However, Ground 1 does not identify the triggering conditions or their evaluation with detecting the mobile

stations to be transferred, or identify this evaluation with the detector element of claim 1[a]. Petition at 28-30. Rather, Petitioner identifies the triggering conditions with the “selector” required by claim 1[b]. *Id.* at 30-34. Therefore, as asserted by Petitioner, the triggering conditions are not the detector required by the claim.

67. The purported detector identified by Petitioner is not disclosed to identify or recognize those specific mobile stations that are to be transferred. Thus, Amirijoo does not teach the claimed detector, which must detect those user terminals requiring cell reselection or handover. Accordingly, Ground 1 does not disclose claim element 1[a].

2. Claim [1c]

68. According to the Petitioner, the data processing and control unit of Amirijoo discloses the claimed request generator “because it includes a ‘measurement communication function’ that ‘controls communications with mobile station (MS) 30 for *requesting* or obtaining measurements or information for potential handover purposes.” Petition at 35 (referring to the “data processing and control unit” presented in Amirijoo, Fig. 3). Also, the Petitioner argues that since Amirijoo’s data processing and control unit is configured to request local IDs and CGIs, which are cell information, this meets the requirement that the request generator should be configured for “requesting from the first wireless access node

one or more of the selected user terminals to report cell information of a plurality of wireless access nodes.” *Id.* at 35-36. For the reasons provided below, I disagree.

69. Notably, the “request generator” required by Claim [1c] is configured to request from one or more of the *selected* user terminals to report cell information. As the ’560 Patent explains, “[O]nce user terminal 3 has been selected, request generator 12 in FIG. 2 is activated in order to request the user terminal 3 to report cell information of a plurality of wireless access nodes.” Exhibit 1001 at 8:28-31. This triggers the user terminal to perform measurements either on specific cells mentioned in the request, or on all measurable cells. The user terminal collects using its “scanning module” information about the signal strength of the pilot channel of the respective cells and detects the global cell identifier of those cells. *See, e.g.*, Exhibit 1001 8:33-9:62. Consequently, the ’560 Patent teaches that a selected user terminal would not perform measurements on the available neighbor cells unless it is explicitly requested by the system of Claim 1.

70. Amirijoo explains that mobile stations measure the signal quality of neighbor base stations, and report the measurement result and local ID to the serving base station, once the triggering conditions are met. Exhibit 1005 [0079]-[0080]. There are two disclosed modes of operation: the triggering conditions may be evaluated (1) at the base station, or (2) at the mobile station. *Id.*

71. When evaluated at the mobile station, the “base station (BS) informs the mobile station (MS) regarding the triggering conditions and the mobile station (MS) evaluates the conditions and starts inter-RAT/frequency measurements once they are triggered.” *Id.* [0079]. Referencing Figure 4, Amirijoo explains that “[i]n the measurement configuration sent from the base station (BS) to the mobile station (MS) (Fig. 4, act (1)), the base station (BS) may include information needed to perform the measurement” *Id.*

72. As can be seen, there is nothing in this description which constitutes a request to the mobile station to report. Rather, here (in act 1) the mobile station itself evaluates the triggering conditions, and if they are met, undertakes the needed measurements. Exhibit 1005 [0080]. Thus, any mobile station where the triggering conditions are satisfied will start the measurements, without a request from the base station. At best, Amirijoo discloses that the base station provides the mobile station with information that it may need to perform measurements. *Id.* [0079].

73. In the case where the base station evaluates the triggering conditions, Amirijoo discloses only that the “base station (BS) receives measurements from the mobile station (MS) and evaluates the triggering conditions.” *Id.* [0079]. There is no other disclosure beyond the mobile station’s provision of these measurements. *Id.* That is, there is no disclosure that the base station ever requests that any user terminal report the local IDs of the surrounding base stations.

74. Amirijoo further teaches that, after the base station receives the information reported by the mobile station(s), if the serving base station has no prior knowledge of a neighbor base station with the reported local ID, the measurement function will initiate “3. Measurement request, CGI” that will explicitly request from that mobile station to measure and report back the CGI of that newly discovered neighbor cell.” *Id.*, [0081], Fig. 4. However, this request is sent only when the serving base station, after receiving the local ID from the mobile station (Fig. 4, act 2b.), determines that it has no prior knowledge of a neighboring base station. *Id.* This request is thus sent (Fig. 4, act 3) to that mobile station (the one that reported the unknown neighbor). That is, this is a request that a specific mobile station—the mobile station which sent the unknown base station local ID—provide cell information about a single, specific candidate base station, the one that is unknown to the serving base station.

75. This does not satisfy the claim element, which requires “a request generator configured for requesting . . . one or more of the selected user terminals to report cell information of a plurality of wireless access nodes” Exhibit 1001, 11:63-67 (underlining added). This is because the “Measurement Request, CGI” relates only to a single wireless access node—the unknown neighbor reported by the mobile station.

76. Thus, Amirijoo’s data processing and control unit, and its measurement communication function, do not satisfy claim 1[c]. Therefore, Ground 1 does not teach or suggest all elements of claim 1.

B. Claim 7

77. Claim 7 is reproduced below:

7. The system according to claim 1, wherein the telecommunications system is further configured for receiving location information from one or more of the detected user terminals and wherein the location information is used as a selection parameter for selecting the part of the detected user terminals.

Exhibit 1001, 12:60-65. Thus, Claim 7 further limits claim 1 with regard to the “selector” of claim 1[b]. Claim 1[b] requires “a selector configured for selecting a part of the user terminals,” while Claim 7 requires that the location information is used as “a selection parameter for selecting the part of the detected user terminals.”

78. For Claim 7, Petitioner asserts that Ground 1 discloses its limitations in two ways. First, Petitioner applies its proposed claim construction that the cell identity where the user terminal is operating is “location information.” Petition at 47-48. Using this construction, Petitioner simply asserts that Amirijoo teaches the claim limitations. Petition at 47-48 (citing Exhibit 1005, [0083]-[0088]). Second, Petitioner relies on certain references to location in TR 32.816 as suggesting the use

of location “as an input to update the neighbor cell list.” *Id.*, 48-49. According to Petitioner, in view of these suggestions a POSITA would have considered it obvious “to use location information as a selection parameter for selecting a part of the user terminals in the context of Amirijoo’s system.” *Id.*

79. For the reasons stated below, I disagree. Neither Amirijoo nor TR 32.816, alone or in combination, teach or suggest using the location information of the user terminal as a parameter for selecting the part of the detected user terminals.

1. Petitioner’s First Argument: Amirijoo Uses Cell Identity To Select a Part of the Mobile Devices

80. As mentioned, Petitioner first asserts that claim 7 is obvious by construing “location information” as including the cell identity where the user terminal is operating. Petition at 47-48. Based on this, Petitioner asserts that Amirijoo discloses selecting a part of the mobile devices to participate in the updating process. Petition at 47-48. Petitioner cites to Amirijoo for this assertion, and specifically Amirijoo’s discussion of triggering conditions. *Id.* (citing Exhibit 1005, [0083]-[0088]).

81. Because Claim 7 depends from claim 1 and requires a specific parameter for “selecting” user terminals (Claim 1[b]), Petitioner’s arguments related to that claim element are discussed below.

a. Claim 1[b] and Amirijoo's Triggering Conditions

82. As it does for claim 7, Petitioner maps Amirijoo's triggering conditions to the selector of Claim 1[b]. Petition at 33. There, Petitioner relies on Amirijoo's teaching that "Inter-RAT/frequency measurements from certain mobile stations chosen using the triggering condition(s) described in Section 2.0 are used to detect new inter-RAT/frequency neighbors, as illustrated in FIG.4, act (1)." *See* Petition at 30-31 (referring to Exhibit 1005 [0079]). Specifically, Petitioner references "the amount of data being consumed by the mobile devices," "the quality of the connection between the mobile devices and the serving base station" and "characteristics of the subscriber or the mobile device itself," where (as asserted by the Petitioner) each of those conditions would only select "a part of the mobile devices." *See* Petition at 34 (citing Exhibit 1005 [0084]-[0086], [0089]).

83. Amirijoo itself teaches, with reference to Figure 4, that only "certain mobile stations" are "chosen" to perform the measurements (the "inter-RAT/frequency" measurements) to obtain the identifying information for the candidate base stations. *Id.* [0079]. These mobile stations are chosen using certain "triggering conditions." *Id.* Once these conditions are triggered, a mobile station performs prescribed measurements and reports them to the serving base station. *Id.* [0080]. These measurements include the signal quality of surrounding base stations. If the serving base station has no prior knowledge of one of the reported base

stations, it may then request the specific mobile station that reported those base stations to provide information used to identify the candidate base station. *Id.* [0081].

84. Amirijoo discloses two triggering conditions. The first triggering condition is referred to as a data rate. *Id.* [0084]. The data rate is dependent on the services which the mobile station is using. For example, if a mobile station is streaming video, it may be using a higher data rate than a mobile station that is not. *Id.* [0086]. Amirijoo explains that there will be a greater impact on service for mobile stations having higher data rates when those mobile stations are also performing inter-RAT/frequency measurements. Exhibit 1005 [0086]. “As such, mobile stations with a low average number of scheduled scheduling blocks (SBs) [a measure of data rate] should perform inter-RAT/frequency measurements.” *Id.* Thus, the first triggering condition is some data rate (i.e., scheduled scheduling blocks); if a mobile station has a lower data rate than the set rate, it will meet the triggering condition. I note that this triggering condition has nothing to do with whether the mobile station requires, or will require, reselection or handover to another base station using a different RAT or frequency (or even another base station in the same network).

85. The second triggering condition is a threshold estimated signal quality. Exhibit 1005 [0085]. This threshold is explained with reference to Figure 6, which shows “that an inter-RAT/frequency measurement threshold may be set higher than the corresponding handover [HO] threshold”:

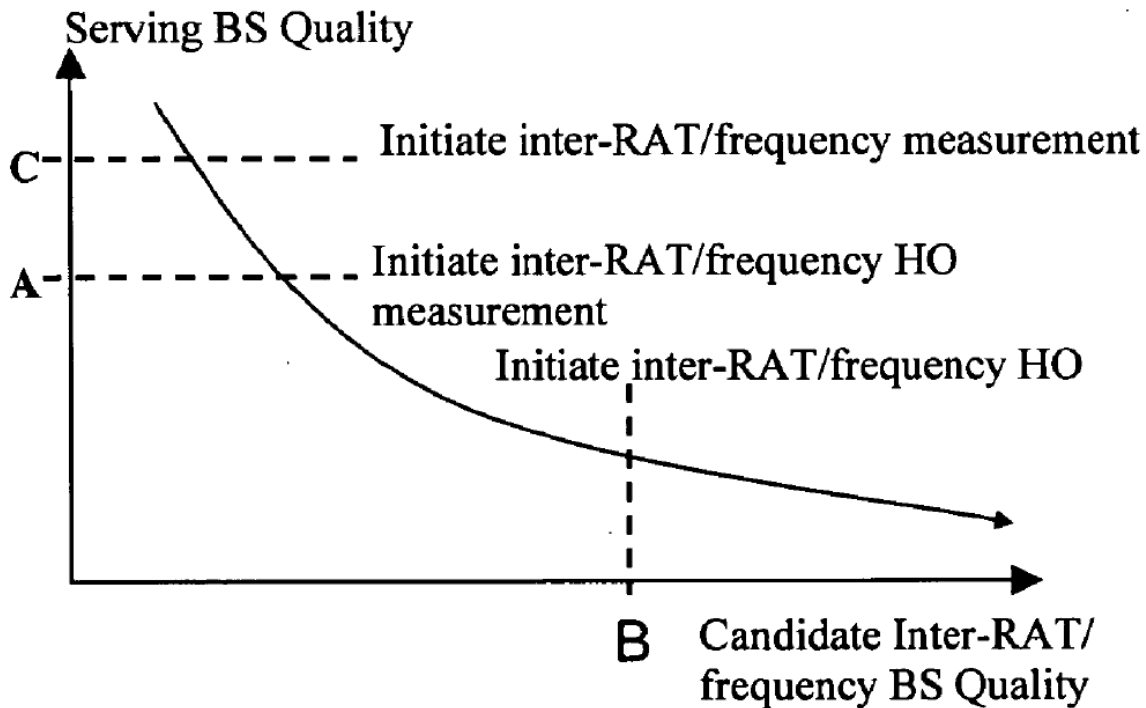


Fig. 6

Id. [0053], [0085], Fig. 6. Amirijoo explains that this threshold can either (1) “be the same threshold as used for inter-RAT/frequency handover measurements (e.g., threshold A in Fig. 6)” or (2) “it can be set higher than the handover threshold (e.g., higher than threshold A of Fig. 6, such as threshold C in Fig. 6)) to make sure that an inter-RAT/frequency neighbor is found before the mobile station (MS) falls out of coverage.” *Id.* [0087].

86. Petitioner references a “third” triggering condition as well, asserting that it “selects a part of the mobile devices based, at least in part, on characteristics of the subscriber or the mobile device itself.” Petition at 34 (citing Exhibit 1005

[0089]). However, the so-called third triggering condition is merely a type of the second triggering condition, as it also uses a threshold estimated signal quality, but sets that threshold based on such referenced characteristics. Exhibit 1005 [0089]. Thus, depending on the service, subscription type, or device type, Amirijoo teaches assigning a different signal quality threshold, above the “A” threshold, to trigger reporting. Exhibit 1005 [0089]. Thus, a “Gold subscription” user may be assigned a “lower threshold C than ordinary subscription users.” *Id.* For example, referencing Figure 6, ordinary subscription users may be assigned the “C” threshold, while “Gold subscription” users would be assigned a lower “C” threshold (but never lower than the “A” threshold). *See* Exhibit 1005 [0087]-[0089]. However, using a lower threshold means that the “Gold subscription” mobile station will not meet the triggering conditions for performing the inter-RAT/frequency measurements set for ordinary users, thereby allowing the “Gold subscription” devices to avoid conducting the measurements (which as Amirijoo explains, has a detrimental impact on service), at least until the signal quality reaches the lower “Gold” threshold. *Id.* [0087], [0089]. Here, Amirijoo is in fact not suggesting choosing the devices of “Gold subscription users” to conduct the inter-RAT/frequency measurements, but rather teaches preferentially not using those (Gold) devices, so as to avoid placing the measurement burden on them.

b. Amirijoo does not teach or suggest using cell identity as a selection parameter for selecting the part of the detected user terminals.

87. Now turning back to Claim 7, Petitioner asserts that “Amirijoo discloses selecting a part of the mobile devices to participate in the process of updating the neighbor relation list based, at least in part, on information regarding the cell in which the mobile device(s) are currently operating.” Petition at 47-48 (citing Exhibit 1005 [0083]–[0088], Amirijoo’s triggering conditions). This is based on Petitioner’s construction of location information as including cell identity. *Id.*

88. Amirijoo plainly teaches that a cell is a geographical area, and that the identity of each cell is broadcast in the cell. Exhibit 1005 [0006]; Petition at 47. However, Amirijoo never references this information in explaining its triggering conditions, nor does it provide any other disclosure or detail that cell identity is used to distinguish between mobile stations that meet the conditions and those that do not. As discussed above, Amirijoo’s triggering conditions are based only on the data rate or the estimated signal quality of the serving base station. *See* Section IX.B.1.a.. Neither of these are the broadcast cell identity, nor is that even referenced in Amirijoo’s discussion of triggering conditions. Exhibit 1005 [0083]–[0089]. Nothing in Amirijoo suggests that the specific cell that a user terminal is connected to is considered as a parameter for selecting devices to perform inter-RAT/frequency measurements. Instead, all mobile stations reporting to a base station, upon meeting

the triggering conditions, will start measuring and reporting the signals from neighboring cells. *Id.* There is no disclosure or suggestion that specific terminals may be selected and requested to perform measurements on neighboring cells based, in any way, on the cell identity.

89. Therefore, even assuming that cell identity is location information, Amirijoo does not disclose or suggest using that cell identity as a selection parameter for selecting the part of the detected user terminals.

2. Petitioner’s Second Argument: TR 32.816 Renders it Obvious to Use Location Information as a Selection Parameter.

90. As referenced above, Petitioner advances a second argument to the extent the Board does not construe “location information” to encompass the cell identity. Petition at 48. Here, Petitioner relies on certain references to location in TR 32.816 as suggesting the use of location “as an input to update the neighbor cell list.” *Id.*, 48-49. Based on these suggestions, Petitioner asserts that a POSITA would have considered it obvious “to use location information as a selection parameter for selecting a part of the user terminals in the context of Amirijoo’s system.” *Id.*

91. Before analyzing Petitioner’s argument, the “location information” referenced in Claim 7 should be clearly identified. The specification teaches that:

One embodiment of tuning the amount of cell list optimization traffic is to use the location information from the user terminals as a selection criterion as defined in Claim 7. The location

information may e.g. be obtained from a GPS module in the user terminal or by means of measurements using the first and/or the second wireless access network.

Exhibit 1001, 5:25-30. The specification also states, with regard to Figure 2, that mobile terminal 3 may transmit “location information of the mobile terminal 3, obtained using GPS module 25, when the scanning for available cells was performed.” *Id.*, 9:52-62. Thus, the location information referenced in Claim 7 is the location of the user terminal, sent from the user terminal (which obtains it, for example, from a GPS module located in the user terminal).

92. The Petition alternatively cites two different references to “location” within TR 32.816. Petition at 48. However, neither of these references disclose or suggest that the location of the user terminals should be collected prior to performing measurements, and then used as a parameter to select certain terminals to perform measurements, as required by claim 7.

93. First, a referenced algorithm for updating neighbor cell lists using information regarding “location of the neighbors,” which is reproduced below. Petition at 48 (citing Exhibit 1007 at 11).

Scenario description: Neighbour cell list optimisation

- Objective: Optimisation of neighbour cell list of self-configuration instance
- Scheduling: On demand or periodic
- Input information (all input optional depending on algorithm):
 - Location of the neighbours (distance),
 - UE measurement reporting or eNodeB radio scanning for neighbours,
 - Field strength information,
 - Event measurements like cell specific call drops or handover failures
 - NMS/EMS configuration data
 - Planning tool data
 -

94. But the “location of the neighbors (distance),” suggests the location of the neighboring cells (or base stations), not the location of the terminals which are selected to perform measurements as required by claim 7. Further, there is no indication that the neighbor location or the distance (between the neighbor and the serving cell) is even known by the user terminals, or that it is ever reported from a terminal to the base station/telecommunications system. Exhibit 1007 at 11. This is because a POSITA would not expect or understand user equipment to have information about the specific locations of base stations or cells, but rather information about the signal strength received from them.

95. Further, in context this disclosure suggests that once a new neighbor cell that is not in the NCL is discovered, the system should consider the distance

between the serving cell and the new cell in order to decide if the new cell should be included in the NCL:

Based on the assumed initial neighbour set a further optimisation of neighbour list (including 2G/3G) is needed considering e.g. radio measurements of eNodeBs and UEs or call events like call drops, handover problems etc. For this approach RRC connections (calls, signalling procedures) and their accompanying measurements can be used to gather the needed information about neighbours. Known neighbours can be checked if they are really appropriate concerning real RF conditions, new ones can be included based on information about detected cells in UEs. Not forgotten must be the optimisation of parameters in neighbour eNodeB cells.

Exhibit 1007 at 11. Again, this is different than the location information required in Claim 7.

96. Petitioner next relies on a reference to linking “all measurements” with “correct location information” when optimizing handover parameters such as the neighbor list. Petition at 48; Exhibit 1007, 13-14 (annotated below).

Scenario description: Optimisation of handover parameter like HO neighbour list, neighbour specific thresholds, margins and hysteresis parameter

- Objective: Description of procedures to optimise a certain HO parameter
- Scheduling: triggered either by network problems related to this parameter or on demand

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- Input source (input optional depending on algorithm):
 - HO trigger reasons
 - KPIs: cell and neighbour specific HO success/failure rate, cell and neighbour specific Path Loss, Received signal strength and interference measurements before HO events
 - **In ideal: all measurements can be linked with correct location information**
 - Planning data like maps, location of cells, theoretical path loss/interference
 - Drive test results in proprietary/standardised form
 - Traces of interfaces (like Abis, Iub, Iu, A)

97. TR 32.816 states that “[i]n ideal: all measurements can be linked with correct location information.” Again, this reference is in the context of a procedure to optimize handover parameters, and there is no explicit indication that the listed input sources comprise information known by user terminals that could be reported as required by claim 7. *Id.* The optimization procedure further appears to be a manual one, as it also references “drive test results,” and “[p]lanning data like maps, location of cells, theoretical path loss/interference.” Exhibit 1007 at 14. As discussed, this is the prior art process which the ’560 Patent improves upon. *See* Section VI.A.

98. Further, at most this citation merely suggests to a POSITA to consider collecting information about the location of the specific terminal performing measurements while the measurements are performed, and then reporting the measurement data linked with the location where this data was collected. That is, this passage merely suggests linking the location where the data was collected to the reported data. This is not what claim 7 requires. There is nothing in this passage (or in the balance of TR 32.816) disclosing or suggesting using the user terminal location as a criterion for actually “selecting the part of the detected user terminals” to participate in the updating process, as required by the claim.

99. In other words, TR 32.816 does not disclose or teach that the location of the user terminals should be collected prior to performing measurements and used as a selection parameter to select certain user terminals to perform the measurements. As explained above, the teachings of TR 32.816 are very different. The mere mentioning of the term “location” in TR 32.816 in relation to optimization of NCL is not enough to motivate a POSITA to modify Amirijoo’s system to receive location information from the user terminals and use this location information to determine which user terminals should perform measurements on neighboring cells. Therefore, Amirijoo in view of TR 32.816 fails to render Claim 7 obvious.

100. Petitioner’s arguments regarding the motivation to combine the two references are also problematic. Petitioner argues that TR 32.816 suggests using

“location information as an input to update the neighbor cell list,” and therefore “it would have been obvious for a POSITA to use location information as a selection parameter for selecting a part of the user terminals in the context of Amirijoo’s system.” Petition at 48 (citing Exhibit 1002 ¶ 115). But a reference to using location information associated with measurements is not the same as using that location information as a parameter to select the user terminals to conduct those measurements. At most a POSITA might be motivated, based on TR 32.816’s references to location, to include neighbor location as an input in order to determine whether to include the neighbor in the NCL. Exhibit 1007 at 11. But this is different from the claimed requirement of using the location information of the user terminal as a parameter for selecting specific user terminals which will be requested to report cell information.

101. Petitioner asserts further that “[a] skilled artisan would know that selecting a subset of mobile devices based on their location information would help ensure that an inter-RAT/frequency neighbor is found before the mobile station (MS) falls out of coverage [I]t would have been obvious to a POSITA to configure the serving base station to instruct mobile devices close to the coverage boundary to initiate inter-RAT/frequency measurements, thus facilitating the identification of a suitable inter-RAT/frequency candidate for handover before the mobile devices exit the coverage area.” Petition at 49. I disagree, for multiple

reasons. First, there is nothing in either Amirijoo or TR 32.816 about selecting only a “subset” of mobile devices based on their location information to perform measurements; this idea comes from the claim, which requires “selecting the part of the detected user terminals.” Second, a device’s physical location near a “coverage boundary” is not determinative of whether it would require cell reselection or handover, as not all such devices are necessarily moving out of coverage or have poor signal quality. Some such devices may be stationary, and others may be moving further into coverage. Thus, a POSITA would know that such location information is not an indication that the user terminal would fall out of coverage.

102. Further, Petitioner’s motivation is premised on Amirijoo’s desire to “make sure that an inter-RAT/frequency neighbor is found before the mobile station (MS) falls out of coverage.” Petition at 49. But Amirijoo itself teaches doing this by setting a signal quality triggering threshold higher than the threshold for handover measurements (“A” in Fig. 6). Exhibit 1005 [0087]. That is, Amirijoo uses the serving base station signal quality directly. This serving signal quality itself is determinative of whether a device has coverage; that is, it is the primary indicator of coverage. Location information, even pursuant to Petitioner’s logic, is merely a substitute or secondary indicator for coverage. A POSITA would not have been motivated to modify Amirijoo to use location information, only a substitute for

signal quality, when Amirijoo already teaches using the actual signal quality to make sure that a neighbor is found before the mobile station falls out of coverage.

103. Therefore, in my opinion nothing in TR 32.816 discloses or suggests using the location of the user terminals (the claimed location information) as a selection parameter for selecting the part of the detected user terminals, nor was it obvious to use that location information in conjunction with Amirijoo's triggering conditions. Therefore, Ground 1 does not possess or render obvious the limitations of claim 7.

C. Claim 8

104. Claim 8 reads:

8. The system according to claim 1, wherein one or more thresholds, possibly service-dependent, are defined in the telecommunications system for transferring the user terminals between the first wireless access network and the second wireless access network and wherein at least one of the thresholds is used as a selection parameter for selecting the part of the detected user terminals.

The system of claim 1 detects user terminals to be transferred "from the first wireless access node of the first wireless access network to the second wireless access node of the second wireless access network," and then selects a part of the user terminals. Exhibit 1001, 11:57-62. Claim 1 thus specifies detection of terminals to be

transferred from a first network to a second network—a one-way transfer. Claim 8 requires specifying criteria to be used for selecting a part of those detected user terminals, specifically, at least one of “one or more thresholds, possibly service-dependent” which are defined “for transferring the user terminals between the first wireless access network and the second wireless access network.” This is not the same as the language used in claim 1. Here, the thresholds are thresholds set for actually starting the cell reselection or handover between networks—that is, from each network to the other. This is different from the one-way transfer of Claim 1.

105. The '560 Patent specification states in relation to Claim 8 that:

the transfer threshold determines at what level (typically involving pilot signal measurements) cell reselection or handover would occur.

Exhibit 1001, 5:38-49. Thus, this threshold is the level where handover starts or occurs. Although not called out specifically for the first network (the “Serving BS Quality” on the y-axis), in Amirijoo’s Figure 6 this threshold corresponds to the “B” threshold for actually initiating the inter-RAT/frequency handover. Figure 6 is reproduced below for reference.

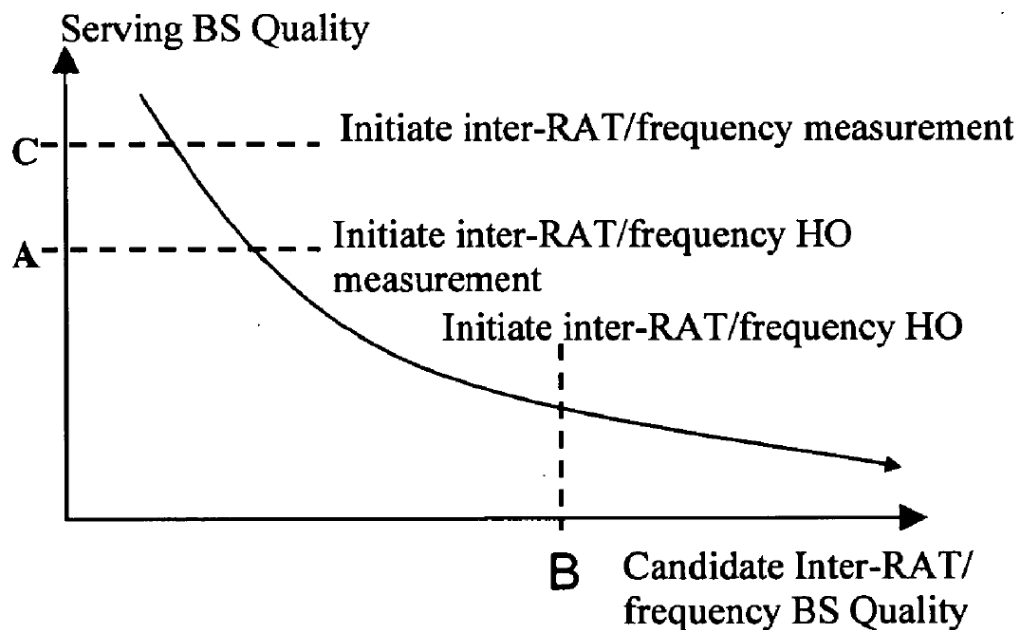


Fig. 6

106. The '560 Patent specification also states that the transfer threshold **between** networks may be different, or asymmetric, depending on whether a user terminal is moving from the first network to the second, or from the second network to the first:

Another advantageous selection criterion for determining which user terminals should report cell information is the transfer threshold that may have been set by the operator(s) of the telecommunication system, as defined in claim 8. . . . The transfer threshold for cell reselection or handover from the first wireless access network to the second wireless access network may be asymmetric (i.e. a different transfer threshold Th2 applies for a transfer from the second to the first wireless access network) and may also be dependent on the service type of the service received

by the user terminal when connected to the first wireless access node.

Exhibit 1001, 5:38-50; *see also* 7:65-8:11.

107. For example, as the specification also explains, a user terminal using the voice service connected to an LTE cell from the first network is to be transferred because the transfer threshold Th1 is reached. It is better if this terminal is transferred to a GSM network and remains there due to the specific type of service used. Consequently, even though Th1 is reached and the user terminal is detected to be transferred (and consecutively will be transferred), the system would evaluate Th2 (which is set to correspond in some way to a voice service and a transfer from GSM to LTE) and will not select this particular terminal to report cell information of the plurality of wireless access nodes of the first wireless access network (the LTE network), because the handover in the direction back to the first network (the LTE network) is highly unlikely. *See* Exhibit 1001, 5:38-6:3; 8:12-23; Fig. 2.

108. Therefore, those one or more thresholds required by Claim 8 (Th2 in the example above) are in fact additional thresholds that are used by the system to determine if a terminal should be requested to report cell information if they are to be transferred. User terminals using different services will have different thresholds set for transferring between networks, and the system can select only specific

terminals running specific services for reporting cell information on neighboring cells from the first or the second network.

109. Petitioner asserts that Amirijoo's triggering conditions, which include as a minimum the threshold used for handover measurements (threshold A in Fig. 6), are used to select the part of the detected user terminals, based on the same analysis as element 1[b]. Petition at 49-50 (citing Petition section X(B)(1)(c), which relates to element 1[b]).

110. However, Amirijoo never discloses considering the threshold(s), required by claim 8, for transferring between networks. Exhibit 1005 [0083]-[0088]. Amirijoo only teaches using a threshold of estimated signal quality of the serving base station, shown on the y-axis of Figure 6. Exhibit 1005 [0085], [0087-88]. This is not disclosed as the threshold for transferring either from the serving base station to the candidate base station (a one-way transfer threshold), or from the candidate base station to the serving base station (a two-way transfer threshold).

111. The threshold for transferring from the serving base station to the candidate base station appears to be shown as "B" on the x-axis in Fig. 6. This is the only possible candidate referenced in Amirijoo for the threshold for actually transferring from the first network to the second network (serving BS to candidate BS). First, even if this "B" threshold is the threshold for a one-way transfer, Amirijoo never discloses that it is used for "selecting the part of the detected user terminals"

to perform the required measurements. Exhibit 1005 [0083]-[0089]. Indeed, the only thresholds that Petitioner even argues are used to select a part of the user terminals are the “A” and “C” thresholds in Figure 6. *See* Petition at 50-51. As stated in Amirijoo, the minimum threshold used for this purpose is the “A” threshold. Exhibit 1005 [0087] (“The threshold used in criteria b) can either be the same threshold as is used for inter-RAT/frequency handover measurements (e.g., threshold A in Fig. 6), or it can be set higher . . . (e.g., higher than threshold “A” of Fig. 6”).

112. Further, even assuming that Amirijoo disclosed using threshold “B” as a parameter for “selecting the part of the detected user terminals,” this would still not satisfy claim 8. This is because this threshold, as discussed, is at most the threshold for a one-way transfer. Claim 8 requires using threshold(s) for transferring between networks, not a threshold for a one-way transfer. But Amirijoo does not teach that the “B” threshold is used for transferring mobile stations back from the candidate base station to the serving base station (which would make it a symmetric threshold for transferring between networks). Nor does Amirijoo disclose another differing threshold for doing so (an asymmetric threshold). In fact, Amirijoo never discusses a (two-way) threshold for transferring between networks at all, much less using such a threshold or thresholds to select the part of user terminals detected to be transferred.

113. Because Ground 1 relies solely on Amirijoo for this element, Ground 1 does not disclose the use of a threshold for transferring user terminals between wireless access nodes as a selection parameter for selecting the part of the detected user terminals, as required by Claim 8.

X. CONCLUSION

114. 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. I further declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: June 20, 2023

A handwritten signature in black ink, appearing to read 'Radostin', is written over a solid horizontal line.

Radostin Pachamanov, Ph.D.