

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION, ERICSSON INC., AND
T-MOBILE USA, INC.,

V.

GENERAL ACCESS SOLUTIONS, LTD.,
PATENT OWNER.

Case No. IPR2023-01416
U.S. Patent No. 6,947,477

DECLARATION OF VIJAY K. MADISETTI, PH.D.

I. INTRODUCTION

1. I have been retained as a technical expert on behalf of Patent Owner General Access Solutions, Ltd. (“General Access”) for the above-captioned inter-partes review (“IPR”). I have been asked to provide my opinions on the technology disclosed in U.S. Patent No. 6,947,477 (“the ’477 patent”) (Ex. 1001) and on the unpatentability arguments for claims 1-15 and 18 presented in the Petition filed by Nokia of America Corporation, Ericsson Inc., and T-Mobile USA, Inc. (collectively, “Petitioners”) alleging that claims 1-20 of the ’477 patent (the “Challenged Claims”) are invalid under 35 U.S.C. §§ 102 and/or 103.

2. I make this declaration based on my personal knowledge, consideration of the materials I discuss herein, and my expert opinion.

3. I am being paid for my work on this matter on an hourly basis at \$650/hour. My compensation is not contingent on reaching any particular findings or conclusions, or on any particular outcome in this matter. I have no financial interest in the outcome of this matter.

4. In preparing this Declaration, I have reviewed the ’477 patent and considered each of the documents cited herein. I have also read and considered the IPR Petition concerning the ’477 Patent and the exhibits and evidence cited therein as grounds for invalidity, including the Patent Owner's Preliminary Response, and the Board's Decision Granting Institution of this IPR.

5. In formulating my opinions, I have also relied upon my experience, education, knowledge and expertise in the area of wireless and mobile communications systems. In reviewing the material relevant to these proceedings, I have considered the viewpoint of a person of ordinary skill in the art in the January 2001 timeframe.

II. BACKGROUND AND QUALIFICATIONS

6. My qualifications can be found in my Curriculum Vitae, which includes a complete list of my publications, and is attached as Exhibit 2002. Some of my background and experience that qualifies me to offer the opinions offered in this Declaration as an expert in the technical issues in this case follow.

7. I received my Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering at the Indian Institute of Technology (IIT) in Kharagpur, India, in 1984. I obtained my Ph.D. in Electrical Engineering and Computer Science at the University of California, Berkeley, in 1989. I received the Demetri Angelakos Outstanding Graduate Student Award from the University of California, Berkeley, and the IEEE/ACM Ira M. Kay Memorial Paper Prize in 1989.

8. I now am a tenured Professor in Colleges of Computing and Engineering at Georgia Tech and currently serve as its representative to the European Telecommunications Standards Institute (“ETSI”). I am knowledgeable

and familiar with wireless communications including the IEEE's 802.11 standards, microprocessor architecture, radio frequency ("RF") communication, cellular networks including ETSI/3GPP/3GPP2 standards, ASIC design, computer engineering, digital signal processing, sensors, wireless terminal power regulation, and software and firmware design for wireless and telecommunications terminals and base stations in general. I also am familiar with standard-setting organizations' protocols and procedures.

9. I have created and taught undergraduate and graduate courses in hardware and software design for signal processing and wireless communication circuits at Georgia Tech for the past twenty years. I also have supervised the Ph.D. dissertations of over twenty engineers in the areas of computer engineering, signal processing, communications, rapid prototyping, and system-level design methodology, of which five have resulted in thesis prizes or paper awards. I also have graduated more than 20 Ph.D. students that now work as professors or in technical positions around the world.

10. Additionally, I have been active in the areas of wireless communications, digital signal processing, integrated circuit design (analog and digital), software engineering, system-level design methodologies and tools, and software systems.

11. I have been the principal investigator (“PI”) or co-PI in several active research programs in these areas, including DARPA’s Rapid Prototyping of Application Specific Signal Processors, the State of Georgia’s Yamacraw Initiative, the United States Army’s Federated Sensors Laboratory Program, and the United States Air Force Electronics Parts Obsolescence Initiative. I have received an IBM Faculty Award and NSF’s Research Initiation Award.

12. I have designed several specialized computer and communication systems over the past two decades at Georgia Tech for tasks such as wireless audio and video processing and protocol processing for portable platforms, such as cell phones and PDAs. I have worked on designing systems that are efficient from performance, size, weight, area, and thermal considerations.

13. I have developed courses and classes for the industry on these topics, and many of my lectures in advanced computer system design, developed under the sponsorship of the United States Department of Defense in the late 1990s, are available for educational use at <http://www.eda.org/rassp> and have been used by several U.S. and international universities as part of their course work.

14. I have been working in the area of wireless communications and signal processing, since the early 1980s. Some of my recent publications in the area of design of wireless communications systems and associated protocols are listed in Exhibit 2002.

15. In the 1980s, I designed and prototyped a very low RF frequency (VLF) receiver for submarine communications utilizing MSK (Minimum Shift Key) modulation/demodulation techniques in hardware.

16. In the early 2000-2001 timeframe, I designed three GSM multiband mobile phones for a leading telecom equipment manufacturer in Asia.

17. In the 2002-2007 timeframe, I developed wireless baseband and protocol stack software and assembly code for a leading telecommunications handset vendor that focused on the efficient realization of speech codecs and echo-cancellation and for another in the optimization of their 3G software stack. My work in this regard included the creation of software code and analysis and revision of existing software code.

18. I have been an active consultant to industry and various research laboratories (including Massachusetts Institute of Technology Lincoln Labs and Johns Hopkins University Applied Physics Laboratory). My consulting work for MIT Lincoln Labs involved high-resolution imaging for defense applications, where I worked in the area of prototyping complex and specialized computing systems. My consulting work for the Johns Hopkins Applied Physics Lab (“APL”) mainly involved localization of objects in image fields, where I worked on identifying targets in video and other sensor fields and identifying computer architectures and circuits for power and space-efficient designs.

19. I have founded three companies in the areas of embedded software, military chipsets involving imaging technology, and wireless communications. The first of the companies I founded, VP Technologies, offers products in the area of semiconductor integrated circuits, including building computing systems for imaging systems for avionics electronics for the United States Air Force and the United States Navy, since 1995. I remain a director of VP Technologies. The second of these companies, Soft Networks, LLC, offers software for multimedia and wireless computing platforms, including the development of a set-top box for Intel that decodes MPEG-2 video streams, wireless protocol stacks, and imaging codecs for multimedia phones. The technology involved with the design, development and implementation of the set-top box included parsing the bit streams, decoding communications protocols, extracting image and video data, and then processing for subsequent display or storage. The third of these companies, Elastic Video, uses region of interest based video encoding or decoding for capturing high-quality video at very low bit rates, with primary application for wireless video systems.

20. I have authored more than sixty refereed journal publications and around forty peer-reviewed conference publications. I have been active in research in the area of wireless and mobile communications and some of my recent peer-reviewed publications in this area include: (i) Mustafa Turkboylari & Vijay K.

Madiseti, Effect of Handoff Delay on the System Performance of TDMA Cellular Systems, Proceedings of the Fourth IEEE Conference on Mobile and Wireless Communications Network 411-15 (Sept. 9-11, 2002); (ii) Loran A. Jatunov & Vijay K. Madiseti, Computationally-Efficient SNR Estimation for Bandlimited Wideband CDMA Systems, 5 IEEE Transactions on Wireless Communications, no. 12 (2006) at 3480-91; and (iii) Nimish Radio, Ying Zhang, Mallik Tatipamula & Vijay K. Madiseti, Next Generation Applications on Cellular Networks: Trends, Challenges, and Solutions, 100 Proceedings of the IEEE, no. 4 (April 2012) at 841-54.

21. I have extensive experience analyzing, designing, and testing systems based on 3GPP Technical Specifications, including specifications describing WCDMA and HSDPA technologies. I have been active in the area of location-based services and wireless localization techniques since the mid-1990s, and have authored several papers on location-based services, including, Vijay K. Madiseti et al., Mobile Fleet Application Using SOAP and System on Devices (SyD) Middleware Technologies, Communications, Internet, and Information Technology (2002) at 426-31. I have served as associate editor or on the editorial board for technical journals, including IEEE Transactions on Circuits & Systems II, International Journal in Computer Simulation, and International Journal in VLSI Signal Processing.

22. I have authored or co-authored several books, including VLSI Digital Signal Processors (IEEE Press 1995) and the Digital Signal Processing Handbook (CRC Press, 1998, 2010). I co-authored Quick-Turnaround ASIC Design in VHDL (Kluwer Academic Press 1996) and Platform-Centric Approach to System-on-Chip (SoC) Design (Springer 2004). I am also the editor of several books, including the three-volume DSP Handbook set: Volume 1: Digital Signal Processing Fundamentals, Volume 2: Video, Speech, and Audio Signal Processing and Associated Standards, and Volume 3: Wireless, Networking, Radar, Sensory Array Processing, and Nonlinear Signal Processing, published in 2010 by CRC Press, Boca Raton, Florida. More recently I have authored Cloud Computing (2014, CreateSpace Press), and Internet of Things (2014, CreateSpace), and the book, Cloud Computing, was nominated as a Notable Book of 2014 by the Association of Computing Machinery (ACM) in July 2015.

23. I have been elected a Fellow of the IEEE, for contributions to embedded computing systems. The Fellow is the highest grade of membership of the IEEE, a world professional body consisting of over 300,000 electrical and electronics engineers, with only one-tenth of one percent (0.1%) of the IEEE membership being elected to the Fellow grade each year. Election to Fellow is based upon votes cast by existing Fellows in IEEE. I have also been awarded the 2006 Frederick Emmons Terman Medal by the American Society of Engineering

Education for contributions to Electrical Engineering, including authoring a widely used textbook in the design of VLSI digital signal processors. I was awarded VHDL International Best Ph.D. Dissertation Advisor Award in 1997 and the NSF RI Award in 1990. I was Technical Program Chair for both the IEEE MASCOTS in 1994 and the IEEE Workshop on Parallel and Distributed Simulation in 1990. In 1989 I was recognized with the Ira Kay IEEE/ACM Best Paper Award for Best Paper presented at the IEEE Annual Simulation Symposium.

24. I have submitted approximately 40 invention disclosures and provisional patents over the past ten years. I am listed as the inventor on eight allowed or issued U.S. Patents.

25. I am generally familiar with issues involving patents and with determining the meaning of patent claim terms from the perspective of a “person of ordinary skill in the art” (“POSITA”) at the time the purported invention was made.

26. I have completed reports, depositions, and provided testimony regarding communications systems in more than 20 proceedings over the past six years. About half of the proceedings in which I have testified were in the area of 2G/3G/4G/WiFi/WiMax/OFDM/MIMO wireless transceiver design covering both hardware and software features of base stations and/or mobile devices.

27. I have followed, tested compliance requirements, participated in, and contributed to activities of Standards Setting Organizations (“SSOs”) such as the IEEE, IETF, ETSI, TIA, and others, as part of my work as a teacher and researcher in advanced telecom, wireless and computer technologies since the 1990s.

28. I have been extensively involved in the activities of one of the premier SSOs in the world, the IEEE, since the 1980s, and I have participated in the development of standards for hardware design and description languages, such as VHDL, used in the design of computer chips – IEEE 1076.6. This standard is now used worldwide in the design of advanced computer chips and associated design automation tools for VLSI. I have also taught courses and authored papers and books on how to comply with these standards in terms of writing code for design of chipsets.

29. The Internet Engineering Task Force (IETF) (<https://www.ietf.org/how/wgs/>) is the premier SSO in the area of computer networks and associated technologies, and creates a number of working groups (WG) that focus on specific deliverables (guidelines, standards specifications, etc.) and focus on creating and improving existing network protocols. I have contributed draft proposals for such improvement to standardized protocols over the past several years that include contributions to mobile wireless, stream

controlled transport protocols, networking, encryption and voice/video transmission. These proposals include:

- IETF Internet Draft (Nov 2002): Enhancements to ECRTTP with Applications to Robust Header Compression for Wireless. URL <https://tools.ietf.org/html/draft-madisetti-rao-suresh-rohc-00>
- IETF Internet Draft (May 2002): Voice & Video over Mobile IP Networks. URL <https://tools.ietf.org/html/draft-madisetti-argyriou-voice-video-mip-00>
- IETF Internet Draft (July 2002): A Transport Layer Technology for Improving QoS of Networked Multimedia Applications. URL <https://tools.ietf.org/html/draft-madisetti-argyriou-voice-video-mip-00>

30. I have developed speech and video codecs that comply with 3GPP standards, such as a Wideband AMR and the AMR. These tasks involved developing software to implement the associated 3GPP standards and also tests to verify compliance with these standards. The families of these 3GPP standards include TS 26.071 – TS 26.204, covering over a hundred standard specification documents. The software that I developed that complies with these standards is now available commercially on millions of 3G and 4G handsets worldwide. My codecs were tested on live 3G and 4G networks in Europe and the USA since the early 2004 – 2006 timeframe.

31. I have also developed several speech and VOIP codecs that conform with the ITU (International Telecommunications Union) standards G.723.1, G.729 and Echo Cancellers conforming with the ITU G.168 standards (See <https://www.itu.int/rec/T-REC-G.723/en>)

32. The software and code I have developed and tested based on technologies essential to the ITU standards are now used by one of the leading suppliers of VOIP/Internet telephones in the world. This software is also part of commercially released soft switches for internet telephony used extensively in Asia. See for example URL <https://www.thehindubusinessline.com/bline/2002/04/09/stories/2002040900660700.htm>

III. APPLICABLE LEGAL STANDARDS

A. Ordinary Skill in the Art

33. My opinions in this declaration are based on the understandings of a person of ordinary skill in the art—sometimes referred to as an “ordinary artisan” or by the acronyms “POSA” or “POSITA”—as of the time of the invention, which I understand to be the January 19, 2001 filing date of the earliest provisional applications leading to the ’477 patent. I understand that the person of ordinary skill in the art is a hypothetical person who is presumed to have known the art relevant to the Challenged Claims of the ’477 patent at the time of the invention.

34. I understand that, in assessing the level of skill of a person of ordinary skill in the art, one should consider the type of problems encountered in the art, the prior solutions to those problems found in the prior art references, the rapidity with which innovations are made, the sophistication of the technology, the level of education of active workers in the field, and one's own experience working with those of skill in the art at the time of the invention.

35. Petitioner submits that a POSA at the time of the '477 Patent "would have had at least a bachelor's degree in computer science, electrical or computer engineering, or a related field, and at least two years of work or research experience in digital communications systems, such as wireless communications systems and networks, or equivalent, or a master's degree in electrical engineering, computer engineering, computer science, or a similar field. Relevant working experience would include experience with telecommunications and networking, radio-access networking, and/or service provisioning in wireless networks. More education can supplement practical experience and vice-versa." (Petition at 5.) Patent Owner has not offered a different understanding of a POSITA, and the PTAB accepted Petitioner's submission. I accept and use Petitioner's and the PTAB's definition of a POSA.

36. I was at the time of invention, and am, one of more than ordinary skill in the art through my education, research experience and work experience. As of

the date of the invention, I was familiar with the types of problems encountered in mobile communications systems and the rapidity at which innovations were made. I was and am familiar with people having this level of skill in the area of mobile communication systems.

B. Claim Construction

37. I understand that the Challenged Claims of the '477 Patent in this IPR are generally interpreted according to their ordinary and customary meaning taking into consideration the so-called "intrinsic evidence" of the patent consisting of (1) the claim language; (2) the specification; and (3) the prosecution history.

38. I understand that claim terms may be explicitly defined in the patent specification or they may be implicitly defined through consistent usage in the specification. I also understand that the scope of claim terms may be limited by statements in the specification or prosecution history where the applicant clearly disavows or disclaims subject matter.

39. I understand that claim construction is a matter of law.

C. Anticipation

40. I have been informed that a claim is invalid as anticipated under 35 U.S.C. § 102 (pre-AIA) if a prior art reference discloses, either expressly or inherently, all limitations of a claim as those limitations are arranged in the claim.

41. I have been informed that a limitation is disclosed inherently in a reference if it is necessarily present in the process or product described in the prior art reference. I understand that probabilities or possibilities are insufficient to show that a prior art reference inherently discloses something beyond what it discloses explicitly.

D. Obviousness

42. Counsel has informed me, and I understand, that an issued patent claim is invalid as obvious if it can be shown that the differences between the patented subject matter and the prior art are such that the subject matter as a whole would have been obvious, at the time the invention was made, to a person having ordinary skill in the art. Relevant considerations include the level of ordinary skill in the art; the scope and content of the prior art; differences between the prior art and the claims at issue; and the objective indicia, or secondary considerations, of nonobviousness.

43. In this regard, I am informed and I understand that the secondary considerations of nonobviousness could include factors such as commercial success, long felt but unresolved needs, the failure of others, skepticism by experts, praise by others, award and accolades, and copying.

44. Counsel has informed me, and I understand, that in order to evaluate the obviousness of any claim of the '477 Patent over a given prior art combination,

I should analyze whether the prior art references, included collectively in the combination, disclose each and every element of the allegedly invalid claim as those references are read by the person of ordinary skill in the art at the time of the invention.

45. Counsel has informed me, and I understand, that even where all of the claim limitations are expressly disclosed in the prior art references, there must be some showing that a person of ordinary skill in the art would have been motivated to combine such prior art references, and explanation of how the combination would be achieved, and that there would have been a reasonable expectation of successfully achieving the claimed invention from such combination.

46. Counsel has informed me, and I understand, that absent some additional reasoning, mere routine optimization for a person of ordinary skill in the art to arrive at the claimed invention through combination of prior art references is insufficient to support a conclusion of obviousness.

47. Counsel has informed me, and I understand, that to rely on a reference it must be analogous prior art. Counsel has informed me and I understand that a reference is considered analogous prior art: (1) if the reference is from the same field of endeavor as the claimed subject matter, or (2) if the reference “is reasonably pertinent to the particular problem with which the inventor is

involved,” even though the reference is not within the field of the inventor’s endeavor.

48. Counsel has informed me, and I understand, in considering the obviousness of a claimed invention, one should not view the invention and the prior art with the benefit of hindsight. In an obviousness analysis, one must be aware of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning. Counsel has instructed me and I understand that when considering obviousness, I should not consider what is known today or what was learned from the asserted patents. Instead, obviousness is assessed by the person of ordinary skill in the art at the time the invention was made.

49. In this regard, I am informed and I understand that the ’477 Patent may not be used as a guide to select and understand the prior art, because such an approach, at a minimum, discounts the value of combining various existing features or principles in a new way so as to achieve a new result.

50. Counsel has informed me, and I understand, that obviousness cannot be predicated on what was unknown at the time of the invention, even if the inherency of a certain feature is later established. Counsel has also informed me, and I understand, that unknown properties of the prior art may not be relied upon to provide the rationale for modifying or combining the prior art to reach the claimed subject matter.

51. Counsel has informed me, and I understand, that a reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant of the '794 Patent.

52. I have applied the following principles in formulating the opinions contained herein.

IV. CHALLENGED CLAIMS

53. Petitioner challenges claims 1-20 of the '477 patent, of which claims 1 and 16 are independent. Exemplary claim 1 recites:

Profile-creating apparatus for creating at least a first profile associated with transmission upon at least a first channel of at least a first burst-data Signal transmitted in bursts to a receiving station, said profile-creating apparatus comprising:
a profile parameter determiner coupled to receive an indication of an initial burst of the first burst data signal transmitted upon the first channel to the receiving station, said profile parameter determiner for determining a value of at least one signal-related parameter and at least one channel-related parameter, wherein the signal-related and channel-related parameters are collectively representative of communication of the first burst data signal over the first channel to the receiving station; and

a profile parameter storage device coupled to said profile parameter determiner, said profile parameter storage device for storing values representative of the at least one signal-related parameter and the at least one channel-related parameter determined by said profile parameter determiner, the values stored at said profile parameter storage device to be used to facilitate receive operations performed at the receiving station on subsequent bursts of the first burst data signal.

(*Id.* at 12:63-13:18)

V. CLAIM CONSTRUCTION

A. “a profile parameter storage device coupled to said profile parameter determiner”

54. In its Institution Decision, the Board stated:

Apparatus claim 1 recites, “a profile parameter storage device coupled to said profile parameter determiner.” Ex. 1001, 13:11–12. Patent Owner impliedly construes this phrase as requiring that the “profile parameter storage device” and the “profile parameter determiner” be two different and distinct components. *See* Prelim. Resp. 19 (citing *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1382 (Fed. Cir. 2022)); *id.* at 31 (citing *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010)). Petitioner’s position on this issue is not clear. *See, e.g.*, Pet. 20 (Petitioner’s contentions for the subject limitation lacking any explicit allegation using the phrase “coupled to.”).

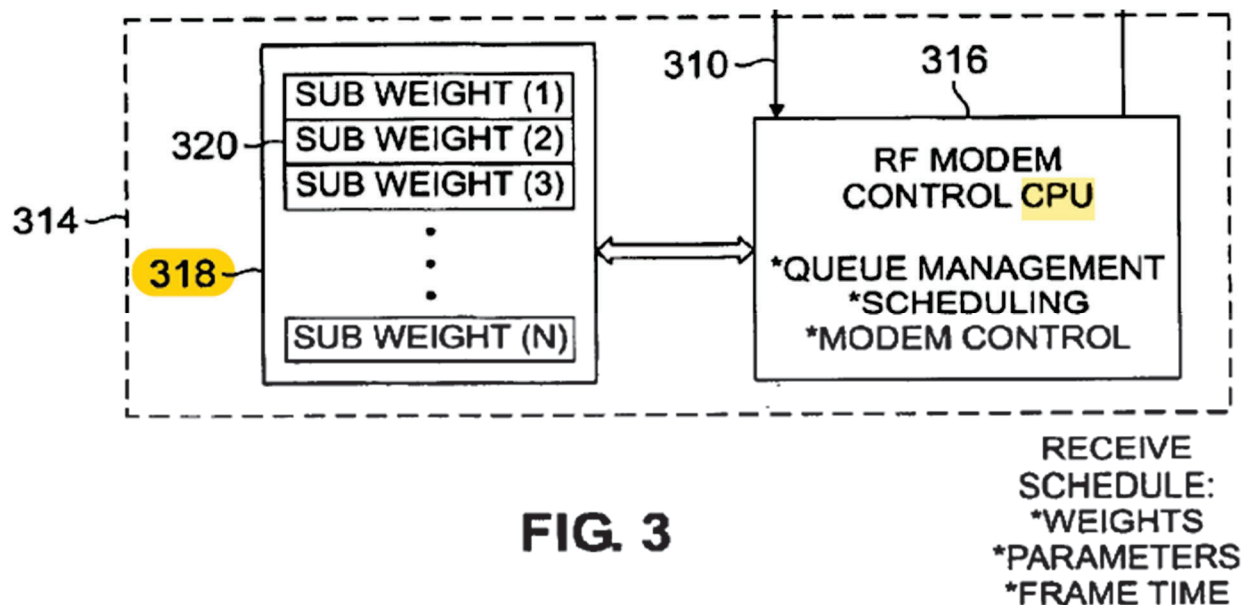
(Institution Decision at 16-17.)

55. I understand that the Board held in its Institution Decision, “Petitioner needed to, but did not, explain adequately how Genossar discloses such a storage device coupled to the component identified by Petitioner as the determiner.” (Institution Decision at 24.) I further understand that the Board held that “Petitioner does not identify adequately the component in Barratt ’470 that Petitioner contends is the recited profile parameter storage device and does not address adequately the required structural relationship of a profile parameter storage device “coupled to” the structure mapped by Petitioner to the profile parameter determiner (the DSP).” (Institution Decision at 41.) I agree with each of these findings.

56. In light of the Board’s findings, with which I agree, I do not believe a determination of whether “a profile parameter storage device coupled to said profile parameter determiner” requires that the “profile parameter storage device” and the “profile parameter determiner” be two different and distinct components is necessary to resolve Petitioners’ challenges to claims 1-15 or 18 of this IPR.

57. To the extent the Board disagrees, I believe that when the ’477 patent states that “[a] profile parameter storage device is coupled to the profile parameter determiner,” a POSA would naturally understand that such “coupling” can only take place between two separate and distinct components. (*See* Ex. 1001, 7:8-9.) This is also consistent with the ’477 patent’s description of the controller 314

including memory device 318 (profile storage device) and the control CPU 316 (profile parameter determiner)—where the coupling between the 318 and 316 is shown by the double arrow in the excerpt of Figure 3, below.



(Ex. 1001, Figure 3 (excerpted, annotated).) Every time the '477 patent uses the term “coupled,” it does so consistent with a POSA’s understanding of this coupling being between two different and distinct components. (See Ex. 1001, 7:2-5 (“profile parameter determiner is coupled to receive an indication of an initial burst of the first burst data signal transmitted upon the first channel to the receiving station”), 7:8-9 (“profile parameter storage device is coupled to the profile parameter determiner”), 8:16-17 (“transceiver base station 110 is coupled to RF modem shelf 140”), 9:67-10:2 (“Modem 302 and modem 304 are selectively coupled to receive uplink signals sent by different ones of subscriber stations to the

base station (not shown).”), 10:9-10 (“modems are shown to be functionally coupled to controller 316 via lines 310”).)

B. “said profile parameter storage device for storing values representative of the at least one signal-related parameter and the at least one channel-related parameter”

58. I understand that, in its Institution Decision, the Board stated:

Apparatus claim 1 also recites, “said profile parameter storage device for storing values representative of the at least one signal-related parameter and the at least one channel-related parameter.” Ex. 1001, 13:12–15. Patent Owner impliedly argues that the signal-related parameter and the channel-related parameter must be stored in the same storage device. *See* Prelim. Resp. 19–20; *id.* at 2 (“Genossar teaches that the alleged signal-related parameter and channel-related parameter are stored in separate devices, such that there is not a single ‘profile parameter storage device’ that stores both alleged parameters as claim [1.C] . . . recites.”); *id.* at 28 (referring to a “profile parameter storage device arranged in the same manner recited in claim [1.C]: . . . storing both the alleged signal-related parameter and channel-related parameter”). Petitioner’s position on this issue also is unclear but Petitioner appears to disagree with the proposition that “the ‘profile parameter storage device’ must be a singular component.” Pet. Prelim. Reply 2–3.

(Institution Decision at 16-17.)

59. As above, in light of the Board’s findings, with which I agree, I not believe a determination of whether “said profile parameter storage device for

storing values representative of the at least one signal-related parameter and the at least one channel-related parameter” requires that the signal-related parameter and the channel-related parameter must be stored in the same storage device is necessary to resolve Petitioners’ challenges to claims 1-15 or 18 of this IPR.

60. To the extent the Board disagrees, I believe that when the ’477 patent recites “said profile parameter storage device for storing values representative of the at least one signal-related parameter and the at least one channel-related parameter,” a POSA would naturally understand this to mean that the signal-related parameter and the channel-related parameter must be stored in the same storage device (although, of course, there could be multiple storage devices, each storing both a signal-related parameter and channel-related parameter). This is consistent with the ’477 patent, which discloses that various profiles are all stored/maintained “at memory device 318,” so that they can be pulled and updated as needed, and then applied to the modems as needed. (*See* Ex. 1001, 10:15-42, 11:9-21, 12:7-12.)

VI. ARGUMENT

A. Grounds 1 and 2—Challenged Claims 1-15: The Petition Fails to Show that Genossar Discloses “a Profile Parameter Storage Device Coupled to Said Profile Parameter Determiner,” and “Said Profile Parameter Storage Device for Storing Values Representative of the at Least One Signal Related-Parameter and the at Least One Channel-Related Parameter” as Recited in Claim [1.C].

1. The Petition Fails to Allege that Genossar Discloses a “Profile Parameter Storage Device Coupled to Said Profile Parameter Determiner” as Recited in Claim [1.C].

61. I understand that claim [1.C] recites “a profile parameter storage device coupled to said profile parameter determiner, said profile parameter storage device for storing values representative of the at least one signal-related parameter and the at least one channel-related parameter determined by said profile parameter determiner.” (Ex. 1001 at 13:10-15.)

62. It is my opinion that for claim [1.C], Petitioners do not allege that Genossar anticipates a “profile parameter storage device *coupled* to said profile parameter” as claim element [1.C] recites.

63. I agree with the Board’s findings in the Institution Decision that:

It is not enough for Petitioner to allege that the overall base station has a profile parameter storage device. Petitioner needed to, but did not, explain adequately how Genossar discloses such a storage device coupled to the component identified by Petitioner as the determiner. As mentioned, Petitioner maps Genossar’s receive portion 28 to the recited “profile parameter determiner” and contends that the receive portion both determines and stores parameter values and also contends

that “equalizer controller 56, forming part of the receive portion 28,” stores certain parameter values. *See* Pet. 17–18. However, if, as Petitioner contends, the parameter storing is occurring within the determiner, Petitioner has not explained adequately how there also is a structure in the form of “a profile parameter storage device” that is coupled to that determiner. *See* Prelim. Resp. 19 (Patent Owner arguing that, “[b]ecause Genossar teaches that its equalizer controller 56—which ‘stores the values for the equalizer coefficients’—form[s] part of the receive portion 28, this equalizer controller 56 cannot be ‘coupled’ to the receive portion 28, as it is already ‘part of the receive portion 28.’”).

(Institution Decision at 24.)

64. I also agree with the Board’s additional findings that: Petitioner asserts in its Preliminary Reply that, “like the ’477 Patent, Genossar teaches the general process of determining and storing parameters for use in processing subsequently received signals,” and that “Petitioners have shown that Genossar, like the ’477 Patent, discloses determining parameters and using a stored memory to store the parameters for reuse in subsequent bursts.” Pet. Prelim. Reply 2 (citing Ex. 1005, Abstr., 11:27–30, 11:62–64; Ex. 1003 ¶¶ 48–53, 77). Even if correct, the disclosure of a general *process* is inadequate in this case to satisfy Petitioner’s burden regarding the claimed *apparatus* having the “coupled to” structural relationship.

Petitioner, also in the Preliminary Reply, asserts that “because Genossar discloses *storing* the parameters after *determining* the parameters, the component that determines the parameters is coupled

to the component that stores the parameters for later use, otherwise such storage would not/could not occur.” *Id.* at 3 (citing Pet. 20; Ex. 1003 ¶¶ 71, 77, 85, 91). Petitioner impliedly argues that a person of ordinary skill in the art would have the “understanding that the determining components would inherently be coupled to the storing components of a base station because the determined parameters are stored.” *Id.* at 3–4 (citing Ex. 1011, 20 (Patent Owner’s infringement contentions); *cf.* PO Prelim. Sur-reply 1–2 (Patent Owner asserting that Petitioner’s inherency-related contentions are improper new arguments not found in the Petition). The issue, however, is not whether some unspecified “component” is inherently coupled to some other unspecified “component” located somewhere in a base station. Rather, the issue is whether Petitioner has shown adequately how the reference discloses the recited “profile parameter determiner” and the recited “profile parameter storage device coupled to said profile parameter determiner.” Petitioner has not done so. Without a clearly articulated contention as to what component purportedly corresponds to the recited “profile parameter storage device,” we cannot evaluate whether the two specific components recited in independent claim 1 are “coupled to” each other.

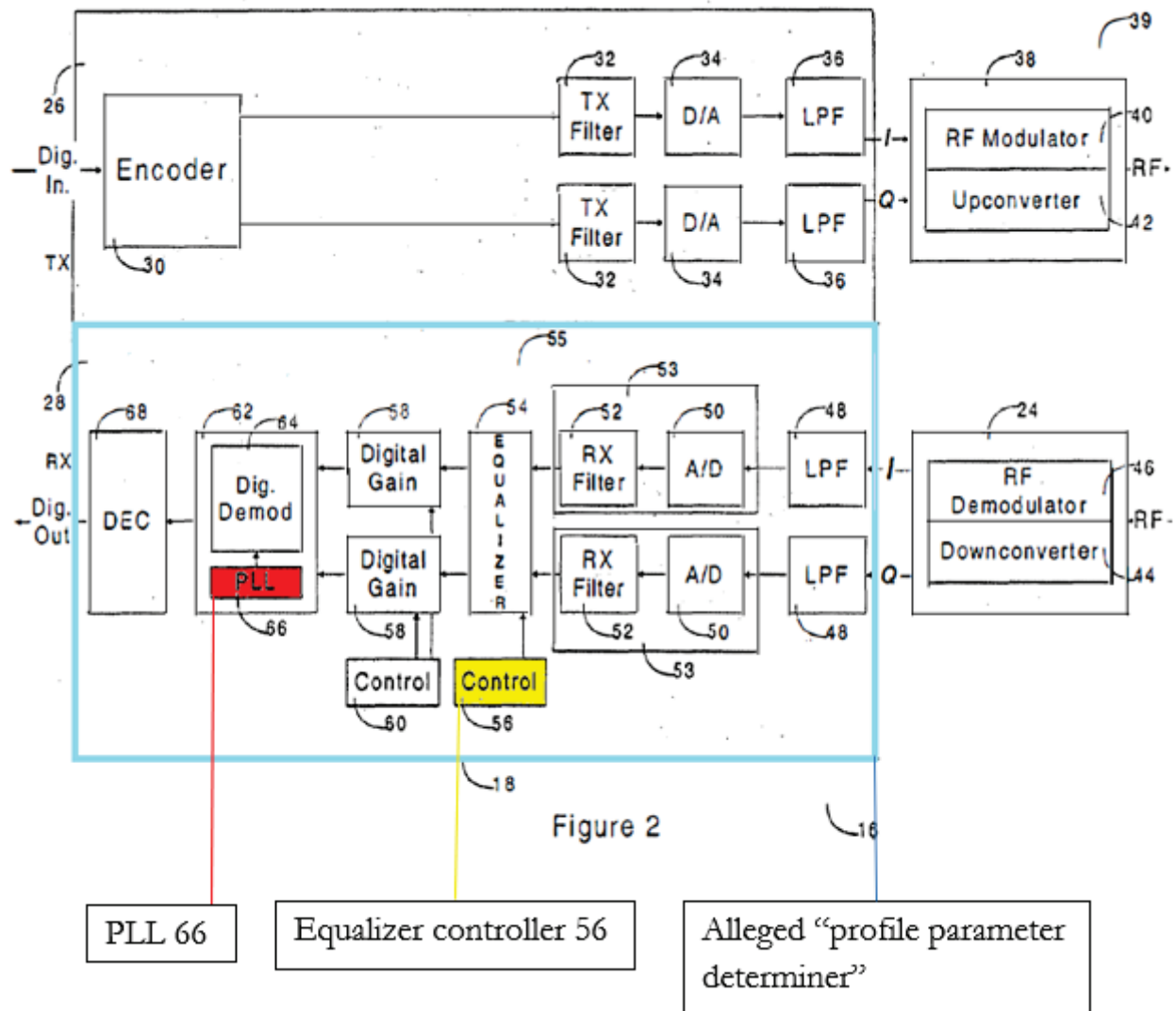
(Institution Decision at 25-26.)

65. I agree with the Board that a contention as to what component from a prior art reference purportedly corresponds to the recited “profile parameter storage device” is necessary in order to evaluate whether that component is coupled to the purported “profile parameter determiner,” because a POSA would understand that

it is not inherent in Genossar that a “profile parameter storage device” is necessarily coupled to the “profile parameter determiner” in the way these components are arranged in the Challenged Claims.

66. For example, Genossar does not store the profile parameters, as alleged by Petitioners, in “a profile parameter storage device” coupled to Petitioners’ alleged “profile parameter determiner.”

67. Petitioners allege that Genossar’s “profile parameter determiner” is the receive portion 28 outlined in blue in Genossar’s Figure 2, below. (Petition at 17, 20.)



(Ex. 1005 at Figure 2 (annotated).)

68. In its discussion of claim [1.B], the Petition alleges that Genossar discloses determining equalizer coefficients that correspond to the “channel-related parameter” recited in claim [1.C]. (Petition at 19.) With respect to claim [1.A], Petitioners state that “Genossar teaches that equalizer controller 56 [highlighted in yellow in Figure 2, above], forming part of the receive portion 28 (as shown in [blue in] Figure 2), *‘stores the values for the equalizer coefficients* and then reuses

these values as an initial estimate when a new signal is received' from the same terminal station.” (Petition at 17-18 (emphasis added).)

69. On this basis, for Genossar to disclose a “profile parameter storage device for storing values representative of the at least one . . . channel-related parameter determined by said profile parameter” as claim [1.C] recites, this “profile parameter storage device” would have to be equalizer controller 56 (yellow).

70. Because Genossar teaches that its equalizer controller 56—which “stores the values for the equalizer coefficients”—form[s] part of the receive portion 28, this equalizer controller 56 cannot be “coupled” to the receive portion 28, as it is already “part of the receive portion 28.” (Petition at 17.)

2. Genossar Does Not Disclose a “Profile Parameter Storage Device for Storing Values Representative of the at Least One Signal Related-Parameter and the at Least One Channel-Related Parameter” as Recited in Claim [1.C].

71. Genossar also does not disclose a “profile parameter storage device for storing values representative of the at least one signal related-parameter *and* the at least one channel-related parameter” as claim [1.C] recites. The Petition alleges with respect to element [1.B] that the “at least one signal-related parameter” is the “carrier frequency offset,” and the at least one-channel related parameter is the “equalizer coefficient[.]” (Petition at 19.)

72. Although the Petition alleges for element [1.A] that Genossar stores the equalizer coefficients in equalizer controller 56, Genossar’s “carrier frequency offset” is *not* also stored in equalizer controller 56. (Petition at 17-18, *see id.* at 20.) Genossar discloses that “PLL 66 [highlighted in red in Figure 2, above] at base station modem 18 does *store and reuse the values for carrier frequency offset . . .*.” (Ex. 1005 at 11:62-64 (emphasis added).)

73. According to Genossar, the alleged signal-related parameter and channel-related parameter are not stored in the same storage device. The Petition’s alleged signal-related parameter is both stored and reused in Genossar’s PLL 66, and the Petition’s alleged channel-related parameter is both stored and reused in Genossar’s equalizer controller 56. (Petition at 17-18; Ex. 1005 at 11:62-64.) On this basis, Genossar does not disclose a “profile parameter storage device for storing values representative of the at least one signal related-parameter *and* the at least one channel-related parameter” as claim [1.C] recites.

B. Grounds 3-5—Challenged Claims 1-15: The Petition Fails to Allege that Barratt ’470 Discloses a “Profile Parameter Storage Device Coupled to Said Profile Parameter Determiner” as Recited in Claim [1.C].

74. Claim [1.C] recites “a profile parameter storage device coupled to said profile parameter determiner, said profile parameter storage device for storing values representative of the at least one signal-related parameter and the at least

one channel-related parameter determined by said profile parameter determiner.”
(Ex. 1001 at 13:10-15.)

75. It is my opinion that Petitioner has failed to allege that Barratt ’470 discloses “a profile parameter storage device *coupled* to said profile parameter determiner,” and that this alleged “profile parameter storage device” is “for storing values representative of the at least one signal-related parameter *and* the at least one channel-related parameter.” (Petition at 47-48.)

76. I agree with the Board’s findings in the Institution Decision that: Petitioner contends that, in Barratt ’470, it is the profile parameter determiner that stores values representative of the values of the parameters. As such, Petitioner has not explained adequately how there is, as recited in element 1.C, “a profile parameter storage device coupled to said profile parameter determiner” where it is that storage device that is “for storing values representative [of the parameters].” Ex. 1001, 13:10–15. ... Petitioner further contends that the method of Barratt ’470 involves the use of parameter values in a recursive loop repeated every frame and, “[t]hus, Barratt ’470 discloses that the base station necessarily includes a ‘profile parameter storage device’ for *storing* these parameter values *from one frame to next* for each signal of interest, as required by Claim [1.C].” *Id.* at 48 (citing Ex. 1003 ¶ 145; Ex. 1011, 20–21 (infringement contentions)) (emphasis and bracketed element number in original). The contentions in the Petition regarding element 1.C do not include any explicit assertion using the claim phrase “coupled to.” *See id.* at 47–48. ...

As with the Genossar anticipation ground, it is not enough for Petitioner to allege that there is a storage device somewhere in the base station or that some unidentified storage component necessarily must be connected to some component that obtains the values. See Prelim. Resp. 28 (Patent Owner arguing that, “[e]ven if Barratt ’470 necessarily includes a ‘profile parameter storage device’ as the Petition alleges, it is *not* the case that Barratt ’470 *necessarily* includes a ‘profile parameter storage device[.]’ *arranged in the same manner* recited in claim [1.C]: (1) ‘coupled’ to a profile parameter determiner, and (2) storing both the alleged signal-related parameter and channel-related parameter.”). Petitioner does not identify adequately the component in Barratt ’470 that Petitioner contends is the recited profile parameter storage device and does not address adequately the required structural relationship of a profile parameter storage device “coupled to” the structure mapped by Petitioner to the profile parameter determiner (the DSP). Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing in its challenge to independent apparatus claim 1 or its dependent claims 3–6, 8–10, 13, and 15 as anticipated by Barratt ’470.

(Institution Decision at 40-41.)

77. I agree with the Board that a POSA would understand that it is not inherent in Barratt ’470 that a “profile parameter storage device” is necessarily coupled to the “profile parameter determiner” in the way these components are arranged in the Challenged Claims.

78. For example, the Petition argues that “Barratt ’470 discloses that for each signal of interest ‘the method involves a recursive loop repeated every frame.’” (Petition at 47-48 (citing Ex. 1006 at 16:32-17:7 (discussing normal mode processing).) As the Petition alleges with respect to claim [1.D], Barratt ’470 illustrates this processing through Figure 6, reproduced below. In the context of Figure 6, Petitioners allege that w_{r0} is the claimed “channel-related parameter” and the frequency offset and time alignment are the claimed “signal-related parameters.” (Petition at 44-46.) However, while Figure 6 illustrates utilizing “ w_{r0} from SYNCH mode or from previous frame,” and subsequently correcting this initial copy signal using the “[f]req. offset & time alignment from previous frame or SYNCH mode,” Figure 6 provides no disclosure as to where the “ w_{r0} from SYNCH mode or from previous frame,” and “[f]req. offset & time alignment from previous frame or SYNCH mode” are stored. (See Ex. 1007 at Fig. 6.)

Ex. 1007, Fig. 6 (annotated)

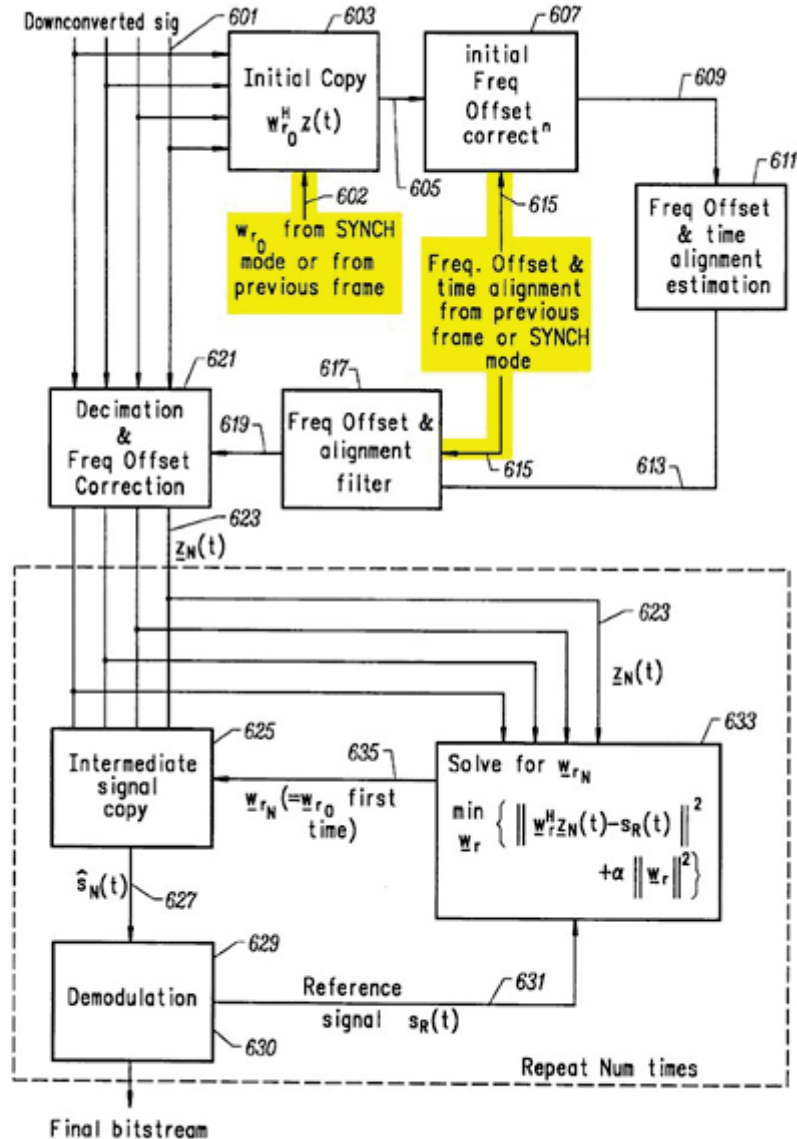


FIG. 6

(Petition at 49.)

79. On this basis, Figure 6 provides no disclosure regarding whether the “ w_{r0} from SYNCH mode or from previous frame,” and “[f]req. offset & time alignment from previous frame or SYNCH mode” are stored separately, or in a single “profile parameter storage device for storing values representative of the at

least one signal-related parameter *and* the at least one channel-related parameter” as claim [1.C] recites. (*See id.*) Nor does Figure 6 (or anywhere else in Barratt ’470) provide any disclosure regarding whether the device(s) storing the “w_{r0} from SYNCH mode or from previous frame,” and “[f]req. offset & time alignment from previous frame or SYNCH mode” are “coupled” to the “profile parameter determiner”—which Petitioners have alleged is the Slot 0 processor 117.0. (*See* Petition at 42, 47-48.)

80. Petitioners’ own evidence in Genossar affirms that a “profile parameter storage device” arranged in the same manner as recited in claim [1.C] need not be necessarily present. For example, Barratt ’470 could store the “w_{r0} from SYNCH mode or from previous frame,” and “[f]req. offset & time alignment from previous frame or SYNCH mode” in two separate storage devices, just as in Genossar, as described above.

81. Additionally, Barratt ’470 could store the “w_{r0} from SYNCH mode or from previous frame,” and “[f]req. offset & time alignment from previous frame or SYNCH mode” inside of the Slot 0 processor 117.0 that Petitioners have alleged is Barratt ’470’s “profile parameter determiner.”

C. Ground 5—Claim 18: The Petition Fails to Explain How it Consistently Maps the Same Parameters in Claims 16 and 18 Over Barratt ’470 and PHS

82. I agree with the Board’s findings in the Institution Decision that:

[D]ependent claim 18 refers to the same signal-related and channel-related parameters recited in independent method claim 16. In its mapping of those parameters for the independent claims, Petitioner contends that “Barratt ’470 discloses “determining at least one signal-related parameter (*e.g., frequency offset, time alignment, etc.*)” and “determining a value of at least one channel-related parameter (*e.g., antenna weights*).” Pet. 46. For dependent claim 18, Petitioner does not refer explicitly to those same parameters. *See id.* at 68 (relying on the contentions made for claim 2); *id.* at 67 (Petitioner contending, for claim 2, that “the initial burst is used by the base station to determine the at least one parameter for the first burst data signal, including the ‘*frequency*’ and ‘*timeslot*’ of the SCH channel and other parameters described in the PHS standard.”). Petitioner has not explained adequately how it consistently maps the same parameters in both independent claim 16 and its dependent claim 18. Accordingly, Petitioner has not demonstrated a reasonable likelihood of prevailing in its challenge to method claim 18 as being obvious over Barratt ’470 and PHS.

(Institution Decision at 46-47.)

I declare under penalty of perjury that the foregoing is true and correct. I acknowledge that willful false statements and the like are punishable by fine and/or imprisonment, that all statements made of my own knowledge are true, and that all statements made on information and belief are believed to be true.

Executed August 20, 2024, in Atlanta, Georgia.

By: 
Dr. Vijay K. Madiseti, Ph.D.