

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE (USA) Inc.,

Petitioner

v.

WSOU Investments LLC D/B/A Brazos Licensing and Development

Patent Owner

U.S. Patent No. 8,149,776

Issue Date: Apr. 3, 2012

Case No. IPR2023-00497

**DECLARATION OF STEPHEN GRAY IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 8,149,776**

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I, Stephen Gray, declare as follows:

I. INTRODUCTION

1. I have been retained on behalf of ZTE (USA) Inc. for the above-captioned *inter partes* review (IPR) proceeding. I am being compensated for my time in connection with this IPR at my standard hourly consulting rate. I understand that this proceeding involves U.S. Patent No. 8,149,776 (“the ’776 patent”) titled “*Method, apparatus and computer program for user equipment access channel procedures*” by Ville O. Steudle et al., and that the ’776 patent is currently assigned to WSOU Investments, LLC.

2. I have reviewed and am familiar with the specification of the ’776 patent filed on May 12, 2009. I understand that the ’776 patent has been provided as Ex-1001. I will cite to the specification using the following format: Ex-1001, 1:1-10. This example citation points to the ’776 patent specification at column 1, lines 1-10.

3. I have reviewed and am familiar with the prosecution history of the ’776 patent. I understand that the prosecution history has been provided as Ex-1002.

4. I am informed by ZTE’s counsel that May 12, 2009, is the ’776 patent’s earliest possible priority date.

5. In preparing this Declaration, I have also reviewed and am familiar with the following prior art used in the Petition for *Inter Partes* Review of the '776 patent and/or in my declaration below:

- **U.S. Patent No. 6,937,641** to Don Li (Ex-1005), filed on February 27, 2002, published on August 30, 2005.
- **U.S. Patent Publication No. 2009/0088175** to Benoit Pelletier (Ex-1006), filed September 26, 2008, and published on April 2, 2009.
- **U.S. Patent Publication No. 2009/0168750** to Benoit Pelletier (Ex-1007), filed December 30, 2008, and published on July 2, 2009.
- **U.S. Patent Publication No. 2009/0016266** by Hak Seong Kim (Ex-1008), filed August 23, 2006, and published on January 15, 2009.
- **U.S. Patent Publication No. 2009/0191875** by Dragan Vujcic (Ex-1008), filed January 23, 2009, and published on July 30, 2009.

6. I have been asked to provide my technical review, analysis, insights, and opinions regarding the '776 patent and the above-noted references that form the basis for the grounds of rejection set forth in the Petition for *Inter Partes* Review of the '776 patent.

II. QUALIFICATIONS

7. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art. A copy of my current *curriculum vitae* is provided as Ex-1004, and it provides a comprehensive description of my academic and employment history over the last thirty-plus years.

8. I received a B.S. degree in Economics from California Polytechnic University in 1973.

9. I have over thirty years of experience in the computer and communications industries. My background includes systems and software architecture, design and development, as well as senior management positions in development, marketing, and general management.

10. From 1973 to 1977, I worked as a systems programmer and a systems analyst at Burroughs Corporation. I worked on data communications software and held several design and product implementation positions in a mid-range and small system development groups.

11. From 1977 to 1979, I worked as a regional support manager at Olivetti Corporation. I worked on software support for a series of mini- and micro-computer systems. Applications of these computer systems included general business and on-line front-office banking.

12. From 1979 to 1982, I worked as a manager in communication controller software development at Computer Communications, Inc. I worked as a leader of architecture, design, development, and testing of a Systems Network Architecture (SNA) communications controller in the Multiple Virtual Storage (MVS) operating environment. Our group successfully designed, developed, and deployed the controller's operating software, diagnostics, host-based compilers, and system support software.

13. From 1982 to 1985, I worked as a manager in foreign system interconnect at Xerox Corporation. I Managed four professionals who defined and developed the technical interconnect strategy for electric page printers to wide-and local-area networks. Our group delivered host software, network, and printer engineering services. We developed a new printer interconnection technique, interfaces to Ethernet local area network, and designed connections to IBM mainframes using SNA and the System/370 channel.

14. From 1985 to 1987, I worked as a general manager in host software products at Xerox Corporation. As the founder and leader of the product delivery organization of a Xerox independent business unit, I managed 22 employees and 33 contract professionals. I directed the definition, architecture, design, development, test, product transfer and sustaining engineering of six products for electronic page

printers connected to IBM mainframes (MVS, VSE, VM), Digital Equipment Corporation (DEC), virtual address extension (VAX), and IBM PC's.

15. From 1987 to 1988, I worked as a director in product marketing at Simpact Associates, Inc. I directed the full life cycle of definition, delivery, marketing and enhancement of four sets of IBM connectivity products, including: (a) systems network architecture (SNA) protocol support hardware and software for Digital Equipment Corporation (DEC) virtual address extension (VAX) systems, (b) An IBM PC-based gateway product that supports SNA and other industry-standard communications architectures, (c) A Netware-based Token Ring Network adapter board and software for DEC VAX systems, and (d) A hardware/software product that receives financial market feeds and reformats the information for presentation to programs running a VAX via a proprietary applications programming interface (API).

16. From 2000 to 2001, I worked as a chief technical officer at NTN Communications, Inc., which is the parent corporation of two operating divisions: Buzztime Entertainment, Inc. and the NTN Network®. I developed and distributed sports and trivia games to a variety of interactive platforms including interactive television, the Internet, PDS and mobile phones. I was responsible for all of the technical aspects of the corporations as well as forward looking programs and business opportunities.

17. From 2001 to 2002, I worked as a chief technical officer at Networld Exchange Incorporated (NEI). NEI provides Fortune 2000 companies private trading exchange (PTX) solutions that automate their B2B commerce activities. NEI is a restart. NEI is funded by institutional investors in New York and Florida. I was recruited in 4Q01 by the investors as part of the new management team.

18. From 1984 to now, I have been working as a principal at Gray & Gray, LLC. I provide consulting services in a variety of technical area including communications, computer system and software.

19. My *curriculum vitae* contains further details on my education, experience, publications, and other qualifications to render an expert opinion. Ex-1004. My work on this case is being billed at a flat rate of \$425 per hour, with reimbursement for actual expenses. My compensation is not contingent upon the outcome of this *inter partes* review proceeding.

III. MATERIALS CONSIDERED

20. In forming my opinions, I have reviewed the following documents, and any other documents cited in this declaration:

Exhibit	Description
Ex-1001	U.S. Patent No. 8,149,776 (“the ’776 patent”)
Ex-1002	Prosecution History of the ’776 patent
Ex-1005	U.S. Patent No. 6,937,641 to Li et al. (“ <i>Li</i> ”)
Ex-1006	U.S. Patent Publication No. 2009/0088175 to Pelletier et al. (“ <i>Pelletier</i> ”)

Ex-1007	U.S. Patent Publication No. 2009/0168750 to Pelletier et al. (<i>"Pelletier-750"</i>)
Ex-1008	U.S. Patent Publication No. 2009/0016266 to Kim et al. (<i>"Kim"</i>)
Ex-1009	U.S. Patent Publication No. 2009/0191875 to Vujcic et al. (<i>"Vujcic"</i>)
Ex-1010	U.S. Patent Publication No. 2007/0263579 to Ozluturk (<i>"Ozluturk"</i>)

21. I have also relied on my education, experience, research, training, and knowledge in the relevant art, and my understanding of any applicable legal principles described in this declaration.

22. All the opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my understanding of how a person of ordinary skill in the art would have understood the claims of the '776 patent at the time of the alleged invention. For purposes of this declaration, I have been asked to assume that the date of the alleged invention is the earliest claimed priority date: May 12, 2009.

23. I reserve the right to supplement and amend any of my opinions in this declaration based on documents, testimony, and other information that becomes available to me after the date of this declaration.

IV. LEGAL PRINCIPLES

24. For purposes of this declaration, I have been asked to opine on issues regarding obviousness and anticipation under pre-AIA 35 U.S.C. §§ 102 and 103. I

have been informed of the following legal standards, which I have applied in forming my opinions.

25. I have been asked to provide my opinions as to whether the cited prior art renders obvious claims 1-20 of the '776 patent from the perspective of a person of ordinary skill in the art at the '776 patent's priority date in 2009, as described in more detail below.

26. I have been asked to provide my opinions as to whether the cited prior art anticipates/renders obvious claims 1-20 of the '776 patent.

27. For purposes of this declaration, I have been informed and understand certain aspects of the law as it relates to my opinions.

28. I have been advised and understand that there are two ways in which prior art may render a patent claim unpatentable. First, the prior art can "anticipate" the claim. Second, the prior art can make the claim "obvious" to a person of ordinary skill in the art. I understand that for an invention claimed in a patent to be patentable, it must not be anticipated and must not be obvious based on what was known before the invention was made.

29. I have been advised and understand the information used to evaluate whether an invention was new and not anticipated or obvious when made is generally referred to as "prior art." I understand that prior art includes patents and printed publications that existed before the earliest filing date of the patent (which I have

been informed is called the “effective filing date”). I have been informed and understand that a patent or published patent application is prior art if it was filed before the effective filing date of the claimed invention and that a printed publication is prior art if it was publicly available before the effective filing date.

30. I have been advised and understand that a dependent claim is a patent claim that refers back to another patent claim. I have been informed and understand that a dependent claim includes all of the limitations of the claim to which it refers.

31. I have been advised and understand that a patent claim may be invalid as anticipated under 35 U.S.C. § 102 if a prior art reference discloses each element of the claimed subject matter.

32. I have been advised and understand that a patent claim may be invalid as obvious under 35 U.S.C. § 103 if the differences between the subject matter claimed and the prior art are such that the claimed subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. I have also been advised that several factual inquiries underlie a determination of obviousness. These inquiries include (1) the scope and content of the prior art, (2) the level of ordinary skill in the field of the invention, (3) the differences between the claimed invention and the prior art, and (4) any objective evidence of non-obviousness (which I have been informed may also be called “secondary considerations”).

33. I have also been advised and understand that, where a party alleges obviousness based on a combination of references, that party must identify a reason why a person skilled in the art would have been motivated to combine the asserted references in the manner recited in the claims and to explain why one skilled in the art would have had a reasonable expectation of success in making such combinations.

34. I have been advised and understand that the law permits the application of “common sense” in examining whether a claimed invention would have been obvious to a person skilled in the art. For example, I have been advised that combining familiar elements according to known methods and in a predictable way may suggest obviousness when such a combination would yield nothing more than predictable results. I understand, however, that a claim is not obvious merely because every claim element is disclosed in the prior art and that a party asserting obviousness must still provide a specific motivation to combine the references as recited in the claims and explain why one would have reasonably expected to succeed in doing so.

35. I have been advised and understand that two references are considered to be in the same field of art when the references are either (1) in the same field of endeavor, regardless of the problems they address, or (2) reasonably pertinent to the particular problem being solved by the inventor in his patent.

36. I am not aware of any evidence of secondary considerations that would support a determination of non-obviousness of the claimed subject matter in the '776 patent.

37. I have been informed that in *inter partes* review proceedings, such as this one, the party challenging the patent bears the burden of proving unpatentability by a preponderance of the evidence. I understand that a preponderance of the evidence means “more likely than not.”

V. LEVEL OF ORDINARY SKILL IN THE ART

38. In rendering the opinions set forth in this declaration, I have been asked to consider the '776 patent's claims and the prior art through the eyes of a person of ordinary skill in the art. I considered factors such as the educational level and years of experience of those working in the pertinent art, the types of problems encountered in the art, the teachings of the prior art, patents and publications of other persons or companies, and the sophistication of the technology.

39. I have been instructed to assume a person of ordinary skill in the art is not a specific real individual, but rather a hypothetical individual having the qualities reflected by the factors discussed above.

40. Taking the factors above into consideration, it is my opinion that a person of ordinary skill in the art for the '776 patent would at least have a bachelor's

degree in electrical engineering, computer engineering, or a related engineering discipline and three years of industry experience in the field of communications, or equivalent experience, education, or both. The person would also have knowledge or familiarity with communications.

41. By May 12, 2009, I was at least a person of ordinary skill in the art. I hold a B.S. in Economics from California Polytechnic University (1973) and have worked in the electronics and communications field since the mid-1970s. Since 1984, I have been an employee of Gray and Gray, LLC, and have had a variety of experiences related to communications including: being the CTO for multiple internet-based companies, designing computer networks for clients, designing and implementing communications control devices for Computer Communication Incorporated, and developing and presenting numerous public and in-house courses in IBM, Unix, Internet and related operating system and networking technologies. In this declaration, and for all my opinions herein, I have applied the knowledge of a person of ordinary skill in the art as of May 12, 2009.

VI. CLAIM CONSTRUCTION

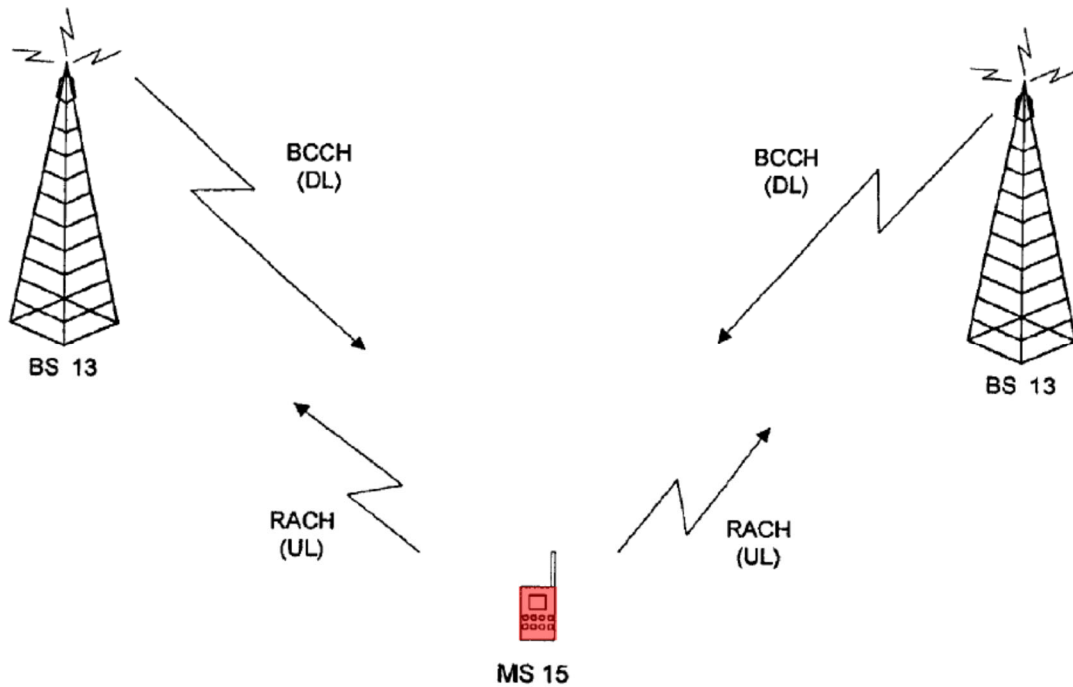
42. I understand that in *inter partes* review, the U.S. Patent and Trademark Office applies the plain and ordinary meaning of claim terms, in view of the specification, as would have been understood by a person of ordinary skill in the art.

43. Based on my review of these materials and my personal knowledge and experience, I have considered the plain and ordinary meaning of each term of the '776 patent as it would have been understood by one skilled in the art as of May 12, 2009. I apply the plain and ordinary meaning of each claim term throughout this declaration.

VII. OVERVIEW OF PRIOR ART

A. *Li*

44. *Li* discloses a “power-controlled random-access method [that] allows a mobile station [MS] to gain fast access to the base station.” Ex-1005, Abstract. *Li* discloses a wireless system including “a plurality of base stations 13 and a plurality of **mobile stations** 15,” and “the wireless system provides at least some packet data communication services using a plurality of random access channel (RACH) resources.” *Id.*, 5:1-14.



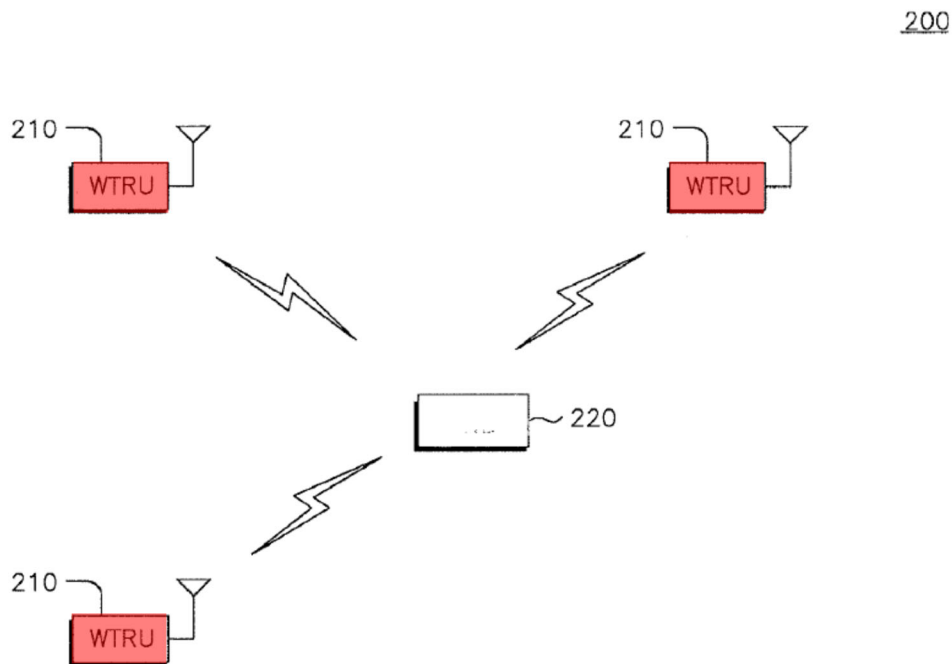
Ex-1005, FIG. 1 (annotated).

45. *Li's* MS performs steps of “computing an initial power required for channel access, and transmitting a random access signal at that power level. If no acknowledgement is received, the steps further include generating an open-loop power-control signal (OLPCS) and receiving a closed-loop power-control symbol (CLPCS) from the BCCH channel. Based on the OLPCS and the CLPCS, a composite power-control command is generated at the MS. The composite power-control command controls not only the course of action for the MS (e.g. to power up, **power down**, transmit at **same power**, or to back-off), but also the level of any change in transmission power of the **next random access signal** transmitted from the MS.” *Id.*, 3:31-56.

46. *Li* discloses that “[w]hen one of the MS stations needs to communicate, the MS selects an available **preamble code sequence** for one of the RACH sub-channels based on a **random selection** method, and then the MS transmits a random-access signal using the selected preamble code sequence.” *Id.*, 6:11-36.

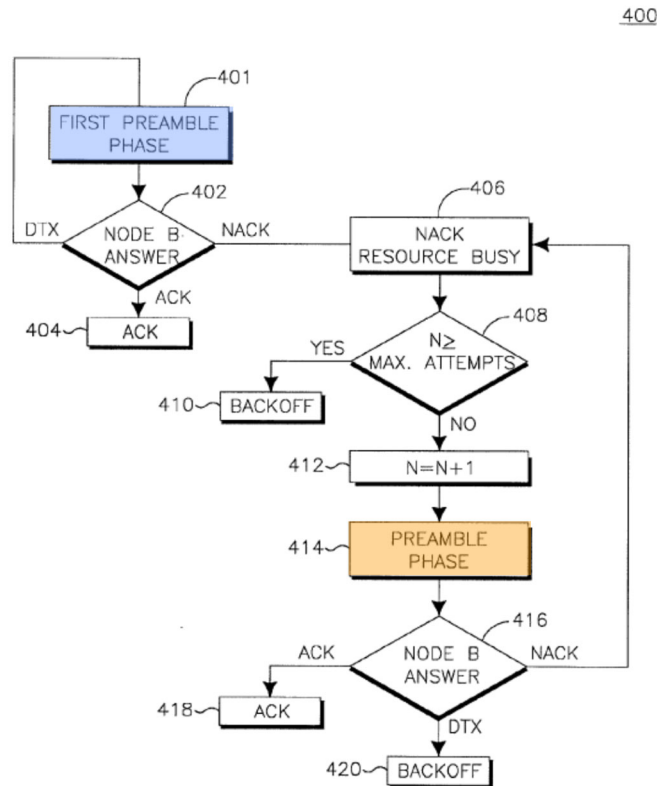
B. *Pelletier*

47. *Pelletier* discloses “a wireless communication system 200 including a plurality of WTRUs [wireless transmit/receive units] 210 and a base station 220,” as shown in annotated FIG. 2 below. Ex-1006, [0018]. *Pelletier* discloses that “[t]he WTRU is configured to communicate over an enhanced random access channel (E-RACH)” with the base station 220. *Id.*, [0019].



Ex-1006, FIG. 2 (annotated).

48. *Pelletier*'s RACH method is shown in FIG. 4 below. At step 401, “a first preamble phase is transmitted by a WTRU.” *Id.*, [0032]. “At step 402, the Node B receives the signal. If the Node B detects the preamble signature sequence, at step 404, the Node B may transmit an ACK if the resource requested by the WTRU is available. If the Node B does not receive the signal, it is in discontinuous transmit mode (DTX), and the Node B does not transmit an ACK or a NACK. If the Node B detects the preamble, but cannot allocate a resource, at step 406, the Node B transmits a NACK.” *Id.*



Ex-1006, FIG. 4 (annotated).

49. *Pelletier* discloses that if “the Node B transmits a NACK,” and the maximum number of attempts after the first NACK has not been reached, “at step 414, the WTRU **retries** accessing the RACH with a **different preamble** in a subsequent access slot. The **transmission power** can be raised or **kept the same**.” *Id.*, [0032].

50. *Pelletier* discloses that “[g]rant information may be conveyed to the WTRU using the AICH or similar channel,” (*id.*, [0044]) and that “the signature sequence index [is] acknowledged on the acquisition indicator channel (AICH) by the Node B.” *Id.*, [0024].

C. *Pelletier-750*

51. *Pelletier-750* discloses a wireless system in which “[a] wireless transmit/receive unit (WTRU)¹ transmits a random access channel (RACH) preamble and receives an acquisition indicator acknowledging the RACH preamble via an **acquisition indicator channel (AICH)**.” Ex-1007, Abstract.

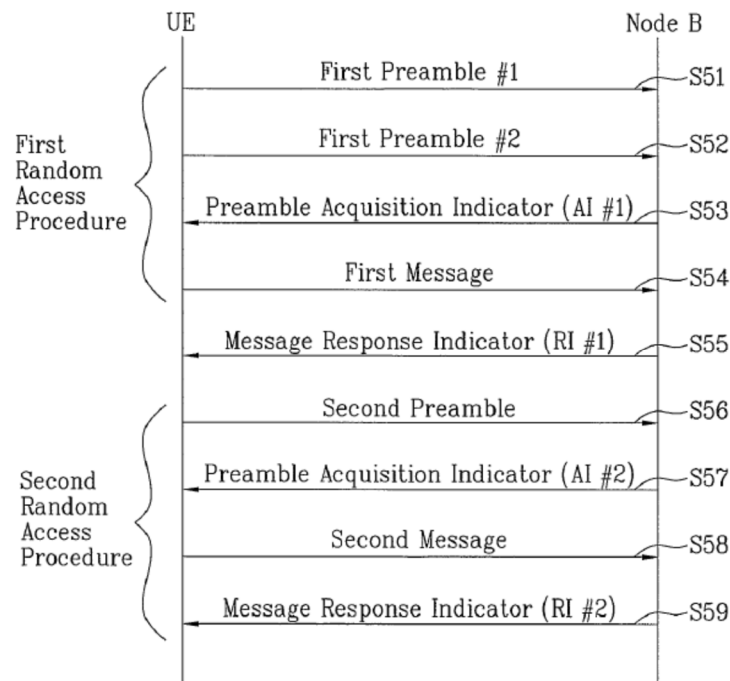
52. *Pelletier-750* discloses that “[t]he conventional RACH access starts with preamble transmission of one randomly selected PRACH signature out of a set of up to 16 signatures, with a preconfigured initial power level. If no response is received on the associated AICH from the Node B, the WTRU selects the next

¹ The WTRU includes any type of “user device capable of operating in a wireless environment” such as “a user equipment (UE), a mobile station.” Ex-1007, [0024].

available access slot, increases power by a predefined amount and transmits a **new randomly selected signature** from the set of available signatures.” *Id.*, [0007].

D. Kim

53. *Kim* discloses “transmission/reception of a message through an access channel.” Ex-1008, [0036], FIG. 5.

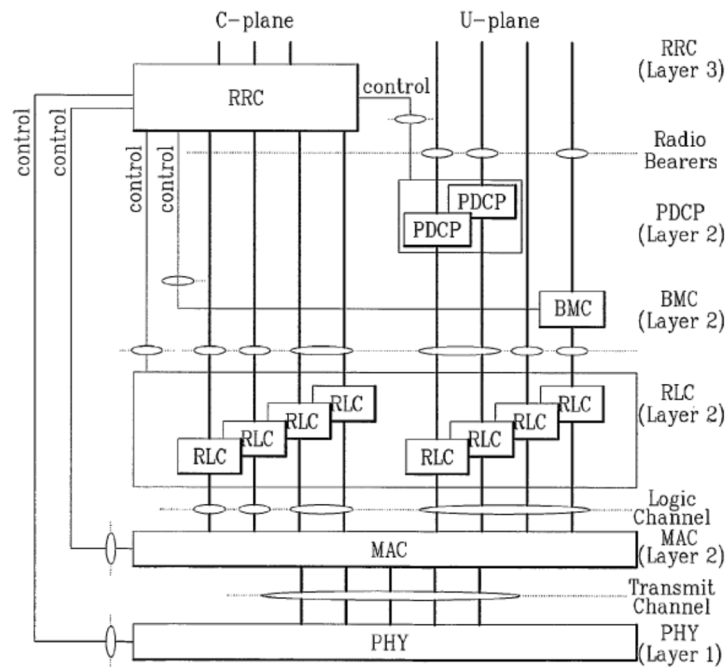


Ex-1008, FIG. 5.

54. As shown in FIG. 5 above, *Kim* discloses that “the UE selects a signature S_i from a plurality of signatures (S_0 - S_{15}) and transmits a preamble (e.g., a first preamble #1) using the signature during an access slot (S_{51}). At this time, a transmit power of the preamble can be determined according to the conventional method discussed above in which the transmit power is provided by the **RRC layer**.”

Id., [0038]. *Kim* also discloses that “the transmit power of the initial preamble is determined by the **RRC layer**.” *Id.*, [0035].

55. As shown in FIG. 2, *Kim* discloses that “[a] **radio resource control (RRC)**, which is part of **Layer 3 (L3)**, is defined on the control plane.” *Id.*, [0007].



Ex-1008, FIG. 2.

56. *Kim* also discloses that “[i]f the UE does not receive a positive AI (e.g., the AI indicating ACK) with respect to the first preamble #1, the UE can re-select a signature from the plurality of signatures (S0-S15) and transmit a first access preamble #2 during a subsequent access slot to Node B (S52).” *Id.*, [0040].

E. *Vujcic*

57. *Vujcic* discloses a RACH procedure in which a “UE 101 selects a preamble signature—preamble signature A, a RACH time slot and a frequency band.

The preamble signature is chosen by the UE 101 from among a set of signatures known by the eNodeB 103.” Ex-1009, [0079].

58. *Vujcic* discloses that “[i]f the user equipment UE 101 does not receive a response from the eNodeB 103 the UE 101 generates a second random access burst signal and allocates the **same preamble signature**—preamble signature A as the previous unsuccessfully detected first random access burst signal to the second random access burst signal.” *Id.*, [0090].

59. *Vujcic* also discloses that “[s]ince in a conventional RACH procedure collision detection does not occur until after message 4 of FIG. 3, keeping the same signature for retransmitted preambles from UE 101 does not increase the probability of collision.” *Id.*, [0095].

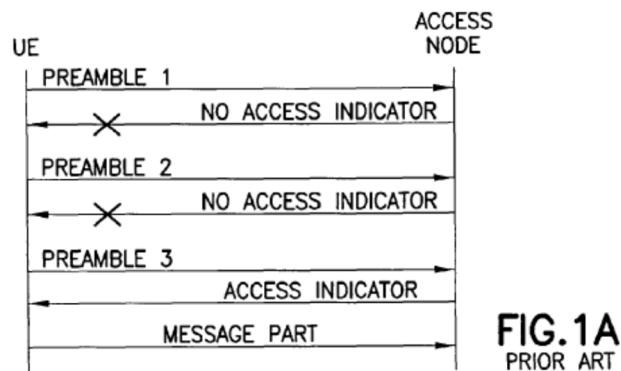
VIII. THE ’776 PATENT

A. Summary of the ’776 Patent

60. The ’776 patent discloses a user equipment (UE) seeking access to a wireless network by sending preambles to a base station on a random access channel (RACH). Ex-1001, Abstract.

61. The ’776 patent first describes the well-known, conventional RACH procedure for Wideband Code Division Multiple Access (WCDMA) network. In the conventional RACH procedure shown in FIG. 1A, “the UE seeking access to the

system transmits on a RACH a first preamble to an access node (base station) and listens on an acquisition indicator channel (AICH) for a corresponding acquisition indicator AI.” Ex-1001, 1:51-55.



Ex-1001, FIG. 1A.

62. The UE transmits the first preamble in a first attempt at an initial transmit power, P_{init} , shown in FIG. 2 below.

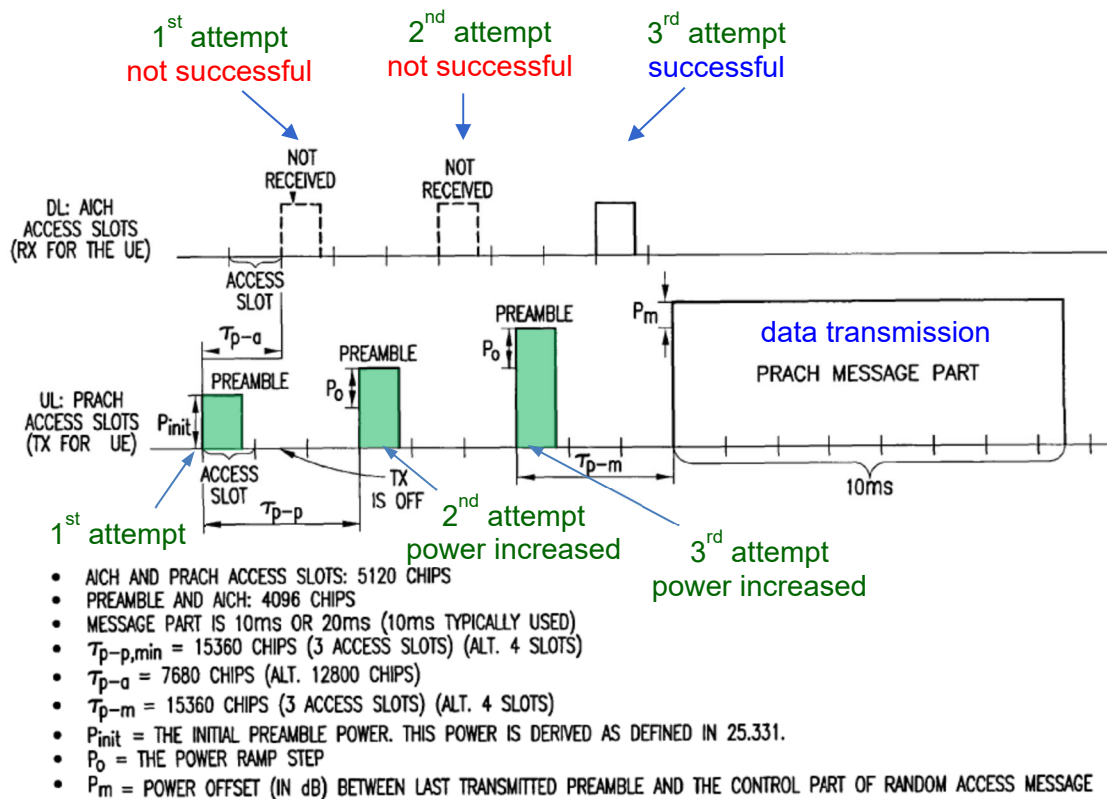


FIG.2
PRIOR ART

Ex-1001, FIG. 2 (annotated).

63. As FIGS. 1A and 2 show, “[i]f that AI is not received, the UE tries again by transmitting a second preamble and again listens for a corresponding AI. In the example, this continues a third time, at which FIG. 1A shows that an AI corresponding to the third preamble is received by the UE.” Ex-1001, 1:55-59. As FIG. 2 shows, the transmit power used for sending the second preamble is increased from the initial power P_{init} to $(P_{init}+P_0)$ and the transmit power used for sending the third preamble is further increased from $(P_{init}+P_0)$ to $(P_{init}+2P_0)$.

64. In the conventional RACH procedure, as shown in FIG. 2, if the first attempt to access the network is unsuccessful, the UE continues the preamble transmissions “repeatedly using a different sequence and increasing transmit power by the ramp step until either it finds the acquisition indicator at the corresponding slot of the AICH or its counter hits a maximum, which may or may not be three as in this example.” Ex-1001, 2:18-23. “Generally, each of those three preambles uses a signature sequence that the UE randomly generates for each of the different preambles.” *Id.*, 1:62-64.

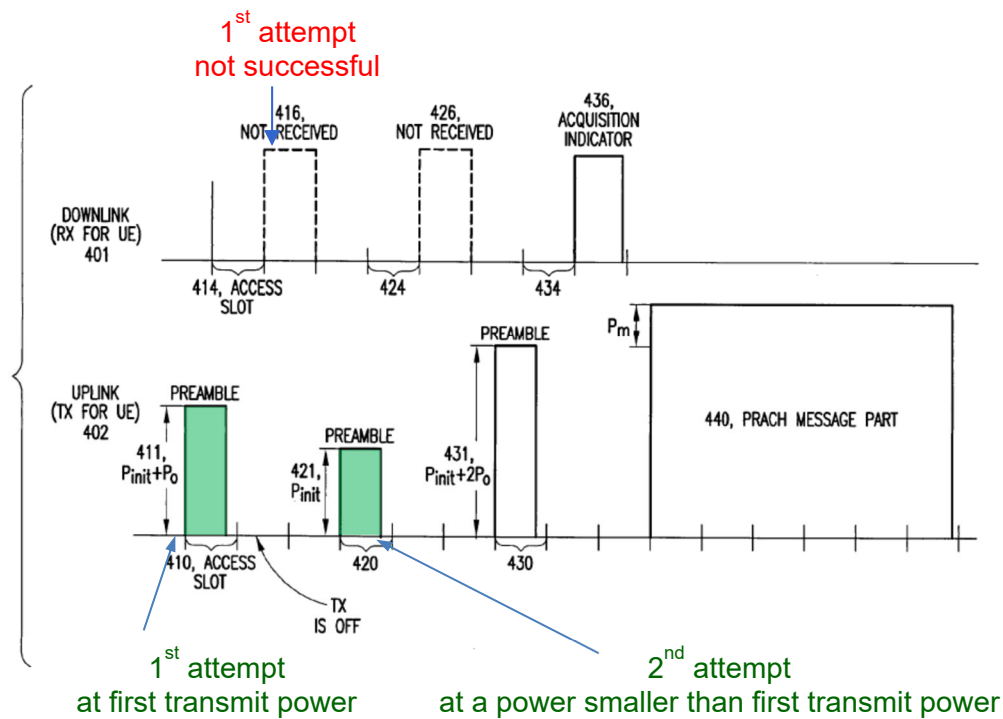
65. Acknowledged prior art, the '776 patent then introduces four embodiments that only deviate from the conventional RACH procedure, if at all, in preamble signature sequence selection or transmit power selection, as shown in FIG. 3 of these four embodiments, the independent claims recite: (1) the first preamble signature sequence is randomly selected (blue) (the same as the conventional procedure), and (2) the second transmit power is no greater than the first transmit power (green).

2nd RACH Access Attempt when
1st RACH Access Attempt fails.
Not claimed in any claims.

	1 st RACH ACCESS ATTEMPT			2 nd RACH ACCESS ATTEMPT		
	1 st PREAMBLE	2 nd PREAMBLE	3 rd PREAMBLE	1 st PREAMBLE	2 nd PREAMBLE	3 rd PREAMBLE
1 st & 2 nd EMBODIMENTS	RANDOMLY SELECT SEQUENCE	RANDOMLY SELECT SEQUENCE	RANDOMLY SELECT SEQUENCE	RANDOMLY SELECT SEQUENCE	RANDOMLY SELECT SEQUENCE	RANDOMLY SELECT SEQUENCE
3 rd & 4 th EMBODIMENTS	RANDOMLY SELECT SEQUENCE	RE-USE SAME SEQUENCE FROM 1 st PREAMBLE OF 1 st RACH ACCESS ATTEMPT	RE-USE SAME SEQUENCE FROM 1 st PREAMBLE OF 1 st RACH ACCESS ATTEMPT	RANDOMLY SELECT SEQUENCE	RE-USE SAME SEQUENCE FROM 1 st PREAMBLE OF 2 nd RACH ACCESS ATTEMPT	RE-USE SAME SEQUENCE FROM 1 st PREAMBLE OF 2 nd RACH ACCESS ATTEMPT
1 st & 3 rd EMBODIMENTS	INITIAL POWER (P _{init})	INITIAL POWER (P _{init})	INITIAL POWER+1 STEP INCREASE (P _{init} +P ₀)	INITIAL POWER (P _{init})	INITIAL POWER (P _{init})	INITIAL POWER+1 STEP INCREASE (P _{init} +P ₀)
2 nd & 4 th EMBODIMENTS	INITIAL POWER+1 STEP INCREASE (P _{init} +P ₀)	INITIAL POWER (P _{init})	INITIAL POWER+ GREATER THAN 1 STEP INCREASE (P _{init} +P ₀ +X)	INITIAL POWER+1 STEP INCREASE (P _{init} +P ₀)	INITIAL POWER (P _{init})	INITIAL POWER+ GREATER THAN 1 STEP INCREASE (P _{init} +P ₀ +X)

Ex-1001, FIG. 3 (annotated).

66. The second transmit power being no greater than the first transmit power includes two scenarios: (1) the second transmit power is the same as the first transmitter power (**green**—1st & 3rd embodiments), or (2) the second transmit power is smaller than the first transmit power (**green**—2nd & 4th embodiments). Scenario 2 is schematically shown in FIG. 4.



Ex-1001, FIG. 4 (annotated).

67. Thus, compared with FIG. 2 (the applicant admitted prior art), the only difference between the independent claims and the prior art is that the transmit power in the second attempt is **no greater** than the first transmit power. But this trivial deviation from the conventional procedure was well-known long before the priority date of the '776 patent, as evidenced by the primary references *Li* and *Pelletier*. The dependent claims further recite other well-known details of the conventional RACH procedure. Thus, in my opinion, the cited prior art demonstrates that all patented claims were known to a person of ordinary skill in the art before the priority date of the '776 patent.

B. '776 Patent Prosecution History

68. The '776 patent was allowed without issuance of an Office Action. During prosecution, the examiner suggested amending claims 19-20 by adding the term “non-transitory” to the preamble of these claims, to obviate a potential 101 rejection. Ex-1002, 103. After amending claims 19-20 by an examiner’s amendment, the examiner issued a Notice of Allowance. *Id.*, 106-110.

69. In the examiner’s statement of reasons for allowance, the Examiner recognized that the only step of the claims deviating from the conventional procedure was “the step of re-attempting access to the wireless network ‘**at a second transmit power and a second preamble comprising signature sequence, in which the second transmit power is no greater than the first transmit power.**’” *Id.*, 110 (emphases added).

IX. STATEMENT OF OPINIONS

70. It is my opinion that claims 1-20 of the '776 patent are unpatentable under the following grounds based on pre-AIA 35 U.S.C. §§ 102 and 103:

Grounds		
	1a	<i>Li</i> Anticipates Claims 1, 10, and 19
	1b	<i>Li</i> Renders Obvious Claims 1, 10, and 19

<i>Li</i> Grounds	1c	<i>Li</i> in view of <i>Pelletier-750</i> Renders Obvious Claims 2, 5, 11, and 14
	1d	<i>Li</i> in view of <i>Pelletier-750</i> and <i>Kim</i> Renders Obvious Claims 3, 4, 12, and 13
	1e	<i>Li</i> in view of <i>Vujcic</i> and <i>Kim</i> Renders Obvious Claims 6-9
	1f	<i>Li</i> in view of <i>Vujcic</i> and <i>Pelletier-750</i> Renders Obvious Claim 15
	1g	<i>Li</i> in view of <i>Vujcic</i> , <i>Pelletier-750</i> , and <i>Kim</i> Renders Obvious Claims 16-18
	1h	<i>Li</i> in view of <i>Vujcic</i> and <i>Pelletier-750</i> Renders Obvious Claim 20
<i>Pelletier</i> Grounds	2a	<i>Pelletier</i> Anticipates Claims 1, 10, and 19
	2b	<i>Pelletier</i> Renders Obvious Claims 1, 10, and 19
	2c	<i>Pelletier</i> in view of <i>Pelletier-750</i> Renders Obvious Claims 2 and 11
	2d	<i>Pelletier</i> in view of <i>Pelletier-750</i> and <i>Kim</i> Renders Obvious Claims 3 and 12
	2e	<i>Pelletier</i> in view of <i>Pelletier-750</i> , <i>Kim</i> , and <i>Li</i> Renders Obvious Claims 4, 5, 13, and 14

	2f	<i>Pelletier</i> in view of <i>Vujcic</i> Renders Obvious Claims 6, 15, and 20
	2g	<i>Pelletier</i> in view of <i>Vujcic</i> and <i>Kim</i> Renders Obvious Claim 7
	2h	<i>Pelletier</i> in view of <i>Vujcic</i> , <i>Pelletier-750</i> and <i>Kim</i> Renders Obvious Claim 16
	2i	<i>Pelletier</i> in view of <i>Vujcic</i> and <i>Li</i> Renders Obvious Claims 8 and 17
	2j	<i>Pelletier</i> in view of <i>Vujcic</i> , <i>Li</i> , and <i>Pelletier-750</i> Renders Obvious Claims 9 and 18

X. THE *LI* GROUNDS: CLAIMS 1-20 ARE UNPATENTABLE

A. Overview of the Combination

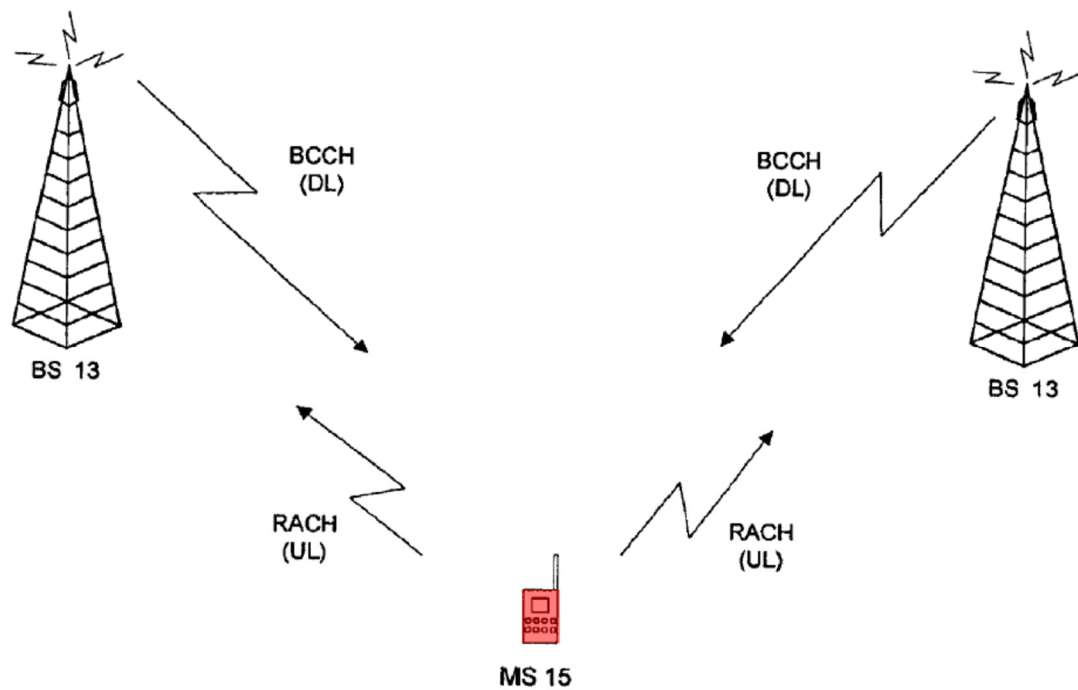
71. The claims of the '766 patent recite different permutations of the same features. *Li* discloses or renders obvious all features of the independent claims, but does not expressly disclose other minor limitations that would have been obvious extensions of *Li*'s system, calling for merely routine implementation of well-known components: 1) randomly selecting the preambles from a set of preambles (e.g., claim 2, taught by *Pelletier-750*); 2) monitoring a physical acquisition channel (e.g., claim 2, taught by *Pelletier-750*); 3) an indication obtained from higher layers (e.g., claim 3, taught by *Kim*); 4) a third transmit power (e.g., claim 5, taught by *Pelletier-*

750); 5) sending the same signature sequence as both the first and second preambles (e.g., claim 6, taught by *Vujcic*); and 6) a memory storing parameters (e.g., claim 12, taught by *Pelletier-750*).

72. Because these features are merely well-known, routine features, most of which are at least suggested by *Li*, it would have been obvious by a POSITA to combine *Li* with one or more of the relevant disclosures of the secondary references to accommodate various design needs.

1. Motivation to Combine the References

73. *Li* discloses all elements of the independent claims, including the purported point of novelty—that the transmit power in the second attempt is no greater than the first transmit power. *Li* discloses a “power-controlled random-access method [that] allows a mobile station [MS] to gain fast access to the base station.” Ex-1005, Abstract. *Li* discloses a wireless system including “a plurality of base stations 13 and a plurality of **mobile stations** 15,” and “the wireless system provides at least some packet data communication services using a plurality of random access channel (RACH) resources.” *Id.*, 5:1-14.



Ex-1005, FIG. 1 (annotated).

74. *Li's* MS performs steps of “computing an initial power required for channel access, and transmitting a random access signal at that power level. If no acknowledgement is received, the steps further include generating an open-loop power-control signal (OLPCS) and receiving a closed-loop power-control symbol (CLPCS) from the BCCH channel. Based on the OLPCS and the CLPCS, a composite power-control command is generated at the MS. The composite power-control command controls not only the course of action for the MS (e.g. to power up, **power down**, transmit at **same power**, or to back-off), but also the level of any change in transmission power of the **next random access signal** transmitted from the MS.” *Id.*, 3:31-56.

75. *Li* discloses that “[w]hen one of the MS stations needs to communicate, the MS selects an available **preamble code sequence** for one of the RACH sub-channels based on a **random selection** method, and then the MS transmits a random-access signal using the selected preamble code sequence.” *Id.*, 6:11-36.

a. Combination with *Pelletier-750*

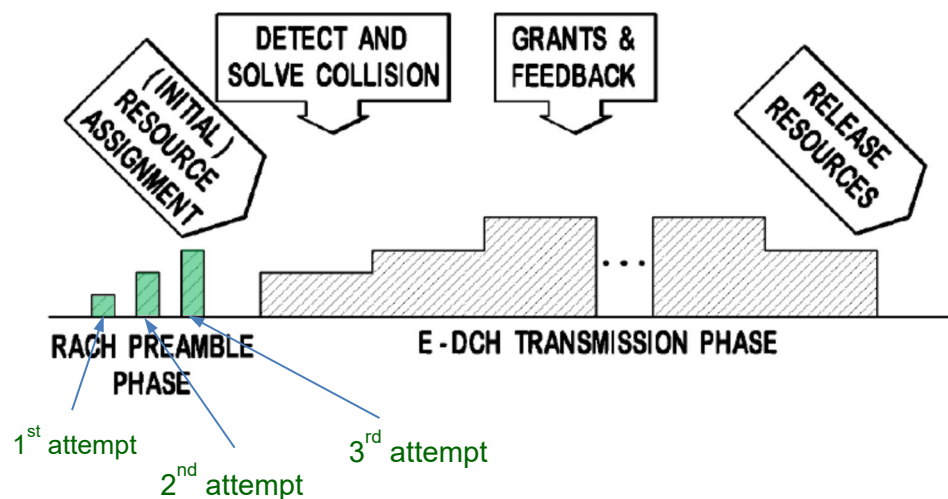
76. Although *Li* does not expressly disclose monitoring a physical acquisition channel (e.g., claim 2); selecting a preamble from a set of preambles (e.g., claim 2); a third transmit power (e.g., claim 5); and a memory storing parameters (e.g., claim 12), these are simply well known features of accessing random access channels readily understood by a POSITA as applicable to *Li*’s system, as evidenced by *Pelletier-750* and acknowledged in the ’776 patent.

77. *Pelletier-750* discloses a wireless system in which “[a] wireless transmit/receive unit (WTRU)² transmits a random access channel (RACH) preamble and receives an acquisition indicator acknowledging the RACH preamble via an **acquisition indicator channel (AICH)**.” Ex-1007, Abstract. *Pelletier-750* discloses that its disclosures are “implemented in a computer program, software, or firmware incorporated in a **computer-readable storage medium** for execution by a general purpose computer or a processor.” Ex-1007, [0047].

² The WTRU includes any type of “user device capable of operating in a wireless environment” such as “a user equipment (UE), a mobile station.” Ex-1007, [0024].

78. *Pelletier-750* discloses that “[t]he conventional RACH access starts with preamble transmission of one randomly selected PRACH signature out of a set of up to 16 signatures, with a preconfigured initial power level. If no response is received on the associated AICH from the Node B, the WTRU selects the next available access slot, increases power by a predefined amount and transmits a **new randomly selected signature** from the set of available signatures.” *Id.*, [0007].

79. *Pelletier-750*’s FIG. 1 shows that “[a] NACK or no response from the Node B requires the WTRU to transmit again in the **next available access slot** until the maximum number of attempts has been exhausted,” expressly showing **three attempts**. Ex-1007, FIG. 1, [0009].



Ex-1007, FIG. 1 (annotated).

80. *Pelletier-750* discloses that its third attempt is sent at a third transmit power, stating, “the WTRU selects the next available access slot, **increases power**

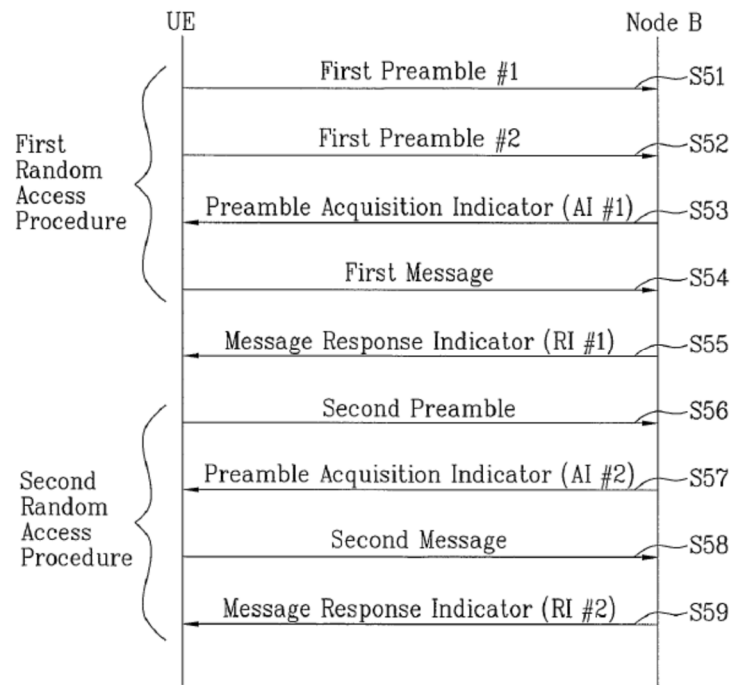
by a predefined amount and transmits **a new randomly selected signature** from the set of available signatures,” as schematically shown in annotated FIG. 1. *Id.*, [0007].

81. A POSITA would have been motivated to randomly select preambles from a set of preambles, monitor a physical acquisition channel, and use a third transmission if the first two fail, as disclosed by *Pelletier-750*, within *Li*’s system because these comprise the “conventional RACH access” procedure. *Id.*

b. Combination with *Kim*

82. Although *Li* does not expressly disclose that its indications are obtained from higher layers (e.g., claim 3), this is a well known features of accessing random access channels readily understood by a POSITA as applicable to *Li*’s system, as evidenced by *Kim* and acknowledged in the ’776 patent.

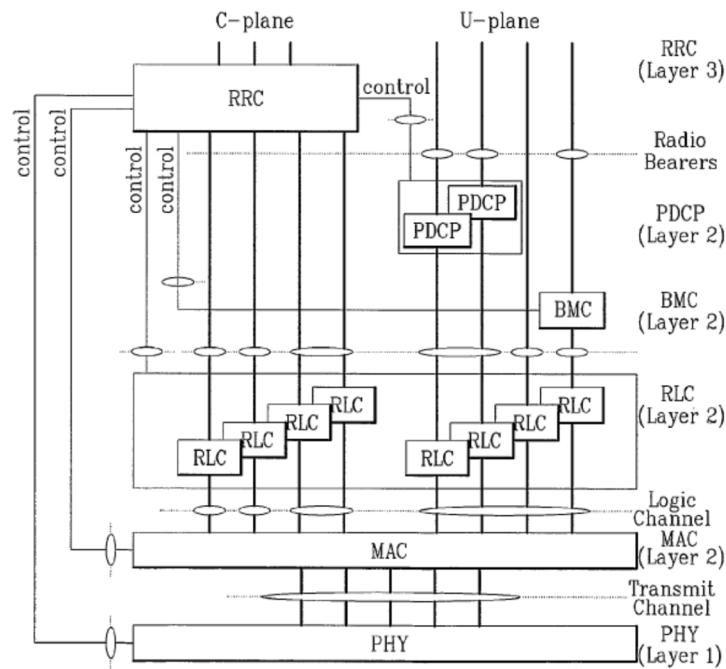
83. *Kim* discloses “transmission/reception of a message through an access channel.” Ex-1008, [0036], FIG. 5.



Ex-1008, FIG. 5

84. As shown in FIG. 5, *Kim* discloses that “the UE selects a signature *S_i* from a plurality of signatures (*S₀*-*S₁₅*) and transmits a preamble (e.g., a first preamble #1) using the signature during an access slot (*S₅₁*). At this time, a transmit power of the preamble can be determined according to the conventional method discussed above in which the transmit power is provided by the **RRC layer**.” *Id.*, [0038]. *Kim* also discloses that “the transmit power of the initial preamble is determined by the **RRC layer**.” *Id.*, [0035].

85. As shown in FIG. 2, *Kim* discloses that “[a] **radio resource control (RRC)**, which is part of **Layer 3 (L3)**, is defined on the control plane.” *Id.*, [0007].



Ex-1008, FIG. 2

86. *Kim* also discloses that “[i]f the UE does not receive a positive AI (e.g., the AI indicating ACK) with respect to the first preamble #1, the UE can re-select a signature from the plurality of signatures (S0-S15) and transmit a first access preamble #2 during a subsequent access slot to Node B (S52).” *Id.*, [0040].

87. Both *Li* and *Kim* disclose a RACH procedure in which a MS sends a first preamble including a signature sequence at an initial transmit power determined by the MS. Both *Li* and *Kim* disclose that the MS/UE determines the initial power based on a signal from the base station. But *Li* lacks the detail of which layer of the base station that signal comes from. Therefore, a POSITA would have been motivated to look to references in the same technical field that disclose such details,

like *Kim*, which further discloses that the signal is from RRC layer of the base station.

c. Combination with *Vujcic*

88. Although *Li* does not expressly disclose sending the same signature sequence as both the first and second preambles (e.g., claim 6) this is simply well known features of accessing random access channels readily understood by a POSITA as applicable to *Li*'s system, as evidenced by *Vujcic* and acknowledged in the '776 patent.

89. *Vujcic* discloses a RACH procedure in which a "UE 101 selects a preamble signature—preamble signature A, a RACH time slot and a frequency band. The preamble signature is chosen by the UE 101 from among a set of signatures known by the eNodeB 103." Ex-1009, [0079].

90. *Vujcic* discloses that "[i]f the user equipment UE 101 does not receive a response from the eNodeB 103 the UE 101 generates a second random access burst signal and allocates the **same preamble signature**—preamble signature A as the previous unsuccessfully detected first random access burst signal to the second random access burst signal." *Id.*, [0090].

91. A POSITA would have been motivated to implement *Vujcic*'s method of using the same signature as the first preamble for *Li*'s second preamble because it provides advantages like being easy to implement, reducing computation, and

reducing the use of resources. *Vujcic* also expressly discloses that “keeping the same signature for retransmitted preambles from UE 101 does not increase the probability of collision,” a known benefit. Ex-1009, [0095]. Doing so would have been a simple substitution of one known element (*Vujcic*’s express disclosure of using the same signature sequence for the second preamble) for another (*Li*’s disclosure of a second preamble including a signature sequence) to the yield predictable result of sending a second preamble with a same signature sequence as the first preamble.

B. Grounds 1a and 1b: *Li* Anticipates or Renders Obvious Claims 1, 10, and 19

1. Independent Claim 1

a. [1Preamble] “A method comprising:”

92. It is my opinion that *Li* discloses the preamble of claim 1 because *Li* discloses a “power-controlled random-access method [that] allows a mobile station to gain fast access to the base station.” Ex-1005, Abstract. *Li*’s method utilizes “an initial power estimation of the transmitted random-access signal for the first access attempt, and if that attempt is unsuccessful, the power for a subsequent attempt utilizes a combination of fast open-loop control and closed-loop power control.” *Id.*, 2:60-67, 3:31-56.

b. [1a] “attempting access to a wireless network by sending from a transmitter on a random access channel at a first transmit power a first preamble

**comprising a signature sequence that is randomly
selected from a set of signature sequences;”**

93. The ’776 patent admits that this limitation was well-known. *See* Section VIII.A.

94. In my opinion, *Li* discloses or renders obvious [1a] because *Li* discloses a first attempt (attempting access to a wireless network) that includes sending from an MS spread-spectrum transmitter (transmitter) on a RACH sub-channel (random access channel) at an initial power P_i (first transmit power) a preamble comprising a preamble code sequence (signature sequence) that is selected based on a random selection from a set.

95. *Li*’s MS attempts access to a wireless network by sending a first preamble comprising a signature sequence on a RACH at a first transmit power. *Li* discloses that “[t]he MS transmits the **first random-access signal** with an **initial power P_i** . The MS selects the initial power P_i by any of the various methods commonly known in the arts.” Ex-1005, 6:37-46.

96. *Li*’s random-access signal includes a “**preamble code sequence.**” *Id.*, 6:11-36. *Li* discloses that “[w]hen a mobile station selects a preamble code for use in its access attempt, the preamble code is specific to only one of the RACH sub-channels, and the mobile station sends its access signal using the selected sub-channel code as the preamble.” *Id.*, 8:34-42. Because *Li*’s preamble code sequence

is specific to only one of the RACH sub-channels, the preamble code sequence is the preamble “signature sequence.” Ex-1001, 1:61-2:1.

97. *Li* also discloses that that preamble code sequence is randomly selected from a set of preamble code sequences. *Li* discloses that “[w]hen one of the MS stations needs to communicate, the MS selects an available preamble code sequence for one of the RACH sub-channels based on a **random selection** method, and then the MS transmits a random-access signal using the selected preamble code sequence.” Ex-1005, 6:11-36. A POSITA would have understood that *Li*’s “available preamble code sequence for one of the RACH sub-channels” was part of a set of available preamble code sequences because, as was known in the art, each sub-channel would have a set of preamble code sequences or a set of preamble code sequences would have been available for a number of RACH sub-channels.

98. *Li*’s MS includes a transmitter that sends wireless signals such as the first preamble. FIG. 10 shows that *Li*’s MS includes “an MS spread-spectrum transmitter.” *Id.*, 12:35-44.

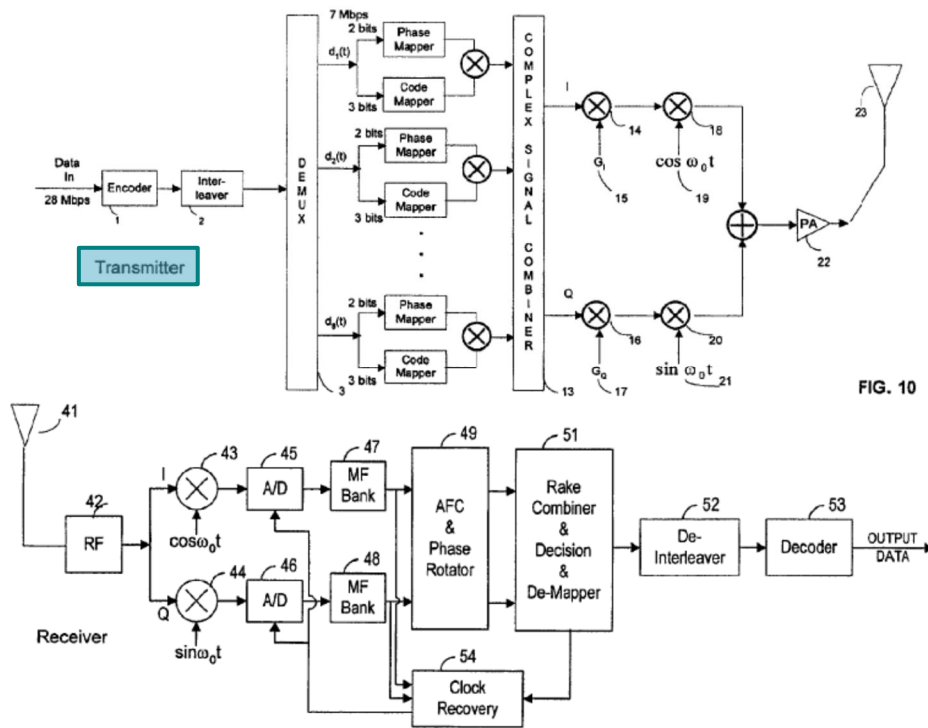


FIG. 10

Ex-1005, FIG. 10 (annotated).

99. *Li*'s transmitter "transmit[s] a spread-spectrum signal signifying a **first attempt** to utilize a **random access channel**, from the wireless remote station, at a **predetermined power level**." *Id.*, Claim 11. That is, *Li*'s first preamble is transmitted from the transmitter at a first power level.

100. Therefore, in my opinion, *Li* discloses [1a].

- c. [1b] "responsive to determining that the access attempt from sending the first preamble was unsuccessful, re-attempting access to the wireless network by sending from the transmitter on the

random access channel at a second transmit power a second preamble comprising a signature sequence,”

101. The '776 patent admits that this limitation was well-known. *See* Section VIII.A.

102. In my opinion, *Li* discloses or renders obvious [1b] because *Li* discloses that if the first attempt is unsuccessful, the MS performs a second attempt to access the channel (re-attempting access to the wireless network) by sending from the transmitter on the RACH subchannel at a second transmit power a next random access signal including a preamble comprising a preamble code sequence.

103. *Li* discloses that after sending the first preamble, there may be “a situation where the MS does not receive an acknowledgement signal of any kind,” indicating that the access attempt from sending the first preamble was unsuccessful. Ex-1005, 8:14-16. *Li* states, “[i]f the first attempt is unsuccessful, power control for a **second attempt** to access the channel is responsive to a closed loop control symbol from the base station as well as an open loop control symbol developed by the mobile station itself.” *Id.*, 3:11-24. *Li* also discloses performing “an initial power estimation of the transmitted random-access signal for the first access attempt, and if that attempt is unsuccessful, **the power for a subsequent attempt** utilizes a combination of fast open-loop control and closed-loop power control.” *Id.*, 2:60-67.

104. *Li* discloses that “[i]f no acknowledgement is received,” the MS generates “a composite power-control command” that “controls not only the course of action for the MS (e.g. to **power up**, **power down**, transmit at **same power**, or to back-off), but also the level of any change in transmission power of the **next random access signal** transmitted from the MS.” *Id.*, 3:45-55, 9:17-37. *Li*’s random-access signal includes preamble comprising a **preamble code sequence**. *Id.*, 8:14-22; 6:20-24; FIG. 4.

105. *Li* also discloses that the second preamble is transmitted from the transmitter. *Li* discloses that “when both the CLPCS and the OLPCS indicate that less power is desired, the composite power control command will instruct the MS spread-spectrum **transmitter** to decrease the transmission power of the next random-access signals by Δ or $n\Delta$.” *Id.*, 9:38-50.

106. Therefore, in my opinion, *Li* discloses [1b].

d. [1c] “in which the second transmit power is no greater than the first transmit power.”

107. *Li*, in my opinion, discloses or renders obvious [1c] because *Li* discloses that the second preamble is transmitted at the same power or a reduced power (the second transmit power is no greater than the first transmit power).

108. *Li*’s MS generates the composite power control command that include “(1) transmitting the **next random-access signal** at the **same power**; (2)

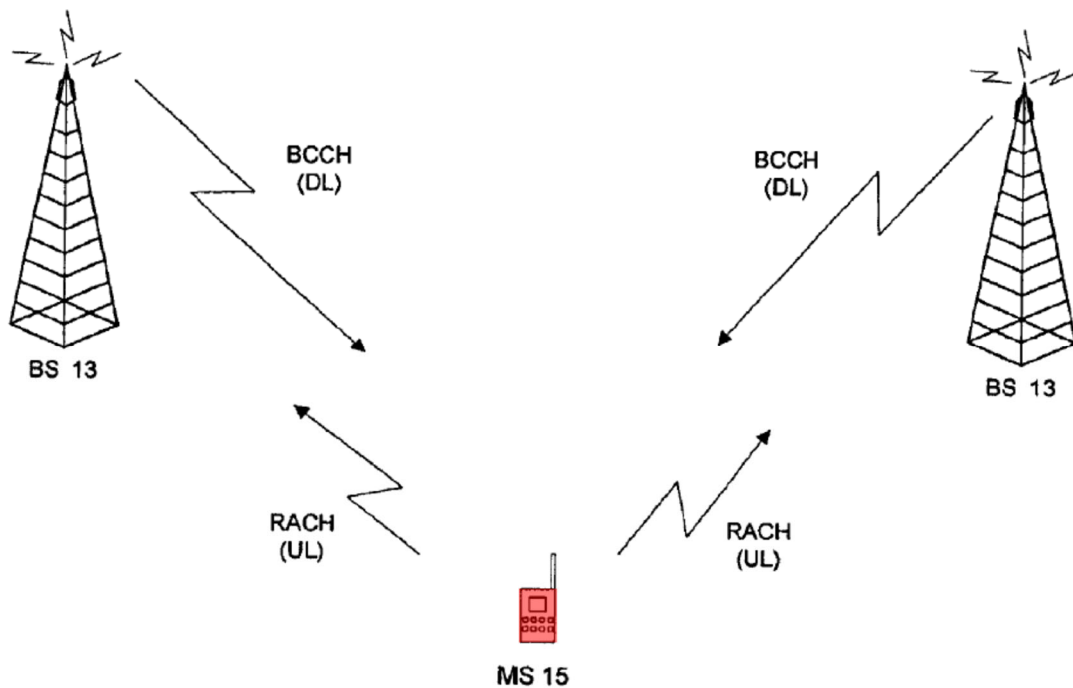
transmitting the next random-access signal at the power of the last transmission $+\Delta$, $-\Delta$, $+n\Delta$, $-n\Delta$ or a function of any of them,” where the Δ is an adjustable system parameter, and n is an integer. Ex-1005, 9:17-37, 3:39-55.

109. Thus, it is my opinion that *Li* discloses or renders obvious claim 1.

2. Independent Claim 10

a. [10Preamble] “An apparatus comprising:”

110. *Li* discloses the preamble of claim 10 because *Li* discloses a wireless system including “a plurality of base stations 13 and a plurality of **mobile stations** 15 (apparatus).³ Ex-1005, 5:1-14.



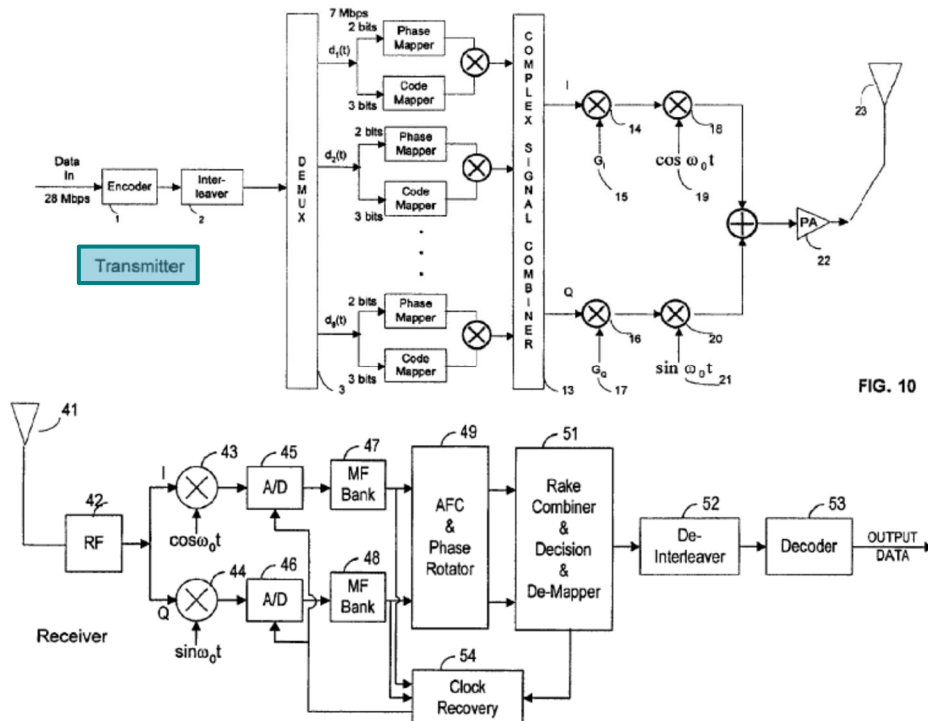
³ “The terms “mobile station” and “remote station” interchangeably refer to remote wireless devices.” Ex-1005, 5:21-23.

Ex-1005, FIG. 1 (annotated).

- b. [10a] “a transmitter configured to attempt access to a wireless network by sending on a random access channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences;”

111. *Li* discloses or renders obvious [10a] because *Li*’s MS includes a MS-spread-spectrum transmitter configured to attempt access to a wireless network.

112. *Li* discloses that “[e]ach mobile station (MS) 15 has an MS-spread-spectrum transmitter and an MS-spread-spectrum receiver.” Ex-1005, 5:15-36; FIG. 10A.



Ex-1005, FIG. 10 (annotated).

113. *Li*'s MS spread-spectrum **transmitter** includes an encoder 1, an interleaver 2, a de-multiplexer 3, a plurality of phase mappers and code mappers, a complex signal combiner 13, multipliers 14, 16, 18, 20, a power amplifier 22 and an antenna 23, to process and transmit signals over a communications channel. *Id.*, 12:45-13:28.

114. As explained for [1a] (Section X.B.1.b), *Li*'s transmitter is configured to attempt access to a wireless network by sending on a random access channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences.

115. Thus, in my opinion, *Li* discloses or renders obvious [10a].

- c. **[10b] “a processor configured to determine that the access attempt from the first preamble was unsuccessful, and responsive to such determining to cause the transmitter to re-attempt access to the wireless network by causing the transmitter to send on the random access channel at a second transmit power a second preamble comprising a signature sequence,”**

116. *Li* discloses or renders obvious [10b] because *Li*'s MS includes a digital signal processor (DSP) and controller.

117. *Li*'s MS determines the initial power for sending the first preamble using an algorithm of an initial power estimator, and the “algorithm of an initial power estimator (IPE) [is] usually implemented in a **DSP (digital signal**

processor).” Ex-1005, 6:49-56. *Li* also discloses that the MS includes a “controller.” *Id.*, 5:15-23; 6:49-56, Claim 11. *Li* further discloses that the controller controls the transmitter and the receiver of the MS and determines the initial power level. *Id.*, Claims 11, 15, 16. Thus, *Li*’s controller includes a processor such as the DSP. Alternatively, a POSITA would have understood that *Li*’s controller is or includes a processor, e.g., a DSP, because the controlling a transmitter and a receiver of a mobile station is a function of a processor.

118. As explained for [1b] (Section X.B.1.c), *Li*’s MS determines that the access attempt from the first preamble was unsuccessful, and responsively causes the transmitter to re-attempt access to the wireless network by causing the transmitter to send on the random-access channel at a second transmit power a second preamble comprising a signature sequence. *Li*’s controller included in *Li*’s MS performs these functions because, as discussed above, *Li*’s controller controls the transmitter to transmit the random-access signals and determines transmit power levels.

119. Thus, in my opinion, *Li* discloses [10b].

d. [10c] “in which the second transmit power is no greater than the first transmit power.”

120. *Li* discloses or renders obvious [10c] of claim 10 for the reasons that I explained above for [1c] (Section X.B.1.d).

121. Therefore, in my opinion, *Li* discloses or renders obvious claim 10.

3. Independent Claim 19

- a. [19Preamble] “A non transitory computer readable memory storing a program of instructions that when executed by a processor result in actions comprising”**

122. It is my opinion that *Li* discloses or renders obvious the preamble of claim 19 because *Li*’s MS performs all the functions recited in claim 19. *See* Sections X.B.1.b., X.B.1.c., X.B.1.d. *Li*’s controller also is or includes a processor. *See* Section X.B.2.c. Thus, a POSITA would have understood that *Li*’s MS includes a non-transitory computer readable memory storing program of instructions that when executed by the processor result in actions as recited in Claim 19. It was well-known in the art that the program instructions executed by a processor are routinely stored in a non-transitory computer readable memory of a mobile device. Ex-1006, [0055], Ex-1007, [0047], Ex-1009, [0062], Ex-1010, [0044]).

- b. [19a] “attempting access to a wireless network by sending on a random access channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences;”**

123. [19a] is identical to [1a]. As I explained above, *Li* discloses or renders obvious [19a]. *See* Section X.B.1.b.

- c. [19b] “responsive to determining that the access attempt from sending the first preamble was unsuccessful, re-attempting access to the wireless network by sending on the random access channel at**

**a second transmit power a second preamble
comprising a signature sequence,”**

124. [19b] is identical to [1b]. As I explained above for claim 1, *Li* discloses or renders obvious [19b]. *See* Section X.B.1.c.

**d. [19c] “in which the second transmit power is no
greater than the first transmit power.”**

125. [19c] is identical to [1c]. As I explained above for claim 1, *Li* discloses or renders obvious [19c]. *See* Section X.B.1.d.

**C. Ground 1c: *Li* in view of *Pelletier-750* Renders Obvious Claims 2,
5, 11, and 14**

1. Dependent Claim 2

**a. [2a]: “The method of claim 1, wherein: the signature
sequence of the first preamble and the signature
sequence of the second preamble are each randomly
selected from the set of signature sequences
separately; and”**

126. The ’776 patent admits that this limitation was well-known. *See* Section VIII.A.

127. In my opinion, *Li* in combination with *Pelletier-750* renders obvious [2a].

128. As I explained for [1a], *Li* discloses that the preamble code sequence in the first preamble is based on a “random selection method.” Ex-1005, 6:11-36; Section X.B.1.b.

129. As I also explained for [1b], *Li* discloses that when the first access attempt from sending the first preamble is unsuccessful, the MS performs a second attempt to access the channel using a second random access signal including preamble with a code sequence (a signature sequence). Section X.B.1.c.

130. Although a POSITA would have understood that *Li*'s second preamble, like its first, would be randomly selected from the set of signature sequences, *Li* does not explicitly disclose that the code sequences of the second preamble is randomly selected from the set of code sequences separately. But *Pelletier-750* does.

131. *Pelletier-750* discloses that “[t]he conventional RACH access starts with preamble transmission of one **randomly** selected PRACH signature out of a set of up to 16 signatures, with a preconfigured initial power level. If no response is received on the associated AICH from the Node B, the WTRU selects the next available access slot, increases power by a predefined amount and transmits **a new randomly selected signature** from the set of available signatures.” Ex-1007, [0007].

132. A POSITA would have found it obvious to use *Pelletier-750*'s method of using “a new randomly selected signature” for the second preamble in *Li*'s system. Both *Li* and *Pelletier-750* disclose a RACH procedure in which an MS sends a first preamble including a signature sequence that is randomly selected from a set of signature sequences. Both *Li* and *Pelletier-750* disclose that if no response is

received from the base station, the MS sends a second preamble including a signature sequence. *Pelletier-750* further discloses that the signature in the second preamble is “a new randomly selected signature from the set of available signatures.” *Id.* *Pelletier-750* further discloses that this procedure is the “conventional RACH access” procedure. *Id.* Thus, a POSITA would have found it obvious to implement *Pelletier-750*’s method of using “a new randomly selected signature” for the second preamble in *Li*’s system because *Li*’s system is already designed for random selection of signature sequences. Ex-1005, 6:11-36. Doing so is nothing more than a simple repeat of the random selection method in *Li*’s system, and *Li*’s system is designed for and well-suited for such a method.

133. A POSITA would have been motivated to combine *Li* and *Pelletier-750* by adopting *Pelletier-750*’s method of using “a new randomly selected signature” for the second preamble in *Li*’s system because this was well-known, conventional procedure. Doing so would have been nothing more than the simple substitution of one known element (*Pelletier-750*’s express disclosure of using a new randomly selected signature sequence for the second preamble) for another (*Li*’s disclosure of a second preamble including a signature sequence) to yield a predictable result of sending a second preamble including a new randomly selected signature sequence to the base station. Indeed, *Pelletier-750*’s disclosure is simply a more detailed explanation of how *Li*’s signature sequence for the second preamble was selected

based on conventional procedure, and a POSITA would have been motivated and found it obvious to look to the conventional procedure described in *Pelletier-750* to understand and implement these additional details.

134. Therefore, in my opinion, *Li* in combination with *Pelletier-750* renders obvious [2a].

- b. **[2b]: “wherein determining that the access attempt from sending the first preamble was unsuccessful comprises monitoring an acquisition channel of the wireless network and failing to find an acquisition indicator on the acquisition channel that corresponds to the sent first preamble.”**

135. The ’776 patent admits that this limitation was well-known. *See* Section VIII.A; Ex-1001, 1:48-57.

136. *Li* in combination with *Pelletier-750* renders obvious [2b].

137. As I explained for [1b] (Section X.B.1.c), *Li* discloses determining that the access attempt from sending the first preamble was unsuccessful. *Li* further discloses “monitoring an acquisition channel of the wireless network and failing to find an acquisition indicator on the acquisition channel that corresponds to the sent first preamble” because it discloses that “[a]fter its initial access signal transmission, the MS monitors the BCCH, essentially to look for and capture the CLPCS specific to the sub-channel corresponding to the preamble code previously selected by the

MS.” Ex-1005, 9:17-37. *Li* discloses monitoring a logical channel (i.e., BCCH), which meets the claim because the claim is not limited to the physical channel.

138. To the extent Patent Owner argues the “acquisition channel” is restricted to a physical channel, such as an AICH channel and that the UE monitors AICH channel to determine whether the access attempt from sending the first preamble was unsuccessful, *Pelletier-750* discloses it.

139. *Pelletier-750* discloses that “[t]he reception of a preamble by the Node B is acknowledged in an **acquisition indication channel (AICH)**.” Ex-1007, [0004]. *Pelletier-750* discloses that “[a] WTRU transmits an RACH preamble and receives an acquisition indicator acknowledging the RACH preamble via an **AICH**.” *Id.*, [0012]. *Pelletier-750* discloses that “[i]f no response is received on the associated **AICH** from the Node B, the WTRU selects the next available access slot, as is “[t]he conventional RACH access” procedure. *Id.*, [0007].

140. A POSITA would have been motivated to combine *Li* and *Pelletier-750* to arrive at the claimed limitation. Both *Li* and *Pelletier-750* disclose that a UE monitors a response from a base station, after sending a first preamble to the base station. *Pelletier-750* further discloses monitoring an AICH channel and states that this was the conventional RACH access procedure. Thus, a POSITA would have found it obvious to use an AICH channel in *Li*’s system to monitor a response from a base station. Doing so would have been nothing more than the simple substitution

of one known element (*Pelletier-750*'s express disclosure of using AICH channel) for another (*Li*'s high-level disclosure of monitoring a response from a base station) to yield a predictable result of monitoring a response from a base station by monitoring AICH channel. Indeed, *Pelletier-750*'s disclosure is simply a more detailed explanation of how *Li*'s monitoring of a response from a base station is realized in a physical channel level, and a POSITA would have been motivated and found it obvious to look to the conventional procedure described in *Pelletier-750* to understand and implement monitoring a response from a base station.

141. Moreover, a POSITA would have been motivated and found it obvious to implement an AICH channel in *Li*'s system because, as the '776 patent admits, AICH channel is specifically designed to carry acquisition indicators, which correspond to signatures on physical RACH like that disclosed in *Li*. Ex-1001, 1:35-57.

142. Therefore, in my opinion, *Li* in combination with *Pelletier-750* renders obvious claim 2.

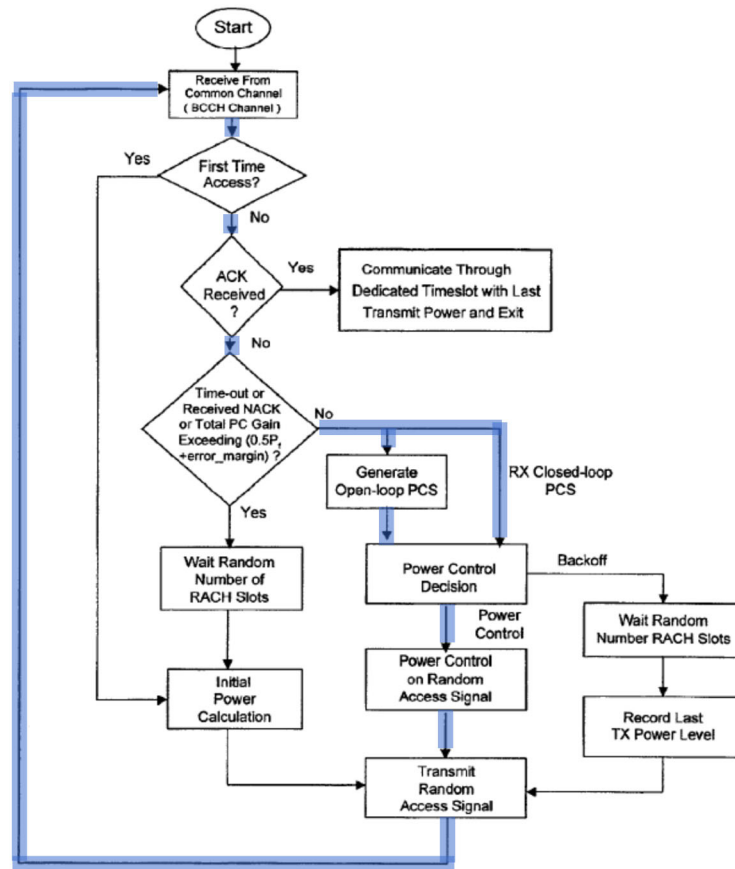
2. Dependent Claim 5

- a. **[5a]: “The method according to claim 2, further comprising: responsive to determining that the access re-attempt from sending the second preamble was unsuccessful, again re-attempting access to the wireless network by sending from the transmitter on the random access channel at a third transmit power a third preamble comprising a signature sequence,”**

143. The '776 patent admits that this limitation was well-known. Section VIII.A; Ex-1001, 1:48-62.

144. In my opinion, *Li* discloses or renders obvious [5a] because *Li* discloses an iterative process of continued re-attempts following unsuccessful attempts if a maximum retry threshold has not been reached.

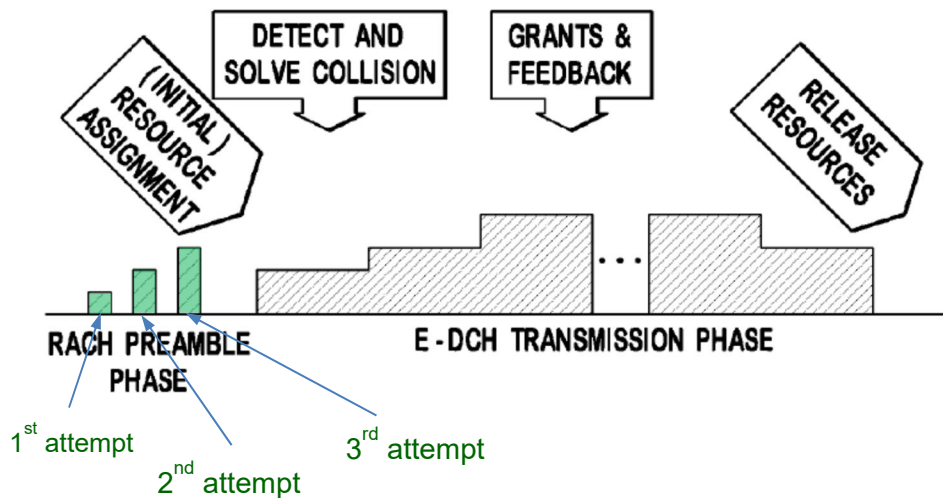
145. *Li* discloses that if “the MS does not receive an acknowledgement signal of any kind,” then “the MS will compute a composite power control command to determine its next step. Optionally, before such computation, if the MS has reached a **maximum number of tries**, it may wait for a certain number of slots before resuming the access procedure.” Ex-1005, 8:14-42. *Li*’s FIG. 3 further shows iteration of the RACH process until the MS receives an acknowledgement from the base station.



Ex-1005, FIG. 3 (annotated).

146. A POSITA would have understood from *Li*'s disclosed iterative retry process that if *Li*'s MS does not receive a response from the base station after a second trial it would attempt a third try.

147. To the extent Patent Owner argues that *Li* does not expressly disclose three attempts, *Pelletier-750* does. Annotated FIG. 1 shows that "[a] NACK or no response from the Node B requires the WTRU to transmit again in the **next available access** slot until the maximum number of attempts has been exhausted," expressly showing **three attempts**. Ex-1007, FIG. 1, [0009].



Ex-1007, FIG. 1 (Prior Art; annotated).

148. *Pelletier-750* discloses that its third attempt is sent at a third transmit power, stating, “the WTRU selects the next available access slot, **increases power** by a predefined amount and transmits **a new randomly selected signature** from the set of available signatures,” as schematically shown in annotated FIG. 1. *Id.*, [0007].

149. A POSITA would have motivated to modify *Li*’s process so that *Li* sends a third preamble comprising a signature sequence when the second preamble was unsuccessful, because the purpose of *Li* is to obtain a RACH with any number of tries until “the MS has reached a maximum number of tries.” Ex-1005, 8:14-42. A POSITA would have found it obvious for *Li*’s MS to send a third preamble because *Li*’s MS is designed to do so as evidenced by the iteration of the process as shown in FIG. 3.

150. Therefore, in my opinion, *Li* alone or in combination with *Pelletier-750* renders obvious [5a].

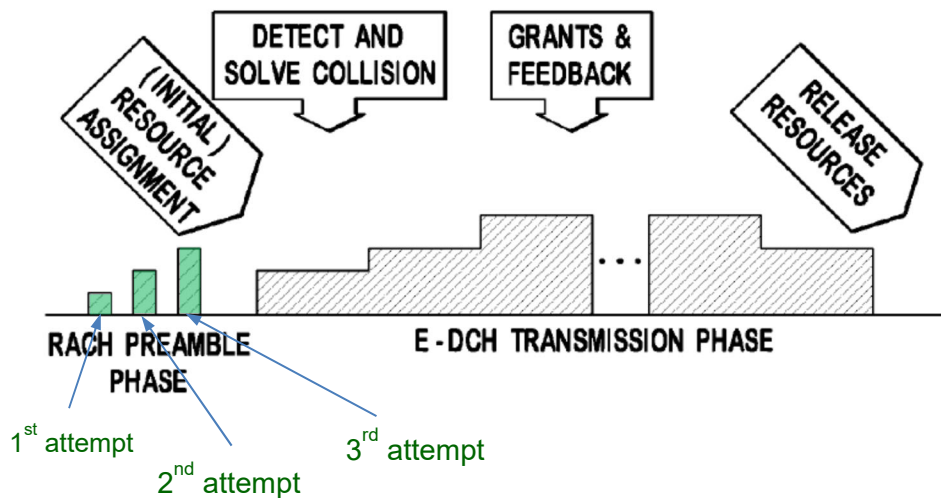
b. [5b]: “in which the third transmit power is greater than the first transmit power and greater than the second transmit power, and”

151. The '776 patent admits that this limitation was well-known. Section, III.A; Ex-1001, 1:48-62.

152. It is my opinion that *Li* discloses or renders obvious [5b] because *Li* discloses that the composite power-control command controls “the course of action for the MS (e.g. to **power up**, power down, transmit at same power, or to back-off).” Ex-1005, 3:39-55. *Li* also discloses that the MS generates the composite power control command that includes “transmitting the **next random-access signal** at the power of the last transmission $+\Delta$, $-\Delta$, $+n\Delta$, $-n\Delta$ or a function of any of them.” *Id.*, 9:17-37. Because *Li* increases power for next random-access signal by $+\Delta$ or $+n\Delta$ for each transmission, the third transmit power in *Li* is greater than the first transmit power and greater than the second transmit power.

153. To the extent Patent Owner argues *Li* does not expressly disclose a third attempt or increasing power for the third attempt, *Pelletier-750* does. *Pelletier-750* discloses that “the WTRU selects the **next** available access slot, **increases power** by a predefined amount and transmits a new randomly selected signature from the set of available signatures.” Ex-1007, [0007]. Because *Pelletier-750* discloses that the

transmit power increases for each next preamble, the third transmit power is greater than the first transmit power and greater than the second transmit power, as schematically shown in annotated FIG. 1.



Ex-1007, FIG. 1 (annotated).

154. Therefore, in my opinion, *Li* alone or in combination with *Pelletier-750* renders obvious [5b].

- c. [5c]: “in which the signature sequences for the first, second and third preambles are each randomly selected from the set of signature sequences separately.”

155. The '776 patent admits that this limitation was well-known. Section VIII.A.

156. *Li* in combination with *Pelletier-750* renders obvious [5c]. *Pelletier-750* discloses that “[t]he conventional RACH access starts with preamble transmission of one randomly selected PRACH signature out of a set of up to 16

signatures, with a preconfigured initial power level. If no response is received on the associated AICH from the Node B, the WTRU selects the **next** available access slot, increases power by a predefined amount and transmits **a new randomly selected signature** from the set of available signatures.” Ex-1007, [0007]. Because *Pelletier-750* discloses randomly selecting signature for each next preamble, the signature sequences for the first, second, and third preambles are each randomly selected from the set of signature sequences separately.

157. A POSITA would have been motivated to implement the teachings of *Pelletier-750* in *Li*’s system so that the signature sequences for the first, second, and third preambles in *Li* are each randomly selected from the set of signature sequences separately, as taught by *Pelletier-750* because as *Pelletier-750* explained, this was well-known, conventional procedure. Ex-1007, [0007].

158. Therefore, in my opinion, *Li* in view of *Pelletier-750* renders obvious claim 5.

3. Dependent Claim 11

- a. [11a]: “The apparatus according to claim 10, wherein the processor is configured to randomly select from the set of signature sequences the signature sequence of the first preamble and separately to randomly select from the set of signature sequences the signature sequence of the second preamble; and”**

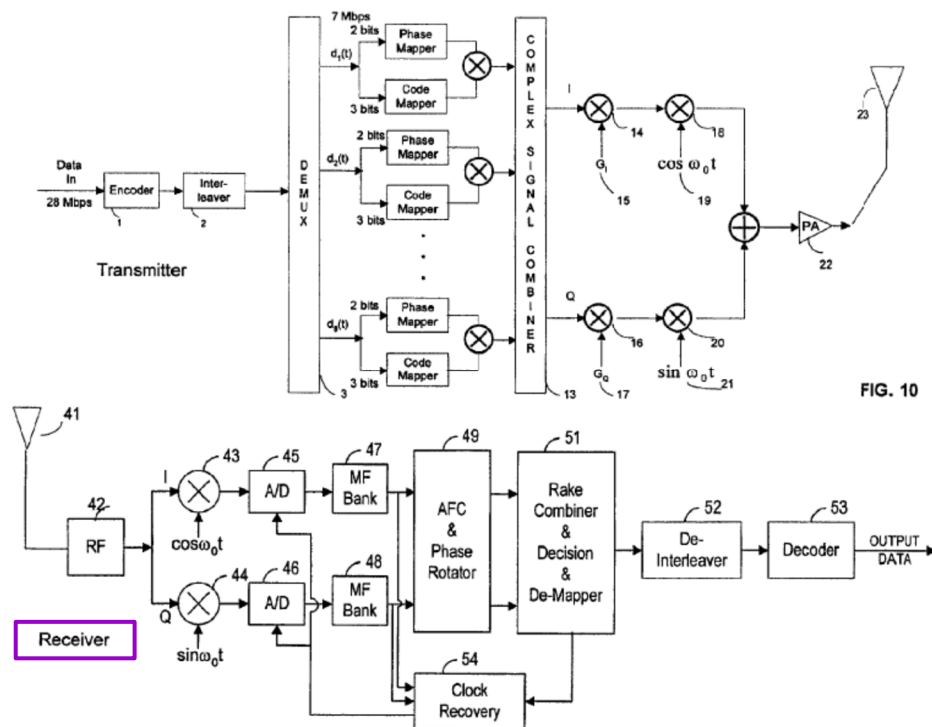
159. [11a] is substantially similar to [2a]. *Li* discloses the apparatus including the processor recited in Claim 10 (Sections X.B.2.a, X.B.2.c). *Li* and *Pelletier-750* render obvious the function of the processor recited in [11a] for the same reasons as [2a] (Section X.C.1.a).

- b. [11b]: “wherein the processor is configured to determine that the access attempt from the first preamble was unsuccessful by tuning a receiver of the apparatus to monitor an acquisition channel of the wireless network and determining that no acquisition indicator that corresponds to the first sent preamble was received at the receiver on the acquisition channel.”**

160. *Li* and *Pelletier-750* render obvious [11b].

161. As I explained for [2b] (Section X.C.1.b), *Li* and *Pelletier-750* render obvious determining that the access attempt from the first preamble was unsuccessful by monitoring an acquisition channel of the wireless network and determining that no acquisition indicator that corresponds to the sent first preamble was received on the acquisition channel.

162. In addition, *Li* discloses a receiver (“receiver”) that performs the monitoring/receiving function. *Li*’s MS has “an MS-spread-spectrum receiver. An exemplary spread-spectrum transceiver (combination of transmitter and receiver) usable in the BS or in the MSs appears in FIG. 10.” Ex-1005, 5:16-20.



Ex-1005, FIG. 10 (annotated).

163. *Li*’s receiver “includes an antenna 41 for receiving the spread-spectrum signal transmitted over the air-link,” and other components such as an RF front-end system 42, two translating devices 43, 44, analog to digital (A/D) converters 45, 46, a matched filter (MF) bank 47, 48, a processor 49, a rake combiner and decision/demapper circuit 51, a deinterleaver 52, a decoder 53, and a clock recovery circuit 54. *Id.*, 13:29-14:4. A POSITA would have understood that, when using a

receiver to monitor an acquisition channel, the tuner would be tuned to monitor the appropriate channel.

4. Dependent Claim 14

164. Claim 14 recites limitations similar to that of claim 5, except that claim 14 depends from claim 11. *Li* and *Pelletier-750* render obvious claim 14 for the reasons that I explained for claim 5 (Sections X.C.2.a-X.C.2.c).

D. Ground 1d: *Li* in view of *Pelletier-750* and *Kim* Renders Obvious Claims 3, 4, 12, and 13

1. Dependent Claim 3

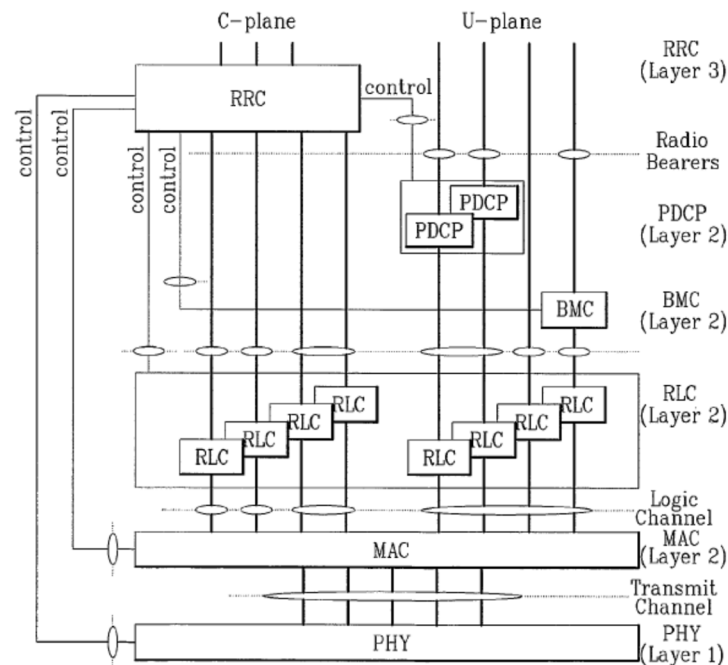
- a. [3a]: “The method according to claim 2, further comprising determining an initial transmit power from an indication obtained from higher layers, and”**

165. The '776 patent admits that this limitation was well-known. Ex-1001, 2:5-11.

166. It is my opinion that *Li* in combination with *Pelletier-750* and *Kim* renders obvious [3a].

167. *Li* discloses determining an initial transmit power from an indication or parameters obtained from BCCH. *Li*'s MS “estimates power level P_i for its first access attempt based on an analysis of one or more signals received from the base station.” Ex-1005, 6:37-46. *Li*'s MS “measur[es] the received signal from BCCH, comput[es] an initial power required for channel access, and transmit[s] a random access signal at that power level.” *Id.*, 3:39-55; 6:49-55.

168. To the extent Patent Owner argues that *Li* does not explicitly disclose that its indication is received from higher layers, *Kim* expressly discloses the higher RRC layer. *Kim* discloses that “the transmit power of the initial preamble is determined by the **RRC layer**.” Ex-1008, [0035]. *Kim* also discloses that “a transmit power of the preamble can be determined according to the **conventional** method discussed above in which the transmit power is provided by the **RRC layer**.” *Id.*, [0038]. As shown in FIG. 2, *Kim* discloses that the RRC layer “is part of Layer 3 (L3),” that is a higher than layer 1 or layer 2. *Id.*, [0007].



Ex-1008, FIG. 2.

169. As I explained for Claim 2 (Sections X.C.1.a, X.C.1.b), *Li*'s method would be modified based on the teachings of *Pelletier-750*. A POSITA would have

understood that *Li*'s method, modified by *Pelletier-750*, the signal from the base station, based on which *Li*'s MS computes the initial power, is from the RRC layer of the base station.

170. Alternatively, to the extent *Li* and *Pelletier-750* do not expressly disclose that its indication is received from higher layers, a POSITA would have been motivated to further modify the *Li-Pelletier-750* system such that *Li*'s mobile station determines the initial power based on the signal provided by the RRC layer as expressly disclosed by *Kim*. Both *Li* and *Kim* disclose a RACH procedure in which a MS sends a first preamble including a signature sequence at an initial transmit power determined by the MS. Both *Li* and *Kim* disclose that the MS determines the initial power based on a signal from the base station. *Kim* further discloses that the signal is from RRC layer of the base station.

171. A POSITA would have been motivated to combine *Li*, *Pelletier-750*, and *Kim* by adopting *Kim*'s method of determining an initial transmit power using information provided by RRC layer, because this was a well-known, conventional procedure, as explained by *Kim*. *Kim*'s disclosure is simply a more detailed explanation of how *Li*'s initial power is determined based on a signal from the base station, and a POSITA would have found it obvious to look to the conventional procedure described in *Kim* to understand and implement *Kim*'s method.

172. Therefore, in my opinion, *Li* in combination with *Pelletier-750* and *Kim* renders obvious [3a].

- b. **[3b]: “wherein the first transmit power is equal to the second transmit power which is the determined initial power.”**

173. It is my opinion that *Li* discloses [3b] because *Li* discloses “transmitting the next random-access signal at the **same power**.” Ex-1005, 9:17-37, 3:39-55.

174. Therefore, in my opinion, *Li* in combination with *Pelletier-750* and *Kim* renders obvious [3a].

2. Dependent Claim 4

- a. **[4a]: “The method according to claim 2, wherein the second transmit power is an initial transmit power determined from an indication obtained from higher layers and”**

175. *Li* in combination with *Pelletier-750* and *Kim* renders obvious [4a].

176. *Li* discloses determining the second transmit power from an indication obtained from the base station through BCCH because *Li* discloses that “[a]fter its initial access signal transmission, the MS monitors the BCCH, essentially to look for and capture the CLPCS specific to the sub-channel corresponding to the preamble code previously selected by the MS. With the generated OLPCS and the received CLPCS for the sub-channel, the MS now has enough information to generate the composite power control command.” Ex-1005, 9:17-37. *Li* also discloses that the composite power-control command controls “the level of any

change in transmission power of the next random access signal transmitted from the MS.” *Id.*, 3:39-55.

177. As I explained for [3a] (Section X.D.1.a), to the extent Patent Owner argues that *Li* does not explicitly disclose that its indication is obtained from higher layers, *Kim* discloses that the indication is from higher layers such as RRC layer of the base station.

b. [4b]: “the first transmit power is greater than the second transmit power.”

178. *Li* discloses [4b] because *Li* discloses that “[t]he composite power-control command controls not only the course of action for the MS (e.g. to power up, **power down**, transmit at same power, or to back-off).” Ex-1005, 3:39-55; *id.*, 9:17-37. Because the next random-access signal transmission (the second transmit power) uses reduced power compared with the first transmission, the first transmission power (the first transmit power) is greater than the second transmit power.

179. Therefore, in my opinion, *Li* in combination with *Pelletier-750* and *Kim* renders obvious claim 4.

3. Dependent Claim 12

- a. [12a]: “The apparatus according to claim 11: wherein the receiver is configured to receive from higher layers parameters for an initial power for random access; and”**

180. [12a] is substantially similar to [3a]. *Li* in combination with *Pelletier-750* teaches the apparatus including the receiver as recited in Claim 11. Sections X.C.3.a., X.C.3.b. *Li* in combination with *Pelletier-750* and *Kim* renders obvious the function of the receiver recited in [12a] for the same reasons as [3a] (Section X.D.1.a).

- b. [12b]: “the apparatus further comprises a memory storing the received parameters; and”**

181. In my opinion, *Li* in combination with *Pelletier-750* render obvious [12b].

182. As I explained for Claim 19, a POSITA would have understood that *Li*’s MS includes a memory. Section X.B.3.a.

183. *Pelletier-750* discloses that “[t]he methods or flow charts provided herein may be implemented in a computer program, software, or firmware incorporated in a **computer-readable storage medium** for execution by a general purpose computer or a processor.” Ex-1007, [0047].

184. A POSITA would have found it obvious to store the parameters received from the higher layers in the memory so that the processor can retrieve the parameters from the memory to determine the initial power using the parameters.

c. [12c]: “wherein the processor is further configured to determine from the parameters the initial power for random access, and”

185. In my opinion, *Li* in combination with *Pelletier-750* and *Kim* render obvious [12c].

186. As I explained for [3a] (Section X.D.1.a), *Li* discloses determining an initial transmit power.

187. To the extent Patent Owner argues that *Li* does not explicitly identify the higher layers, *Kim* expressly discloses the higher RRC layer and a POSITA would have been motivated to incorporate *Kim*’s teaching into the *Li-Pelletier-750* system as explained for [3a] (Section X.D.1.a).

d. [12d]: “wherein the first transmit power is equal to the second transmit power which is equal to the determined initial power.”

188. [12d] is identical to [3b] (Section X.D.1.b) and rendered obvious for the same reasons.

4. Dependent Claim 13

- a. [13a]: “The apparatus according to claim 11: wherein the receiver is configured to receive from higher layers parameters for an initial power for random access; and”**

189. [13a] is identical to [12a] (Section X.D.3.a) and rendered obvious for the same reasons.

- b. [13b]: “the apparatus further comprises a memory storing the parameters; and”**

190. [13b] is identical to [12b] (Section X.D.3.b) and rendered obvious for the same reasons.

- c. [13c]: “wherein the processor is further configured to determine from the parameters the initial power for random access, and”**

191. [13c] is identical to [12c] (Section X.D.3.c) and rendered obvious for the same reasons.

- d. [13d]: “wherein the second transmit power is the initial power and the first transmit power is greater than the second transmit power.”**

192. [13d] is substantially similar to [4a] and [4b] (Sections X.D.2.a, X.D.2.b) and rendered obvious for the same reasons.

E. Ground 1e: *Li* in view of *Vujcic* and *Kim* Renders Obvious Claims 6-9

1. Dependent Claim 6

- a. [6a]: “The method of claim 1, wherein: the signature sequence of the first preamble is randomly selected from the set of signature sequences and”**

193. [6a] is commensurate in scope with limitation [1a] (Section X.B.1.b) and disclosed or rendered obvious by *Li* for the same reasons.

- b. [6b]: “the signature sequence of the second preamble is the same as the signature sequence of the first preamble; and”**

194. *Li* in combination with *Vujcic* renders obvious [6b].

195. As I explained for [1b] (Section X.B.1.c), *Li* discloses sending a second preamble with a signature sequence, if the access attempt from sending the first preamble was unsuccessful. *Li* does not expressly disclose that the signature sequence of the second preamble is the same as the signature sequence of the first preamble, but *Vujcic* does.

196. *Vujcic* discloses that “[i]f the user equipment UE 101 does not receive a response from the eNodeB 103 the UE 101 generates a second random access burst signal and allocates the **same preamble signature**—preamble signature A as the previous unsuccessfully detected first random access burst signal to the second random access burst signal.” Ex-1009, [0090], [0091].

197. A POSITA would have been motivated to combine *Li* and *Vujcic*. Both *Li* and *Vujcic* disclose a RACH procedure in which an MS sends a first preamble including a signature sequence that is randomly selected from a set. Both *Li* and *Vujcic* disclose that if no response is received from the base station, the MS sends a second preamble including a signature sequence. *Vujcic* further discloses that the signature sequence of the second preamble is the same as the signature sequence of the first preamble and it would have been obvious to use the same signature sequence, as taught by *Vujcic*, for *Li*'s second preamble.

198. A POSITA would have been motivated to combine *Li* and *Vujcic* by adopting *Vujcic*'s method of using the same signature as the first preamble for *Li*'s second preamble because it provides advantages like being easy to implement, reducing computation, and reducing the use of resources. *Vujcic* also expressly discloses that "keeping the same signature for retransmitted preambles from UE 101 does not increase the probability of collision," a known benefit. Ex-1009, [0095]. Doing so would have been a simple substitution of one known element (*Vujcic*'s express disclosure of using the same signature sequence for the second preamble) for another (*Li*'s disclosure of a second preamble including a signature sequence) to the yield predictable result of sending a second preamble with a same signature sequence as the first preamble. Indeed, *Vujcic*'s disclosure is simply a more detailed

explanation of how *Li*'s signature sequence for the second preamble would be selected.

- c. **[6c]: “wherein determining that the access attempt from sending the first preamble was unsuccessful comprises monitoring an acquisition channel of the wireless network and failing to find an acquisition indicator on the acquisition channel that corresponds to the sent first preamble.”**

199. The '776 patent admits that [6c] was well-known. Section VIII; Ex-1001, 1:48-57.

200. *Li* in combination with *Vujcic* and *Kim* renders obvious [6c]. As explained for [1b] (Section X.B.1.c), *Li* discloses a logical channel (i.e., BCCH) and monitoring BCCH, which meets the claim because the claim is not limited to the physical channel.

201. To the extent Patent Owner argues the acquisition channel is restricted to the physical channel, such as an AICH channel and that the UE monitors AICH channel to determine whether the access attempt from sending the first preamble was unsuccessful, *Kim* discloses it. *Kim* discloses that “[a]fter Node B receives the preamble from the UE, Node B responds by transmitting an acquisition indicator (AI) on an **acquisition indicator channel (AICH)**. The AI is transmitted using the signature selected by the UE in transmitting the preamble to Node B during the access slot.” Ex-1008, [0031]; [0043], FIG. 7.

202. A POSITA would have been motivated to modify the *Li-Vujcic* system to implement the AICH channel disclosed by *Kim* in *Li*'s system so that *Li*'s MS can monitor a response from the base station. Both *Li* and *Kim* disclose that a UE monitors a response from a base station, after sending a first preamble to the base station. *Kim* further discloses monitoring an AICH channel and states that this was the conventional RACH access procedure. And a POSITA would have had a reasonable expectation of success for such combination because it merely implements an AICH channel for its routine purpose in a system configured for such routine purpose to achieve the result of monitoring responses from the base station. Thus, a POSITA would have found it obvious to use an AICH channel in *Li*'s system to monitor a response from a base station for the reasons explained in [2b] (Section V.C.2.b).

203. Therefore, in my opinion, *Li* in view of *Vujcic* and *Kim* renders obvious claim 6.

2. Claim 7

204. Claim 7 is identical to claim 3, except that claim 7 depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious claim 7 as explained for claim 3 (Section X.D.1).

3. Dependent Claim 8

205. Claim 8 recites limitations identical to claim 4, except that claim 8 depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious claim 8 for the reasons explained for claim 4 (Sections X.D.2.a, X.D.2.b).

4. Dependent Claim 9

- a. [9a]: “The method according to claim 6, further comprising: responsive to determining that the access re-attempt from sending the second transmit preamble was unsuccessful, again re-attempting access to the wireless network by sending from the transmitter on the random access channel at a third transmit power a third preamble comprising a signature sequence,”

206. [9a] is identical to [5a], except that claim 9 depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious [9a] for the reasons that I explained for [5a] (Section X.C.2.a).

207. To the extent Patent Owner argues that *Li* does not expressly disclose three attempts, *Vujcic* does. *Vujcic* discloses that “[i]n the random access procedure the UE 101 randomly selects an access resource and transmits a RACH preamble to the network. A preamble is a short signal that is sent before the transmission of the RACH connection request message. The UE 101 can **repeatedly** transmit the preamble by increasing the transmission power each time the preamble is sent until the network indicates the detection of the preamble.” Ex-1009, [0049]. Thus, a

POSITA would have understood that *Vujcic* transmits a third preamble when the network does not indicate the detection of the second preamble.

- b. **[9b]: “in which the third transmit power is greater than the first transmit power and greater than the second transmit power, and”**

208. [9b] is identical to [5b], except that claim 9 depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious [9b] for the reasons explained in [5b] (Section X.C.2.b) and [9a] (for the third transmit power) (Section X.E.3.a).

- c. **[9c]: “in which the signature sequence of the third preamble is the same as the signature sequence of the first preamble and of the second preamble.”**

209. *Li* in combination with *Vujcic* and *Kim* renders obvious [9c]. As I explained for [6b] (Section X.E.1.b), *Vujcic* discloses that the signature sequence of the second preamble is the same as the signature sequence of the first preamble. As explained for [9a], *Li* alone or in combination with *Vujcic* teaches transmitting the third preamble. *Vujcic* also discloses “a previously received RACH preamble having the **same preamble signature**,” indicating that the signature sequence of the third preamble of *Vujcic* can have the same sequence as the signature sequence of the second preamble.

F. Ground 1f: *Li* in view of *Vujcic* and *Pelletier-750* Renders Obvious Claim 15

1. Dependent Claim 15

a. [15a]: “The apparatus according to claim 10, further comprising a memory,”

210. *Li* in combination with *Vujcic* and *Pelletier-750* renders obvious [15a].

As I explained for [19Preamble], a POSITA would have understood that *Li*’s MS includes a memory. Section X.B.3.a.

211. *Vujcic* also discloses that “the present invention can be embodied as computer readable code for provision to a programmable apparatus on any suitable carrier medium. A **tangible carrier medium** may comprise a storage medium such as a floppy disk, a CD-ROM, a hard disk drive, a magnetic tape device or a solid state memory device and the like.” Ex-1009, [0062].

b. [15b]: “wherein the processor is configured to randomly select from the set of signature sequences the signature sequence of the first preamble and”

212. *Li* discloses [15b]. As I explained for [10b] (Section X.B.2.c), *Li*’s MS includes a processor. *Li* further discloses randomly selecting from the set of signature sequences the signature sequence of the first preamble as explained for [10a] and [1a] (Sections X.B.2.b, X.B.1.b).

c. [15c]: “to store the selected signature sequence in the memory; and”

213. It is my opinion that *Li* in combination with *Vujcic* and *Pelletier-750* renders obvious [15c].

214. *Vujcic* discloses that “[i]f the user equipment UE 101 does not receive a response from the eNodeB 103 the UE 101 generates a second random access burst signal and **allocates the same preamble signature**—preamble signature A as the previous unsuccessfully detected first random access burst signal to the second random access burst signal.” Ex-1009, [0090]. *Vujcic* also discloses storing a signature sequence of a preamble in a memory of a preamble receiver. *Id.*, [0089], [0092].

215. A POSITA would have understood that *Li*’s MS, modified based on *Vujcic*’s teachings, includes a memory to store the selected signature sequence in the memory because *Li* repeatedly uses the same signature sequence and thus, the signature sequence must be stored in a memory so that *Li*’s processor can retrieve the signature sequence from the memory.

d. [15d]: “wherein the signature sequence of the second preamble is the selected signature sequence of the first preamble retrieved from the memory; and”

216. *Li* in combination with *Vujcic* and *Pelletier-750* renders obvious [15d]. *Vujcic* discloses that “the UE 101 generates a second random access burst signal and

allocates the **same preamble signature**—preamble signature A as the previous unsuccessfully detected first random access burst signal to the second random access burst signal.” Ex-1009, [0090].

- e. **[15e]: “wherein the processor is configured to determine that the access attempt from the first preamble was unsuccessful by tuning a receiver of the apparatus to monitor an acquisition channel of the wireless network and determining that no acquisition indicator that corresponds to the sent first preamble was received at the receiver on the acquisition channel.”**

217. [15e] is identical to [11b], except that claim 15 depends from claim 10. As explained for [11b] (Section X.C.3.b), *Li* and *Pelletier-750* render obvious [15e].

218. Thus, in my opinion, *Li* in combination with *Vujcic* and *Pelletier-750* renders obvious claim 15.

G. Ground 1g: *Li* in view of *Vujcic*, *Pelletier-750*, and *Kim* Renders Obvious Claims 16-18

1. Dependent Claim 16

219. Claim 16 is identical to claim 12, except that claim 16 depends from claim 15. *Li* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 16 for the reasons explained for claim 12 (Sections X.D.3.a-X.D.3.d).

2. Dependent Claim 17

220. Claim 17 is identical to claim 13, except that claim 17 depends from claim 15. *Li* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 17 for the reasons explained for claim 13 (X.D.5.a-X.D.5.d).

3. Dependent Claim 18

221. Claim 18 is identical to claim 9, except that claim 18 depends from claim 15. *Li* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 18 for the reasons explained for claim 9 (Sections X.E.3.a-X.E.3.c).

H. Ground 1h: *Li* in view of *Vujcic* and *Pelletier-750* Renders Obvious Claim 20

1. Dependent Claim 20

- a. [20]: “A non transitory computer reasonable memory of claim 19, wherein: the signature sequence of the first preamble is randomly selected from the set of signature sequences and the signature sequence of the second preamble is the same as the signature sequence of the first preamble, retrieved from a memory.”

222. *Li* in combination with *Vujcic* render obvious claim 20. Claim 20 is identical to [15d]-[15e], except that claim 20 depends from claim 19. *Vujcic* and *Pelletier-750* discloses claim 20 as explained for [15d]-[15e] (Sections X.F.1.d-X.F.1.e).

XI. THE *PELLETIER* GROUNDS: CLAIMS 1-20 ARE UNPATENTABLE

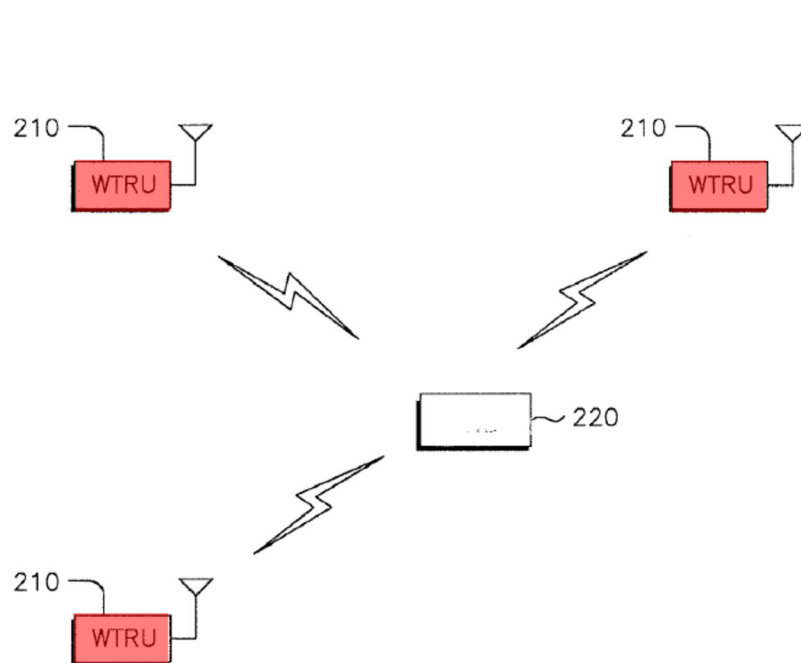
A. Overview of the Combination

223. *Pelletier* discloses or renders obvious all features of the independent claims, but does not expressly disclose other minor limitations that would have been obvious extensions of *Pelletier*'s system, calling for merely routine implementation of well-known components: 1) the signature sequence of the second preamble is randomly selected from the set of signature sequences separately (e.g., claim 2, taught by *Pelletier-750*); 2) an indication obtained from higher layers (e.g., claim 3, taught by *Kim*); 3) wherein the second transmit power is an initial transmit power and the first transmit power is greater than the second transmit power (e.g., claim 4, taught by *Li*); 4) a third transmit power (e.g., claim 5, taught by *Pelletier-750*); 5) sending the same signature sequence as both the first and second preambles (e.g., claim 6, taught by *Vujcic*); and 6) a memory storing parameters (e.g., claim 12, taught by *Pelletier-750*).

224. Because these features are merely well-known, routine features, most of which are at least suggested by *Pelletier*, it would have been obvious by a POSITA to combine *Pelletier* with one or more of the relevant disclosures of the secondary references to accommodate various design needs.

1. Motivation to Combine the References

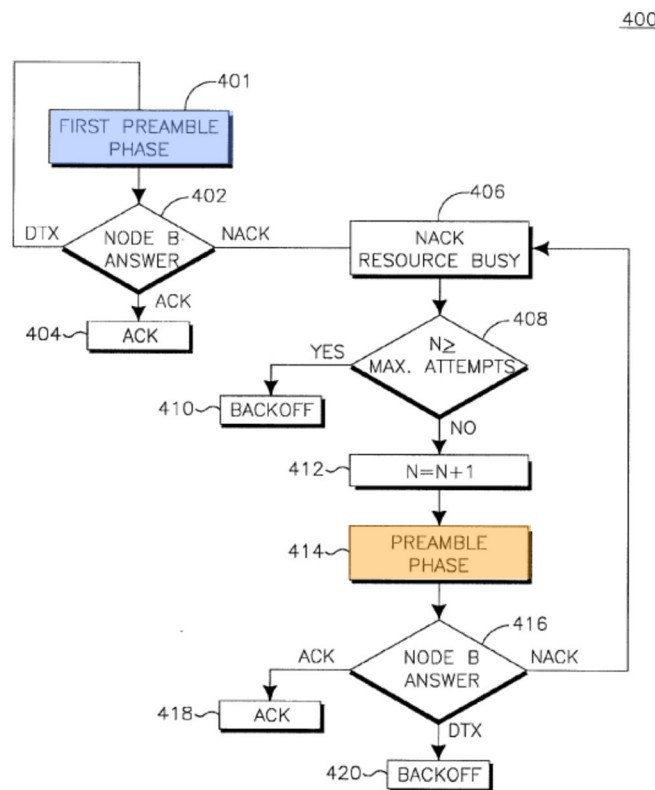
225. *Pelletier* discloses all elements of the independent claims, including the purported point of novelty—that the transmit power in the second attempt is no greater than the first transmit power. *Pelletier* discloses “a wireless communication system 200 including a plurality of WTRUs [wireless transmit/receive units] 210 and a base station 220,” as shown in annotated FIG. 2 below. Ex-1006, [0018]. *Pelletier* discloses that “[t]he WTRU is configured to communicate over an enhanced random access channel (E-RACH)” with the base station 220. *Id.*, [0019].



Ex-1006, FIG. 2 (annotated).

226. *Pelletier*’s RACH method is shown in FIG. 4 below. At step 401, “a first preamble phase is transmitted by a WTRU.” *Id.*, [0032]. “At step 402, the Node

B receives the signal. If the Node B detects the preamble signature sequence, at step 404, the Node B may transmit an ACK if the resource requested by the WTRU is available. If the Node B does not receive the signal, it is in discontinuous transmit mode (DTX), and the Node B does not transmit an ACK or a NACK. If the Node B detects the preamble, but cannot allocate a resource, at step 406, the Node B transmits a NACK.” *Id.*



Ex-1006, FIG. 4 (annotated).

227. *Pelletier* discloses that if “the Node B transmits a NACK,” and the maximum number of attempts after the first NACK has not been reached, “at step 414, the WTRU **retries** accessing the RACH with a **different preamble** in a

subsequent access slot. The **transmission power** can be raised or **kept the same.**”
Id., [0032].

228. *Pelletier* discloses that “[g]rant information may be conveyed to the WTRU using the AICH or similar channel,” (*id.*, [0044]) and that “the signature sequence index [is] acknowledged on the acquisition indicator channel (AICH) by the Node B.” *Id.*, [0024].

a. Combination with *Pelletier-750*

229. Although *Pelletier* does not expressly disclose that the signature sequence of the second preamble is randomly selected from the set of signature sequences separately (e.g., claim 2); a third transmit power (e.g., claim 5); and a memory storing parameters (e.g., claim 12), these are simply well known features of accessing random access channels readily understood by a POSITA as applicable to *Pelletier*’s system, as evidenced by *Pelletier-750* and acknowledged in the ’776 patent.

230. This combination is similar to that in Ground 1 and would have been obvious for the same reasons.

b. Combination with *Kim*

231. Although *Pelletier* does not expressly disclose that its indications are obtained from higher layers (e.g., claim 3), this is a well known feature of accessing

random access channels readily understood by a POSITA as applicable to *Pelletier*'s system, as evidenced by *Kim* and acknowledged in the '776 patent.

232. This combination is similar to that in Ground 1 and would have been obvious for the same reasons.

c. Combination with *Li*

233. Although *Pelletier* does not expressly disclose wherein the second transmit power is an initial transmit power and the first transmit power is greater than the second transmit power (e.g., claim 4), *Li* does in disclosing a known method for implementing accessing random access channels.

234. A POSITA would have been motivated to modify *Pelletier*'s method based on *Li* so that the second transmission power of *Pelletier* is an initial transmit power determined by the WTRU, because of the advantages provided by such determining (enhanced accuracy of the power determination, efficient use of power, prevention of resource wasting, etc.). And a POSITA would have been motivated to modify *Pelletier*'s so that *Pelletier*'s WTRU can send a second preamble at a reduced transmit power when necessary because *Li* discloses that in some situations, the "amount that the respective power was over or under an optimum value." Ex-1005, 3:19-21.

d. Combination with *Vujcic*

235. Although *Pelletier* does not expressly disclose sending the same signature sequence as both the first and second preambles (e.g., claim 6) this is an obvious implementation of accessing random access channels readily understood by a POSITA as applicable to *Pelletier*'s system, as evidenced by *Vujcic* and acknowledged in the '776 patent.

236. This combination is similar to that in Ground 1 and would have been obvious for the same reasons.

B. Ground 2a and 2b: *Pelletier* Anticipates or Renders Obvious Claims 1, 10, and 19

1. Independent Claim 1

a. [1Preamble] "A method comprising:"

237. *Pelletier* discloses a method for transmission over an E-RACH. Ex-1006, [0007], [0032], FIG. 4; Section VII.B.

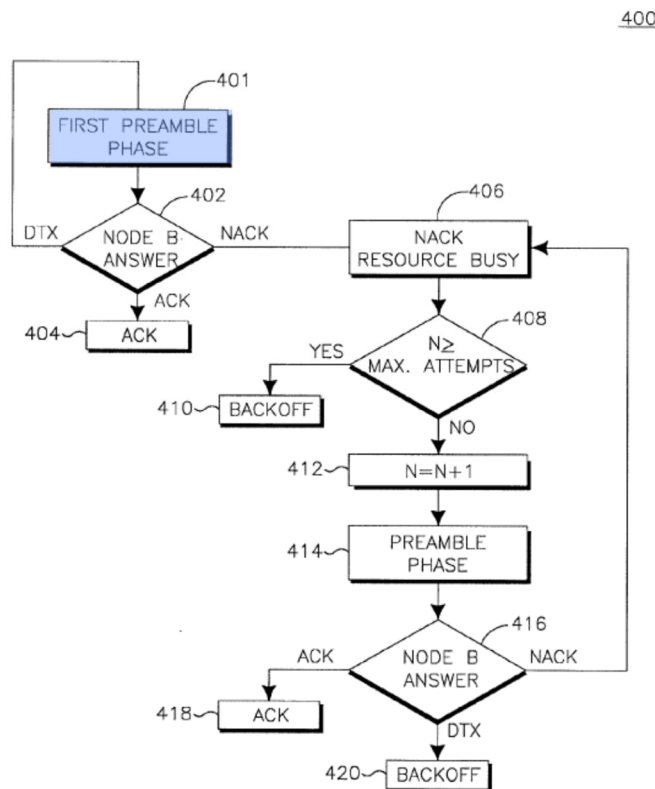
b. [1a] "attempting access to a wireless network by sending from a transmitter on a random access channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences;"

238. The '776 patent admits that this limitation was well-known. Section VIII.A.

239. In my opinion, *Pelletier* discloses or renders obvious [1a] because *Pelletier* discloses a first trial (attempting access to a wireless network) that includes

sending from a transmitter of a WTRU (transmitter) on a E-RACH (random access channel) at a transmission power (first transmit power) a first preamble comprising a preamble signature sequence (signature sequence) that is randomly chosen.

240. *Pelletier* discloses “MAC-level RACH procedures [that] allow multiple trials at requesting resources before the backoff mechanism is triggered.” Ex-1006, [0031]. As shown in FIG. 4, at a first trial, “a **first preamble** phase is transmitted by a WTRU.” *Id.*, [0032].



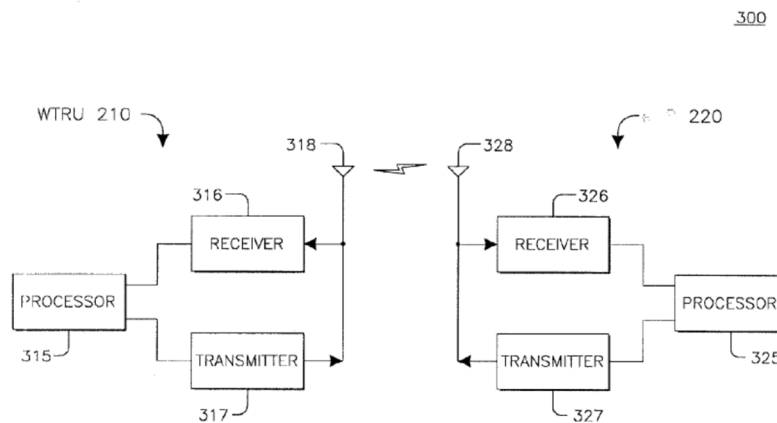
Ex-1006, FIG. 4 (annotated).

241. *Pelletier*’s first preamble includes a signature sequence randomly selected from a set of signature sequences. *Pelletier* discloses that the scheduling

information (SI) may be used to “select one of the **signature** groups, and the WTRU may **randomly choose** one of the sequences within that group.” *Id.*, [0039].

242. *Pelletier* also discloses that “the WTRU retries accessing the RACH with a different preamble in a subsequent access slot. The **transmission power** can be raised or kept the same,” indicating that the first preamble was sent at a first transmission power. *Id.*, [0032].

243. *Pelletier*’s WTRU includes a transmitter from which the first preamble is sent. As shown in FIG. 3, *Pelletier* discloses that “the WTRU 210 includes a processor 315, a receiver 316, a transmitter 317, and an antenna 318,” and “the transmitter 317 is configured to transmit signals over the E-RACH.” *Id.*, [0020].



Ex-1006, FIG. 3.

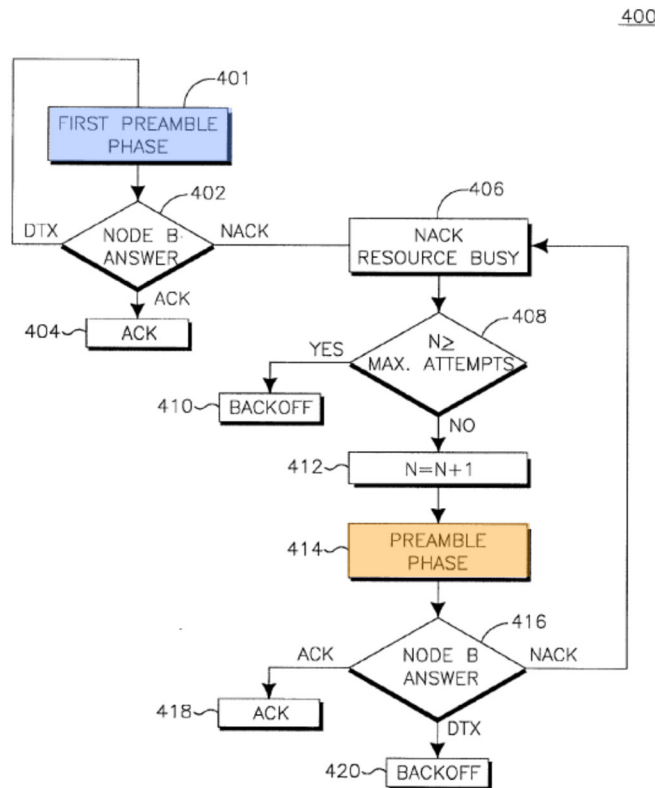
- c. [1b] “responsive to determining that the access attempt from sending the first preamble was unsuccessful, re-attempting access to the wireless network by sending from the transmitter on the

**random access channel at a second transmit power a
second preamble comprising a signature sequence,”**

244. The '776 patent admits that this limitation was well-known. Section VIII.A.

245. In my opinion, *Pelletier* discloses or renders obvious [1b] because *Pelletier* discloses that after sending the first preamble, if the WTRU receives a NACK message from the Node B (“determining that the access attempt from sending the first preamble was unsuccessful”), the WTRU performs a second trial (“re-attempting access to the wireless network”) by sending from the transmitter on the E-RACH (“random access channel”) at a raised power or at the same power (“second transmit power”) a different preamble (“second preamble”) comprising a signature sequence.

246. As FIG. 4 shows, *Pelletier* discloses that “[i]f the Node B detects the [first] preamble, but cannot allocate a resource, at step 406, the Node B transmits a NACK,” indicating the access attempt from sending the first preamble was unsuccessful. Ex-1006, [0032].



Ex-1006, FIG. 4 (annotated).

247. *Pelletier* discloses that if “the Node B transmits a NACK,” and the maximum number of attempts after the first NACK has not been reached, “the WTRU **retries** accessing the RACH with a **different preamble** in a subsequent access slot. The **transmission power** can be raised or **kept the same**.” *Id.*

248. *Pelletier* discloses that the second preamble can be “another preamble [sent] at the same transmission power,” (*id.*, [0042]), or can be “the repeat preamble” having “a **second signature**.” *Id.*, [0043].

d. [1c] “in which the second transmit power is no greater than the first transmit power.”

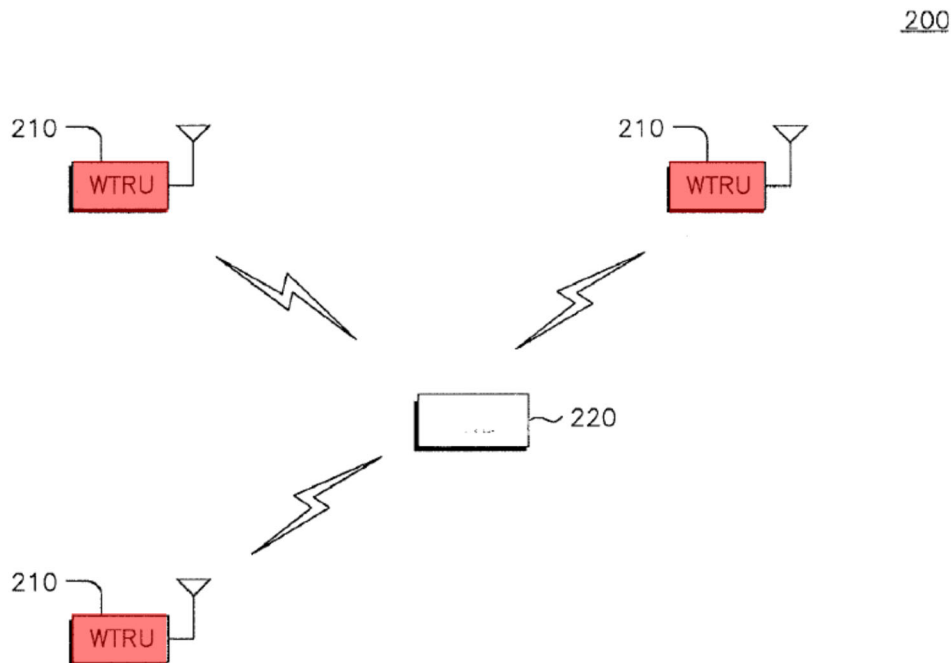
249. *Pelletier* discloses or renders obvious [1c] because *Pelletier* discloses that “the WTRU retries accessing the RACH with a different preamble in a subsequent access slot. The **transmission power** can be raised or **kept the same.**” Ex-1006, [0032]. *Pelletier* also discloses that the WTRU “can send another preamble at the **same transmission power.**” *Id.*, [0042].

250. Thus, in my opinion, *Pelletier* discloses or renders obvious claim 1.

2. Independent Claim 10

a. [10Preamble] “An apparatus comprising:”

251. *Pelletier* discloses a WTRU in a wireless communication system. Ex-1006, [0018]-[0019], FIG. 2.

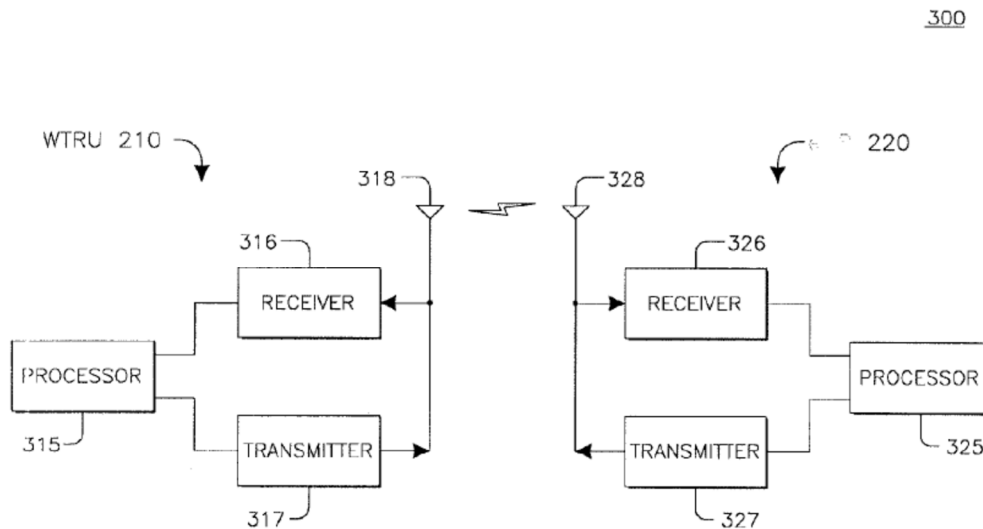


Ex-1006, FIG. 2 (annotated).

- b. [10a] “a transmitter configured to attempt access to a wireless network by sending on a random access channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences;”

252. It is my opinion that *Pelletier* discloses [10a] because *Pelletier*’s WTRU includes a transmitter configured to attempt access to a wireless network.

253. As shown in FIG. 3, *Pelletier*’s “WTRU 210 includes a processor 315, a receiver 316, a **transmitter** 317, and an antenna 318,” and “the transmitter 317 is configured to transmit signals over the E-RACH.” Ex-1006, [0020].



Ex-1006, FIG. 3

254. As I explained for [1a] (Section XI.B.1.b), *Pelletier*’s transmitter is configured to attempt access to a wireless network by sending on a random access

channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences.

- c. **[10b] “a processor configured to determine that the access attempt from the first preamble was unsuccessful, and responsive to such determining to cause the transmitter to re-attempt access to the wireless network by causing the transmitter to send on the random access channel at a second transmit power a second preamble comprising a signature sequence,”**

255. In my opinion, *Pelletier* discloses [10b] because *Pelletier*’s WTRU includes a processor.

256. *Pelletier*’s WTRU 210 includes a processor 315 that is “in communication with” the transmitter 317 and “configured to perform all processing required for the WTRU 210 to communicate over an E-RACH.” Ex-1006, [0020], [0055]-[0056]; FIG. 3.

257. As I explained for [1b] (Section XI.B.1.c), *Pelletier*’s WTRU determines that the access attempt from the first preamble was unsuccessful, and responsive to such determining to cause the transmitter to re-attempt access to the wireless network by causing the transmitter to send on the random-access channel at a second transmit power a second preamble comprising a signature sequence. *Pelletier*’s processor included in *Pelletier*’s WTRU performs these functions

because, *Pelletier*'s processor performs "all processing required for the WTRU 210 to communicate over an E-RACH." Ex-1006, [0020].

- d. **[10c] "in which the second transmit power is no greater than the first transmit power."**

258. *Pelletier Li* discloses or renders obvious [10c] for the reasons that I explained for [1c] (Section XI.B.1.d).

3. Independent Claim 19

- a. **[19Preamble] "A non transitory computer readable memory storing a program of instructions that when executed by a processor result in actions comprising"**

259. It is my opinion that *Pelletier* discloses the preamble of claim 19 because it discloses that "[t]he methods or flow charts provided herein may be implemented in a computer program, software, or firmware tangibly embodied in a **computer-readable storage medium** for execution by a general purpose computer or a processor." Ex-1006, [0055].

- b. **[19a] "attempting access to a wireless network by sending on a random access channel at a first transmit power a first preamble comprising a signature sequence that is randomly selected from a set of signature sequences;"**

260. [19a] is identical to [1a]. As I explained above, *Pelletier* discloses or renders obvious [19a]. See Section XI.B.1.b.

- c. **[19b] "responsive to determining that the access attempt from sending the first preamble was unsuccessful, re-attempting access to the wireless"**

network by sending on the random access channel at a second transmit power a second preamble comprising a signature sequence,”

261. [19b] is identical to [1b]. As I explained above for claim 1, *Pelletier* discloses or renders obvious [19b]. *See* Section XI.B.1.c.

d. [19c] “in which the second transmit power is no greater than the first transmit power.”

262. [19c] is identical to [1c]. As I explained above for claim 1, *Pelletier* discloses or renders obvious [19c]. *See* Section XI.B.1.d.

C. Ground 2c: *Pelletier* in view of *Pelletier-750* Renders Obvious Claims 2 and 11

1. Dependent Claim 2

a. [2a]: “The method of claim 1, wherein: the signature sequence of the first preamble and the signature sequence of the second preamble are each randomly selected from the set of signature sequences separately; and”

263. The ’776 patent admits that this limitation was well-known. *See* Section VIII.A.

264. It is my opinion that *Pelletier* in combination with *Pelletier-750* renders obvious [2a].

265. As I explained for [1a] (Section XI.B.1.b), *Pelletier* discloses that the preamble signature sequence in the first preamble is randomly chosen.

266. As explained for [1b] (Section XI.B.1.c), *Pelletier* also discloses that when the first access attempt from sending the first preamble is unsuccessful, the WTRU performs a second attempt to access the channel using a second preamble.

267. *Pelletier* does not explicitly disclose that the signature sequence of the second preamble is randomly selected from the set of signature sequences separately, but *Pelletier-750* does as I explained for [2a] in Ground 1c (Section X.C.1.a).

268. A POSITA would have been motivated to combine *Pelletier* and *Pelletier-750* to arrive at the claimed limitation. Both *Pelletier* and *Pelletier-750* disclose a RACH procedure in which a WTRU sends a first preamble including a signature sequence that is randomly selected. Both *Pelletier* and *Pelletier-750* disclose that if no response is received from the base station, the WTRU sends a second preamble including a signature sequence. *Pelletier-750* further discloses that the signature in the second preamble is “**a new randomly selected signature** from the set of available signatures.” Ex-1007, [0007]. *Pelletier-750* further discloses that the procedure is the “conventional RACH access” procedure. *Id.*

269. A POSITA would have been motivated to combine *Pelletier* and *Pelletier-750* by adopting *Pelletier-750*’s method of using “a new randomly selected signature” for the second preamble because this is a well-known, conventional procedure. Doing so would have been nothing more than the simple substitution of one known element (*Pelletier-750*’s express disclosure of sending a second

preamble including a new randomly selected signature) for another (*Pelletier*'s disclosure of sending a second preamble including a signature sequence) to the yield predictable results of sending a second preamble to the base station as expressly taught in both references. Indeed, *Pelletier-750*'s disclosure is simply a more detailed explanation of how *Pelletier*'s signature sequence included in the second preamble was selected based on conventional procedure, and a POSITA would have been motivated and found it obvious to look to the conventional procedure described in *Pelletier-750* to understand and implement these additional details. *Id.*

270. Moreover, a POSITA would have found it obvious to use *Pelletier-750*'s method of using "a new randomly selected signature" for the second preamble in *Pelletier*'s system because *Pelletier*'s system is already designed for randomly selecting signature sequences. *Pelletier*, [0039]. Thus, it would have been obvious to a POSITA to randomly select the signature sequence for the second preamble in *Pelletier*'s system. Doing so is nothing more than just a simple repeat of the procedure for the first preamble, and *Pelletier*'s system is well-suited for such a repetition.

271. Therefore, in my opinion, *Pelletier* in combination with *Pelletier-750* renders obvious [2a].

- a. **[2b]: “wherein determining that the access attempt from sending the first preamble was unsuccessful comprises monitoring an acquisition channel of the wireless network and failing to find an acquisition indicator on the acquisition channel that corresponds to the sent first preamble.”**

272. The '776 patent admits that this limitation was well-known. Section VIII.A; Ex-1001, 1:48-57.

273. *Pelletier* discloses [2b] because *Pelletier* discloses that the “[g]rant information [for access to RACH] may be conveyed to the WTRU using the **AICH** or similar channel,” (Ex-1006, [0044]) and “acquisition indicator channel (AICH) includes, but is not limited to, the AICH, the E-AICH, or any other acquisition indicator type of channel.” *Id.*, [0017], [0026], [0029].

274. In addition, *Pelletier*-750 also discloses [2b] as explained for [2b] in Ground 1c (Section X.C.1.b).

275. Therefore, in my opinion, *Pelletier* in combination with *Pelletier*-750 renders obvious claim 2.

2. Dependent Claim 11

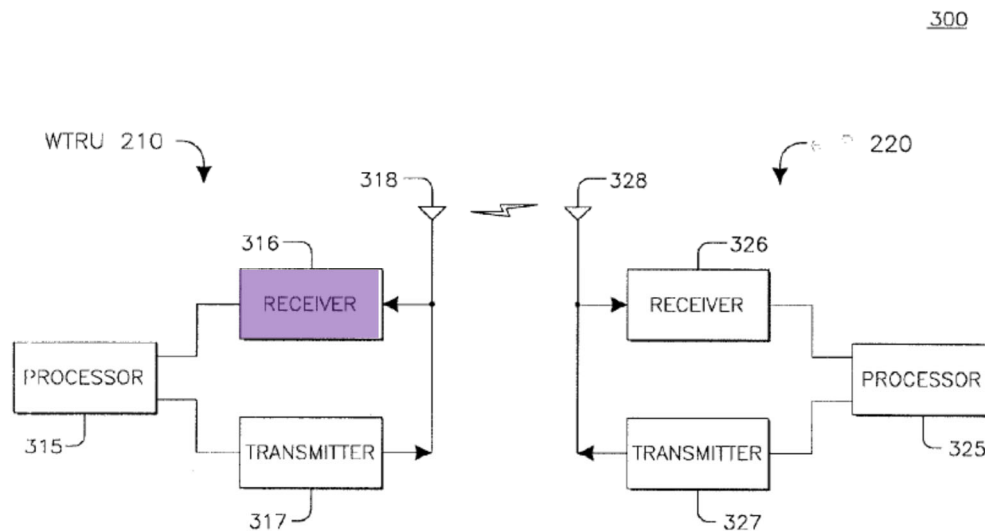
- a. [11a]: “The apparatus according to claim 10, wherein the processor is configured to randomly select from the set of signature sequences the signature sequence of the first preamble and separately to randomly select from the set of signature sequences the signature sequence of the second preamble; and”**

276. [11a] is substantially similar to [2a]. *Pelletier* discloses the apparatus including the processor recited in Claim 10 (Sections XI.B.2.a, XI.B.2.c). *Pelletier* and *Pelletier-750* render obvious the function of the processor recited in [11a] for the same reasons as [2a] (Section XI.C.1.a).

- b. [11b]: “wherein the processor is configured to determine that the access attempt from the first preamble was unsuccessful by tuning a receiver of the apparatus to monitor an acquisition channel of the wireless network and determining that no acquisition indicator that corresponds to the first sent preamble was received at the receiver on the acquisition channel.”**

277. *Pelletier* in combination with *Pelletier-750* renders obvious [11b]. As explained for [2b] (Section XI.C.1.b), *Pelletier* alone or in combination with *Pelletier-750* discloses determining that the access attempt from the first preamble was unsuccessful by monitoring an acquisition channel of the wireless network and determining that no acquisition indicator that corresponds to the sent first preamble was received on the acquisition channel.

278. In addition, *Pelletier* discloses a receiver (“receiver”) that performs the monitoring/receiving function. *Pelletier*’s receiver 316 is “in communication with the processor 32,” and “configured to receive signals from the base station 220.” Ex-1006, [0020]-[0021].



Ex-1006, FIG. 3 (annotated)

279. Therefore, in my opinion, *Pelletier* in combination with *Pelletier-750* renders obvious claim 11.

D. Ground 2d: *Pelletier* in view of *Pelletier-750* and *Kim* Renders Obvious Claims 3 and 12

1. Dependent Claim 3

- a. [3a]: “The method according to claim 2, further comprising determining an initial transmit power from an indication obtained from higher layers, and”**

280. The '776 patent admits that this limitation was well-known. Ex-1001, 2:5-11.

281. In my opinion, *Pelletier* in combination with *Pelletier-750* and *Kim* renders obvious [3a].

282. *Pelletier* discloses an initial transmit power. *Pelletier* discloses that “the WTRU retries accessing the RACH with a different preamble in a subsequent access slot. The **transmission power** can be raised or kept the same,” indicating that the first preamble was sent at an initial transmission power, and the initial transmitter power can be raised or kept the same in a subsequent procedure. Ex-1006, [0032].

283. *Pelletier-750* also discloses an initial transmit power. For example, *Pelletier-750* discloses “[t]he conventional RACH access starts with preamble transmission of one randomly selected PRACH signature out of a set of up to 16 signatures, with a preconfigured **initial power** level. If no response is received on the associated AICH from the Node B, the WTRU selects the next available access slot, increases power by a predefined amount and transmits a new randomly selected signature from the set of available signatures.” Ex-1007, [0007]. *Pelletier-750* also

discloses that “the **initial** DPCCH preamble **power** level may be adjusted in a similar manner to E-DCH power transmission power offset in accordance with the first embodiment. The initial DPCCH preamble power level may be adjusted based on the time difference between the last RACH preamble transmission to the time where uplink transmission starts (DPCCH or E-DCH transmission). This allows a protection against time variations in the channels that might potentially make the initial transmission fail.” Ex-1007, [0039].

284. To the extent neither reference discloses determining the initial transmit power from an indication obtained from higher layers, *Kim* does, as I explained for [3a] in Ground 1d (Section X.D.1.a).

285. As I explained for [2a] and [2b] (Sections XI.C.1.a, XI.C.1.b), *Pelletier*’s method would be modified based on the teachings of *Pelletier-750*. A POSITA would have understood that in *Pelletier*’s method, modified by *Pelletier-750*, the initial transmit power used for transmitting the first preamble, is determined based on an indication obtained from the RRC layer of the base station, as taught by *Kim*.

286. A POSITA would have been motivated to further modify the *Pelletier-Pelletier-750* system such that *Pelletier*’s WTRU determines the initial power based on the signal provided by the RRC layer as expressly disclosed by *Kim*. Both *Pelletier* and *Kim* disclose a RACH procedure in which a WTRU sends a first

preamble including a signature sequence at an initial transmit power determined by the WTRU. *Kim* further discloses that the signal is from RRC layer of the base station.

287. A POSITA would have been motivated to combine *Pelletier* and *Kim* by adopting *Kim*'s method of determining an initial transmit power using information provided by RRC layer, because this was well-known, conventional procedure, as explained *Kim*. Indeed, *Kim*'s disclosure is simply a more detailed explanation of how *Pelletier*'s initial power is determined, and a POSITA would have found it obvious to look to the conventional procedure described in *Kim* to understand and implement these additional details.

b. [3b]: “wherein the first transmit power is equal to the second transmit power which is the determined initial power.”

288. *Pelletier* discloses [3b] because *Pelletier* discloses “transmission power can be raised or **kept the same.**” Ex-1006, [0032].

289. Therefore, in my opinion, *Pelletier* in combination with *Pelletier-750* and *Kim* renders obvious claim 3.

2. Dependent Claim 12

- a. [12a]: “The apparatus according to claim 11: wherein the receiver is configured to receive from higher layers parameters for an initial power for random access; and”**

290. [12a] is substantially similar to [3a]. *Pelletier* in combination with *Pelletier-750* teaches the apparatus including the receiver as recited in Claim 11. Section XI.C.2.a. *Pelletier* in combination with *Pelletier-750* and *Kim* renders obvious the function of the receiver recited in [12a] for the same reasons as [3a] (Section XI.D.1.a).

- b. [12b]: “the apparatus further comprises a memory storing the received parameters; and”**

291. *Pelletier* discloses a memory as I explained for [19Preamble] (Section XI.B.3.a).

292. *Pelletier-750* also discloses a memory as I explained for [12b] in Ground 1d (Section X.D.3.b).

293. A POSITA would have found it obvious to store the parameters received from the higher layers in the memory so that the processor can retrieve the parameters from the memory to determine the initial power using the parameters.

- c. **[12c]: “wherein the processor is further configured to determine from the parameters the initial power for random access, and”**

294. *Pelletier* in combination with *Pelletier-750* and *Kim* render obvious [12c].

295. As I explained for 3[a] (Section, XI.D.1.a), each of *Pelletier* and *Pelletier-750* discloses an initial transmit power.

296. To the extent Patent Owner argues that *Pelletier* does not explicitly identify the higher layers, *Kim* expressly discloses the higher RRC layer and a POSITA would have been motivated to incorporate *Kim*’s teaching into the *Pelletier* -*Pelletier-750* system as explained for [3a] (Section XI.D.1.a).

- d. **[12d]: “wherein the first transmit power is equal to the second transmit power which is equal to the determined initial power.”**

297. [12d] is identical to [3b] (Section XI.D.1.b) and rendered obvious for the same reasons.

E. Ground 2e: *Pelletier* in view of *Pelletier-750*, *Kim*, and *Li* Renders Obvious Claims 4, 5, 13, and 14

1. Dependent Claim 4

- a. [4a]: “The method according to claim 2, wherein the second transmit power is an initial transmit power determined from an indication obtained from higher layers and”**

298. In my opinion, *Pelletier* in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious [4a].

299. *Pelletier* discloses that “the WTRU retries accessing the RACH with a **different preamble** in a subsequent access slot” using a different transmission power. Ex-1006, [0032]. Thus, the transmit power for the second preamble is an initial transmit power determined by the WTRU.

300. Alternatively, *Li* discloses determining the second transmit power from an indication obtained from the base station through BCCH as explained for [4a] in Ground 1d (Section X.D.2.a). A POSITA would have been motivated to modify *Pelletier*’s method based on *Li* so that the second transmission power of *Pelletier* is an initial transmit power determined by the WTRU, because of the advantages provided by such determining (enhanced accuracy of the power determination, efficient use of power, prevention of resource wasting, etc.).

301. As I explained for [3a] (Section XI.D.1.a), to the extent *Pelletier* and *Pelletier-750* do not expressly disclose the higher RRC layer, *Kim* discloses that the indication is from higher layers such as RRC layer of the base station.

b. [4b]: “the first transmit power is greater than the second transmit power.”

302. It is my opinion that *Pelletier* in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious [4b].

303. *Pelletier* does not explicitly disclose that the first transmit power is greater than the second transmit power, but *Li* does as I explained for [4b] in Ground 1d (Section X.D.2.b).

304. A POSITA would have been motivated to modify *Pelletier*’s method based on *Li*’s teachings so that *Pelletier*’s WTRU can send a second preamble at a reduced transmit power when necessary because *Li* discloses that in some situations, the “amount that the respective power was **over** or under an optimum value.” Ex-1005, 3:19-21. Because the second preamble uses reduced power, the first transmission power is greater than the second transmit power.

305. Thus, in my opinion, *Pelletier* in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious claim 4.

2. Dependent Claim 5

- a. [5a]: “The method according to claim 2, further comprising: responsive to determining that the access re-attempt from sending the second preamble was unsuccessful, again re-attempting access to the wireless network by sending from the transmitter on the random access channel at a third transmit power a third preamble comprising a signature sequence,”**

306. The '776 patent admits that this limitation was well-known. Section VIII.A; Ex-1001, 1:48-62.

307. *Pelletier-750* discloses [5a] as I explained for [5a] in Ground 1c (Section X.C.2.a).

- b. [5b]: “in which the third transmit power is greater than the first transmit power and greater than the second transmit power, and”**

308. The '776 patent admits that this limitation was well-known. Section VIII; Ex-1001, 1:48-62.

309. *Pelletier-750* discloses [5b] as explained for [5b] in Ground 1c (Section X.C.2.b).

- c. [5c]: “in which the signature sequences for the first, second and third preambles are each randomly selected from the set of signature sequences separately.”**

310. The '776 patent admits that this limitation was well-known. Section VIII.A.

311. *Pelletier-750* discloses [5c] as I explained for [5c] in Ground 1c (Section X.C.2.c).

312. Thus, in my opinion, *Pelletier* in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious claim 5.

3. Dependent Claim 13

- a. **[13a]: “The apparatus according to claim 11: wherein the receiver is configured to receive from higher layers parameters for an initial power for random access; and”**

313. [13a] is identical to [12a] (Section XI.D.2.a) and rendered obvious for the same reasons.

- b. **[13b]: “the apparatus further comprises a memory storing the parameters; and”**

314. [13b] is identical to [12b] (Section XI.D.2.b) and rendered obvious for the same reasons.

- c. **[13c]: “wherein the processor is further configured to determine from the parameters the initial power for random access, and”**

315. [13c] is identical to [12c] (Section XI.D.2.c) and rendered obvious for the same reasons.

- d. **[13d]: “wherein the second transmit power is the initial power and the first transmit power is greater than the second transmit power.”**

316. [13d] is substantially similar to [4a] and [4b] (Sections XI.E.1.a, XI.E.1.b) and rendered obvious for the same reasons.

317. Thus, in my opinion, *Pelletier* in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious claim 13.

4. Dependent Claim 14

318. Claim 14 recites limitations similar to claim 5, except that claim 14 depends from claim 11. *Pelletier* in view of *Pelletier-750*, *Kim*, and *Li* renders obvious claim 14 for the reasons explained for claim 5 (Sections XI.E.2.a-XI.E.2.c).

F. Ground 2f: *Pelletier* in view of *Vujcic* Renders Obvious Claims 6, 15, and 20

1. Dependent Claim 6

- a. **[6a]: “The method of claim 1, wherein: the signature sequence of the first preamble is randomly selected from the set of signature sequences and”**

319. [6a] is commensurate in scope with limitation [1a] (Section XI.B.1.b) and disclosed or rendered obvious by *Pelletier* for the same reasons.

- b. **[6b]: “the signature sequence of the second preamble is the same as the signature sequence of the first preamble; and”**

320. *Pelletier* in combination with *Vujcic* renders obvious [6b].

321. As I explained for [1b] (Section XI.B.1.c), *Pelletier* discloses sending a second preamble with a signature sequence, if the access attempt from sending the first preamble was unsuccessful.

322. *Pelletier* does not expressly disclose that the signature sequence of the second preamble is the same as the signature sequence of the first preamble, but *Vujcic* does as I explained for [6b] in Ground 1e (Section X.E.1.b).

323. A POSITA would have been motivated to combine *Pelletier* and *Vujcic*. Both *Pelletier* and *Vujcic* disclose a RACH procedure in which a WTRU sends a first preamble including a signature sequence that is randomly selected. Both *Pelletier* and *Vujcic* disclose that if no response is received from the base station, the WTRU sends a second preamble including a signature sequence. *Vujcic* further discloses that the signature sequence of the second preamble is the same as the signature sequence of the first preamble and it would have been obvious to use the same signature sequence, as taught by *Vujcic*, for *Pelletier*'s second preamble.

324. A POSITA would have been motivated to combine *Pelletier* and *Vujcic* by adopting *Vujcic*'s method of using the same signature as the first preamble for *Pelletier*'s second preamble because it provides many advantages like being easy to implement, reducing computation, and reducing the use of resources. *Vujcic* also expressly discloses that "keeping the same signature for retransmitted preambles from UE 101 does not increase the probability of collision," a known benefit. Ex-

1009, [0095]. Doing so would have been a simple substitution of one known element (*Vujcic*'s express disclosure of using the same signature sequence for the second preamble) for another (*Pelletier*'s disclosure of a second preamble including a signature sequence) to the yield predictable result of sending a second preamble with a same signature sequence as the first preamble to the base station. Indeed, *Vujcic*'s disclosure is simply a more detailed explanation of how *Pelletier*'s signature sequence for the second preamble would be selected.

- c. **[6c]: “wherein determining that the access attempt from sending the first preamble was unsuccessful comprises monitoring an acquisition channel of the wireless network and failing to find an acquisition indicator on the acquisition channel that corresponds to the sent first preamble.”**

325. The '776 patent admits that this limitation was well-known. Section VIII.A; Ex-1001, 1:48-57.

326. [6c] is identical to [2b], and *Pelletier* discloses [6c] for the same reasons as [2b] (Section XI.C.1.b).

327. Thus, in my opinion, *Pelletier* in combination with *Vujcic* renders obvious claim 6.

2. Dependent Claim 15

a. [15a]: “The apparatus according to claim 10, further comprising a memory,”

328. *Pelletier* discloses a memory as I explained for [19Preamble] (Section XI.B.3.a).

329. *Pelletier-750* also discloses a memory as I explained for [12b] in Ground 1d (Section X.D.3.b).

b. [15b]: “wherein the processor is configured to randomly select from the set of signature sequences the signature sequence of the first preamble and”

330. *Pelletier* discloses [15b]. As I explained for [10b] (Section XI.B.2.c), *Pelletier*’s MS includes a processor. *Pelletier* further discloses randomly selecting from the set of signature sequences the signature sequence of the first preamble as I explained for [10b] and [1a] (Sections XI.B.2.c, XI.B.1.b).

c. [15c]: “to store the selected signature sequence in the memory; and”

331. *Pelletier* in combination with *Vujcic* renders obvious [15c] because *Vujcic* discloses this limitation as I explained for [15c] in Ground 1f (Section X.F.1.c).

332. A POSITA would have understood that *Pelletier*’s MS, modified based on *Vujcic*’s teachings, includes a memory to store the selected signature sequence.

- d. **[15d]: “wherein the signature sequence of the second preamble is the selected signature sequence of the first preamble retrieved from the memory; and”**

333. *Pelletier* in combination with *Vujcic* renders obvious [15d] because *Vujcic* discloses this limitation as I explained for [15d] in Ground 1f (Section X.F.1.d).

- e. **[15e]: “wherein the processor is configured to determine that the access attempt from the first preamble was unsuccessful by tuning a receiver of the apparatus to monitor an acquisition channel of the wireless network and determining that no acquisition indicator that corresponds to the sent first preamble was received at the receiver on the acquisition channel.”**

334. [15e] is identical to [11b], except that claim 15 depends from claim 10. As explained for [11b] (Section XI.C.2.b), *Pelletier* discloses [15e].

335. Thus, in my opinion, *Pelletier* in combination with *Vujcic* renders obvious claim 15.

3. Dependent Claim 20

- a. **[20]: “A non transitory computer reasonable memory of claim 19, wherein: the signature sequence of the first preamble is randomly selected from the set of signature sequences and the signature sequence of the second preamble is the same as the signature sequence of the first preamble, retrieved from a memory.”**

336. Claim 20 is identical to [15d]-[15e], except that claim 20 depends from claim 19. *Pelletier* and *Vujcic* renders obvious claim 20 as explained for [15d]-[15e] (Sections XI.F.2.d-XI.F.2.e).

337. Thus, in my opinion, *Pelletier* in combination with *Vujcic* renders obvious claim 20.

G. Ground 2g: *Pelletier* in view of *Vujcic* and *Kim* Renders Obvious Claim 7

1. Dependent Claim 7

338. Claim 7 is identical to claim 3, except that claim 7 depends from claim 6. *Pelletier* in combination with *Vujcic* and *Kim* renders obvious claim 7 for the reasons explained for claim 3 (Sections XI.D.1.a, XI.D.1.b).

H. Ground 2h: *Pelletier* in view of *Vujcic*, *Pelletier-750* and *Kim* Renders Obvious Claim 16

1. Dependent Claim 16

339. Claim 16 is identical to claim 12, except that claim 16 depends from claim 15. *Pelletier* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders

obvious claim 16 for the reasons that I explained for claim 12 (Sections XI.D.2.a-XI.D.2.d).

I. Ground 2i: *Pelletier* in view of *Vujcic* and *Li* Renders Obvious Claims 8 and 17

1. Dependent Claim 8

340. Claim 8 recites limitations similar to claim 4, except that claim 8 depends from claim 6. *Pelletier* in combination with *Vujcic* and *Li* renders obvious claim 8 for the reasons explained for claim 4 (Sections XI.E.1.a, XI.E.1.b).

2. Dependent Claim 17

341. Claim 17 is identical to claim 13, except that claim 17 depends from claim 15. *Pelletier* in combination with *Vujcic* and *Li* renders obvious claim 17 for the reasons explained for claim 13 (XI.E.3.a-XI.E.3.d).

J. Ground 2j: *Pelletier* in view of *Vujcic*, *Li*, and *Pelletier-750* Renders Obvious Claims 9 and 18

1. Dependent Claim 9

- a. **[9a]: “The method according to claim 6, further comprising: responsive to determining that the access re-attempt from sending the second transmit preamble was unsuccessful, again re-attempting access to the wireless network by sending from the transmitter on the random access channel at a third transmit power a third preamble comprising a signature sequence,”**

342. [9a] recites limitations identical to [5a], except that claim 9 depends from claim 6. *Pelletier* in combination with *Vujcic*, *Li*, and *Pelletier-750* renders obvious [9a] for the reasons that I explained for [5a] (Section XI.E.2.a).

- b. **[9b]: “in which the third transmit power is greater than the first transmit power and greater than the second transmit power, and”**

343. [9b] recites limitations identical to [5b], except that claim 9 depends from claim 6. *Pelletier* in combination with *Vujcic*, *Li*, and *Pelletier-750* renders obvious [9b] for the reasons explained for [5b] (Section XI.E.2.b).

- c. **[9c]: “in which the signature sequence of the third preamble is the same as the signature sequence of the first preamble and of the second preamble.”**

344. *Pelletier* in combination with *Vujcic*, *Li*, and *Pelletier-750* renders obvious [9c]. As explained for claim 6 (Section XI.F.1.a), *Vujcic* discloses that the signature sequence of the second preamble is the same as the signature sequence of

the first preamble. As explained for [9a] (Section XI.J.1.a), *Pelletier* in combination with *Vujcic* teaches transmitting the third preamble. *Vujcic* also discloses “a previously received RACH preamble having the **same preamble signature**,” indicating that the signature sequence of the third preamble of *Vujcic* can be same as the signature sequence of the second preamble.

2. Dependent Claim 18

345. Claim 18 is identical to claim 9, except that claim 18 depends from claim 15. *Pelletier* in combination with *Vujcic*, *Li*, and *Pelletier-750* renders obvious claim 18 for the reasons that I explained for claim 9 (Sections XI.J.1.a-XI.J.1.c).

XII. CONCLUSION

346. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further 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.

Respectfully submitted,



Stephen Gray