

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

Case No. IPR2023-00497

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

Issue Date: Apr. 3, 2012

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,149,776**

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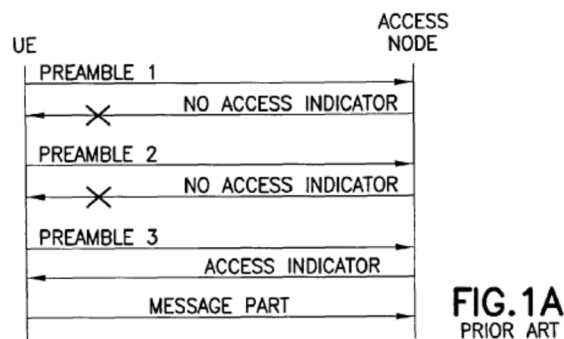
LIST OF EXHIBITS

Ex-1001	U.S. Patent No. 8,149,776 (“the ’776 patent”)
Ex-1002	Prosecution History of the ’776 patent
Ex-1003	Declaration of Stephen Gray
Ex-1004	Curriculum Vitae of Stephen Gray
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> ”)

I. INTRODUCTION

ZTE (USA) Inc. requests *inter partes* review of claims 1-20 of U.S. Patent No. 8,149,776 (Ex-1001), assigned to WSOU Investments LLC (“WSOU”).

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. In the conventional RACH procedure (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.

The UE first transmits the preamble in a first attempt at an initial transmit power, P_{init} . “If that AI is not received, the UE tries again by transmitting a second preamble and again listens for a corresponding AI,” and then a third. Ex-1001, 1:55-59. The transmit power for sending the second preamble is increased from

initial power P_{init} to $(P_{init}+P_0)$ and the transmit power used for sending the third preamble is further increased to $(P_{init}+2P_0)$.

Unlike the conventional procedure where transmit power is **increased**, the '776 patent's second preamble's transmit power is **no greater** than the first transmit power. This trivial deviation from the conventional procedure was well-known before the '776 patent.

II. STATEMENT OF RELIEF REQUESTED FOR EACH CLAIM

Petitioner requests *inter partes* review of claims 1-20 over the following:

Exhibit/ Name	Number	Filing Date	Publication Date	Prior Art Provision
1005 "Li"	6,937,641	Feb. 28, 2001	Aug. 30, 2005	Pre-AIA 102(a), (b), (e)
1006 "Pelletier"	2009/0088175	Sep. 27, 2007	Apr. 2, 2009	Pre-AIA 102(a), (e)
1007 "Pelletier- 750"	2009/0168750	Dec. 30, 2008	Jul. 2, 2009	Pre-AIA 102(e)
"1008 Kim"	2009/0016266	Aug. 23, 2005	Jan. 15, 2009	Pre-AIA 102(a), (e)
1009 "Vujcic"	2009/0191875	Jan. 24, 2008	Jul. 30, 2009	Pre-AIA 102(e)
1010 "Ozluturk"	2007/0263579	May 9, 2006	Nov. 15, 2007	Pre-AIA 102(a), (b), (e)

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

<i>Pelletier</i> Grounds	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

III. THE '776 PATENT

A. Overview

The '776 patent discloses a trivial modification from admitted prior art—maintaining or reducing transmit power over successive attempts.

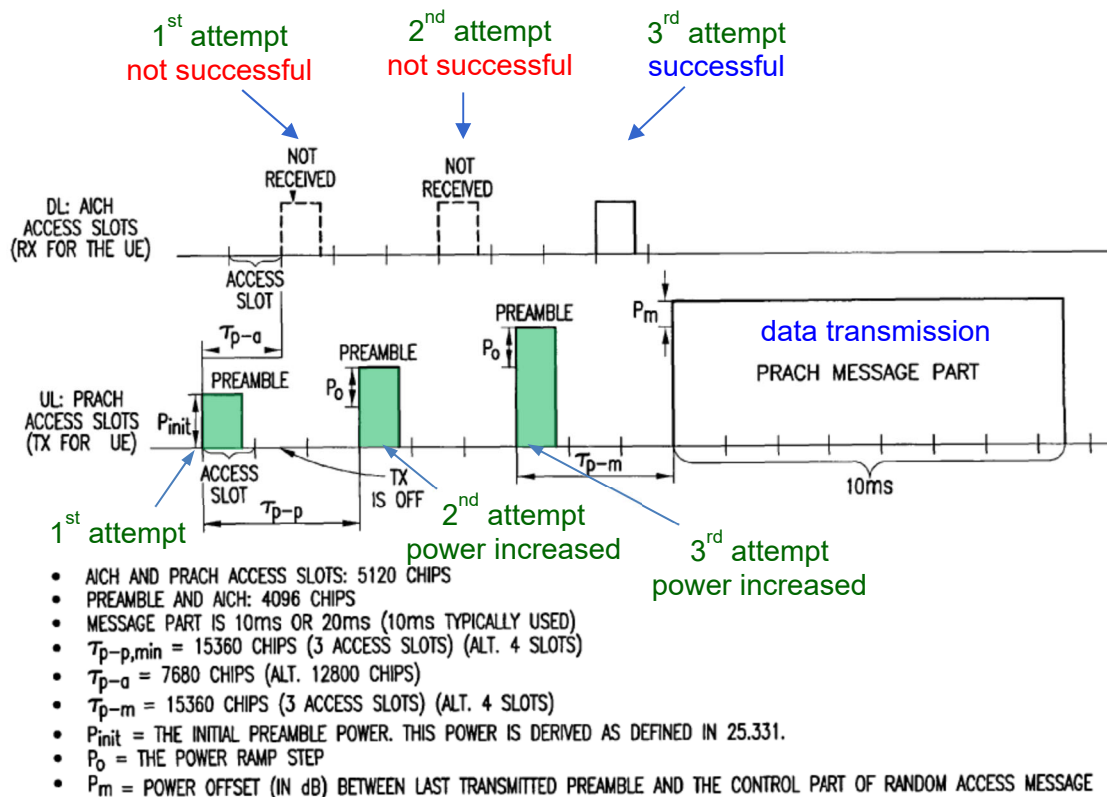


FIG.2
PRIOR ART

Ex-1001, FIG. 2 (annotated).

The '776 patent introduces four embodiments that deviate from the conventional RACH procedure, if at all, in preamble signature sequence selection or transmit power selection (FIG. 3). Of these, the independent claims recite: (1) the first preamble signature sequence is randomly selected (blue) (admittedly the conventional procedure), and (2) the second transmit power is no greater than the first transmit power (green). Ex-1003, 65.

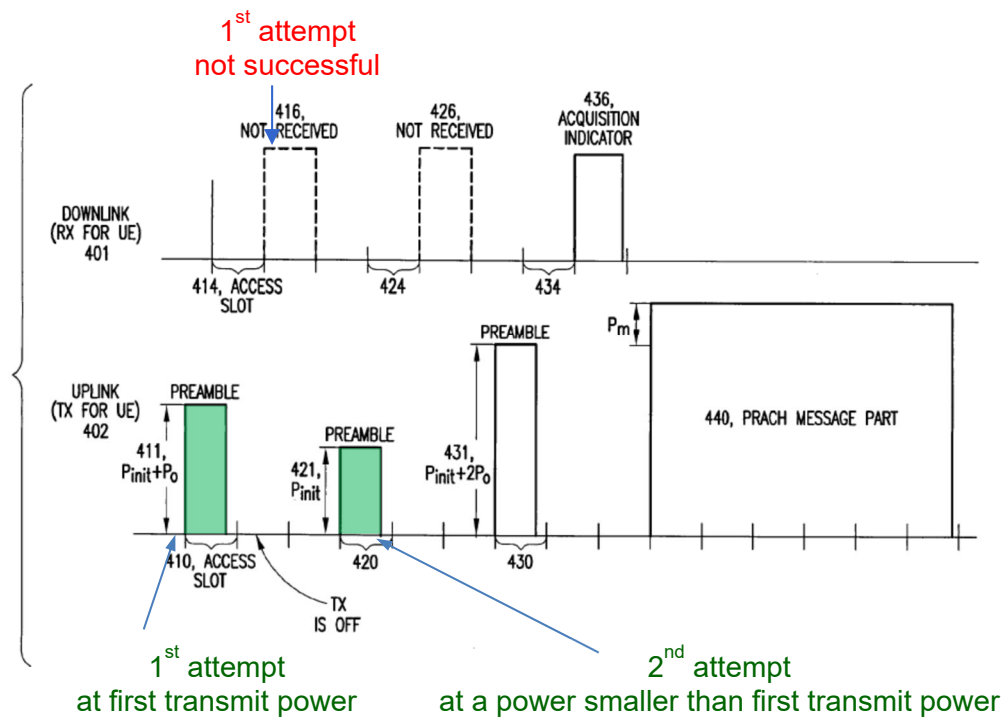
Not claimed

	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).

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) (FIG. 4).

Ex-1003, 66.



Ex-1001, FIG. 4 (annotated).

The only difference from admitted prior art is that the second transmit power is **no greater** than the first. Ex-1003, 67.

B. Prosecution History

The Examiner recognized that the only step of the claims deviating from 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.**’” Ex-1002, 110 (emphases added). Ex-1003, 69-69.

C. Level of Ordinary Skill

A POSITA would have had at least a bachelor's degree in electrical engineering, computer engineering, or a related engineering discipline and three or more years of industry experience in the field of telecommunications, or equivalent experience, education, or both. Lack of professional experience could be remedied by additional education, and lack of education could be remedied by additional professional experience. Ex-1003, 38-41.

IV. CLAIM CONSTRUCTION

The Board construes claims per *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). For the purposes of this IPR, the plain meaning of each claim term can be applied. Ex-1003, 43.

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

A. Overview of the Combination

The claims of the '776 patent recite permutations of the same features. *Li* at least suggests 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 routine implementation of well-known components: 1) randomly selecting the preambles from a set of preambles (claim 2, *Pelletier-750*); 2) monitoring a physical acquisition channel (claim 2, *Pelletier-750*); 3) an indication obtained from higher layers (claim 3, *Kim*); 4) a third transmit power

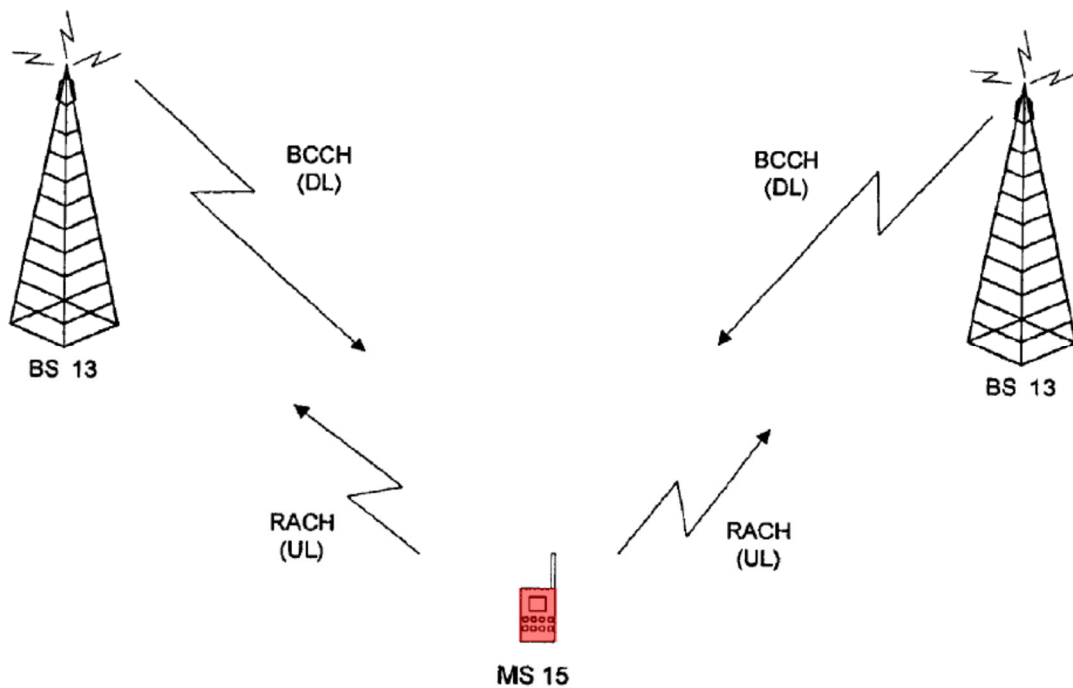
(claim 5, *Pelletier-750*); 5) sending the same signature sequence as both the first and second preambles (claim 6, *Vujcic*); and 6) a memory storing parameters (claim 12, *Pelletier-750*). Ex-1003, 71.

Because these features are well-known, routine features, most of which are at least suggested by *Li*, it would have been obvious for a POSITA to combine *Li* with other known concepts to accommodate various design needs. Ex-1003, 72.

1. Motivation to Combine the References

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. Ex-1003, 73.

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*’s wireless system includes “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-1003, 73.



Ex-1005, FIG. 1 (annotated).

Li's MS "comput[es] an initial power required for channel access, and transmit[s] 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. Based on the OLPCS and the CLPCS, a composite power-control command is generated at the MS. The composite power-control command controls the course of action for the MS (to power up, **power down**, transmit at **same power**, or to back-off) and the level of any change in transmission power of the **next random access signal** transmitted from the MS." *Id.*, 3:31-56; Ex-1003, 74. "When 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; Ex-1003, 75.

a. Combination with *Pelletier-750*

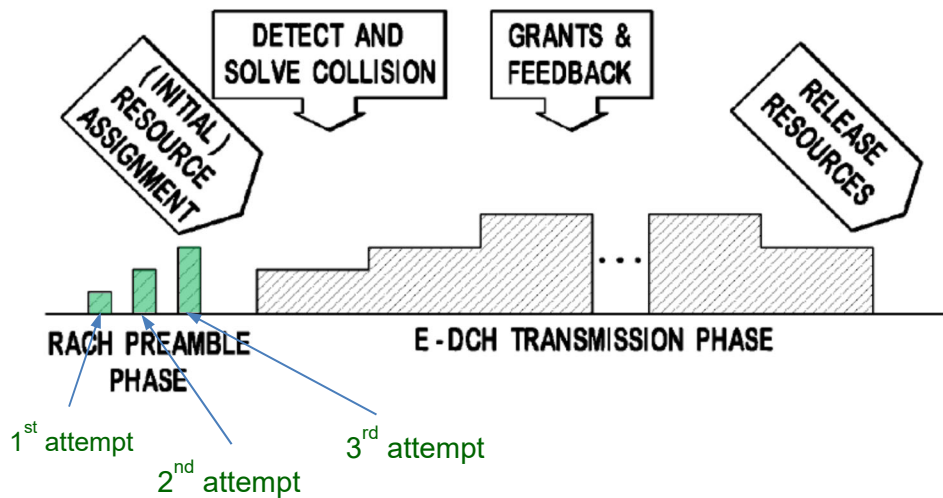
Although *Li* does not expressly disclose monitoring a physical acquisition channel (claim 2); selecting a preamble from a set of preambles (claim 2); a third transmit power (claim 5); and a memory storing parameters (claim 12), these are simply well known features of accessing random access channels readily understood by a POSITA as applicable to *Li*’s system, as evidenced by *Pelletier-750* and acknowledged in the ’776 patent. Ex-1003, 76.

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. *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]; Ex-1003, 77.

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].

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]; Ex-1003, 78.

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,” showing **three attempts** and 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.” Ex-1007, [0007], FIG. 1, [007], [0009]; Ex-1003, 79-80.



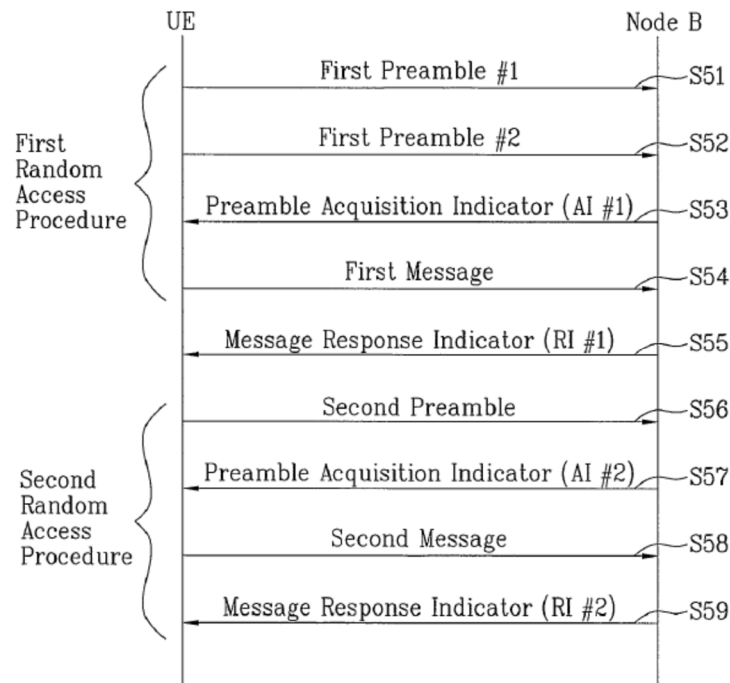
Ex-1007, FIG. 1 (annotated).

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.*, [0007]; Ex-1003, 81.

b. Combination with *Kim*

Although *Li* does not expressly disclose its indications are obtained from higher layers (claim 3), this is a well-known feature of accessing random access channels readily understood by a POSITA as applicable to *Li*'s system, as *Kim* shows and the '776 patent acknowledges. Ex-1003, 82.

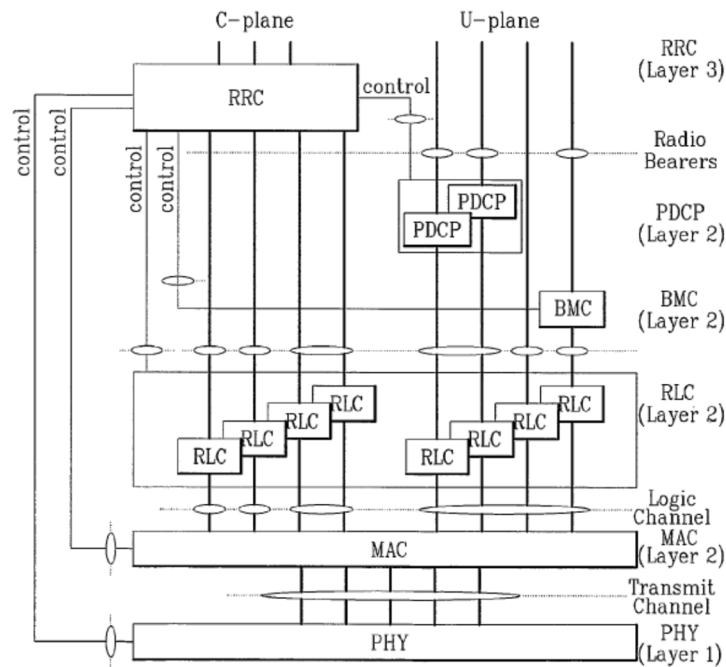
Kim discloses “transmission/reception of a message through an access channel.” Ex-1008, [0036], FIG. 5; Ex-1003, 83.



Ex-1008, FIG. 5

Kim discloses that “the UE selects a signature S_i from a plurality of signatures (S_0 - S_{15}) and transmits a preamble (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], [0035]; Ex-1003, 84.

Kim’s FIG. 2 shows that “[a] **radio resource control (RRC)**, which is part of **Layer 3 (L3)**, is defined on the control plane.” Ex-1008, [0007]; Ex-1003, 85-86.



Ex-1008, FIG. 2

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. Ex-1003, 87.

c. Combination with *Vujcic*

Although *Li* does not expressly disclose sending the same signature sequence as both the first and second preambles (claim 6), this is simply a well-known feature of accessing random access channels readily understood by a POSITA as applicable to *Li*'s system, as *Vujcic* shows and the '776 patent acknowledges. Ex-1003, 88.

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]. "If 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]. Ex-1003, 89-90.

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. Ex-1003, 91. *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]; Ex-1003, 91.

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

1. Claim 1

a. [1Preamble]: “A method comprising:”

Li discloses [1Preamble] 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, 2:60-67, 3:31-56; Ex-1003, 92.

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;”

The ’776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1003, 93.

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. Ex-1003, 94.

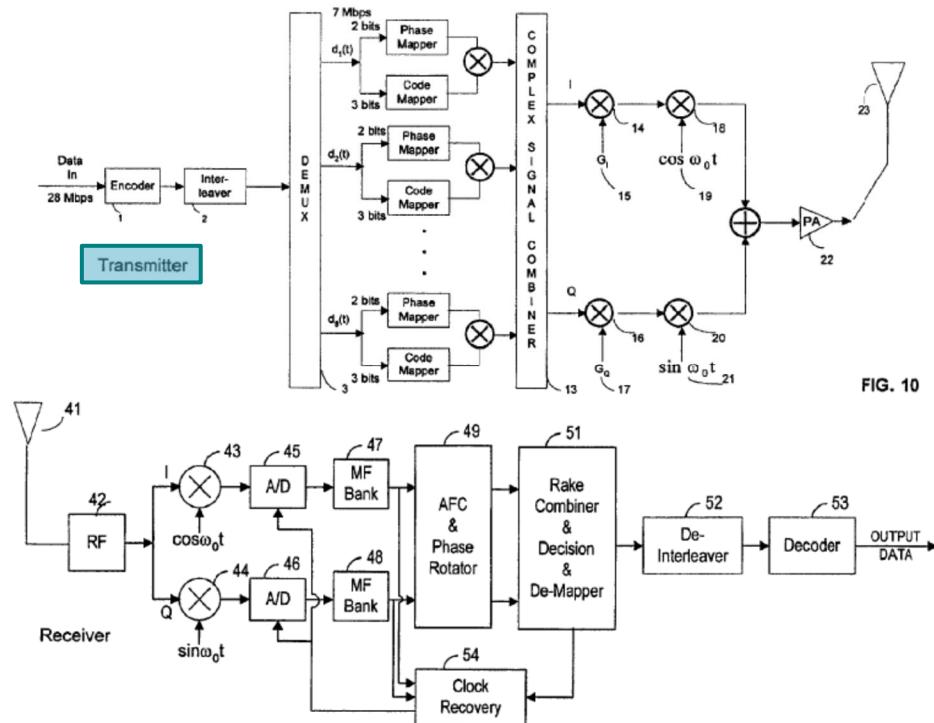
Li's MS attempts access to a wireless network by sending a first preamble comprising a signature sequence on a RACH at a first transmit power. *Li* discloses that "[t]he MS transmits the **first random-access signal** with an **initial power P_i** . The MS selects the initial power P_i by any of the various methods commonly known in the arts." Ex-1005, 6:37-46; Ex-1003, 95.

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 one of the RACH sub-channels, the preamble code sequence is the preamble "signature sequence." Ex-1001, 1:61-2:1; Ex-1003, 96.

Li's preamble code sequence is randomly selected from a set of preamble code sequences. "When 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 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. Ex-1003, 97.

Li's MS includes a transmitter that sends wireless signals like the first preamble via "an MS spread-spectrum **transmitter**" that "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, 12:35-44; Ex-1003, 98-99.



Ex-1005, FIG. 10 (annotated).

- 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,”

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1003, 101.

Li discloses or renders obvious [1b] because if the first attempt is unsuccessful, *Li*'s MS performs a second attempt (re-attempting access to the wireless network) at a second transmit power a second preamble comprising a preamble code sequence. Ex-1003, 102.

In *Li*, 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, 3:11-24; Ex-1003, 103. *Li* 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.” Ex-1005, 2:60-67; Ex-1003, 103. “If no acknowledgement is received,” *Li*'s MS generates “a composite power-control command” that “controls not only the course of action for the MS (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.” Ex-1005, 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; Ex-1003, 104.

Li’s second preamble is transmitted from the transmitter—“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 $n\Delta$.” Ex-1005, 9:38-50; Ex-1003, 105.

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

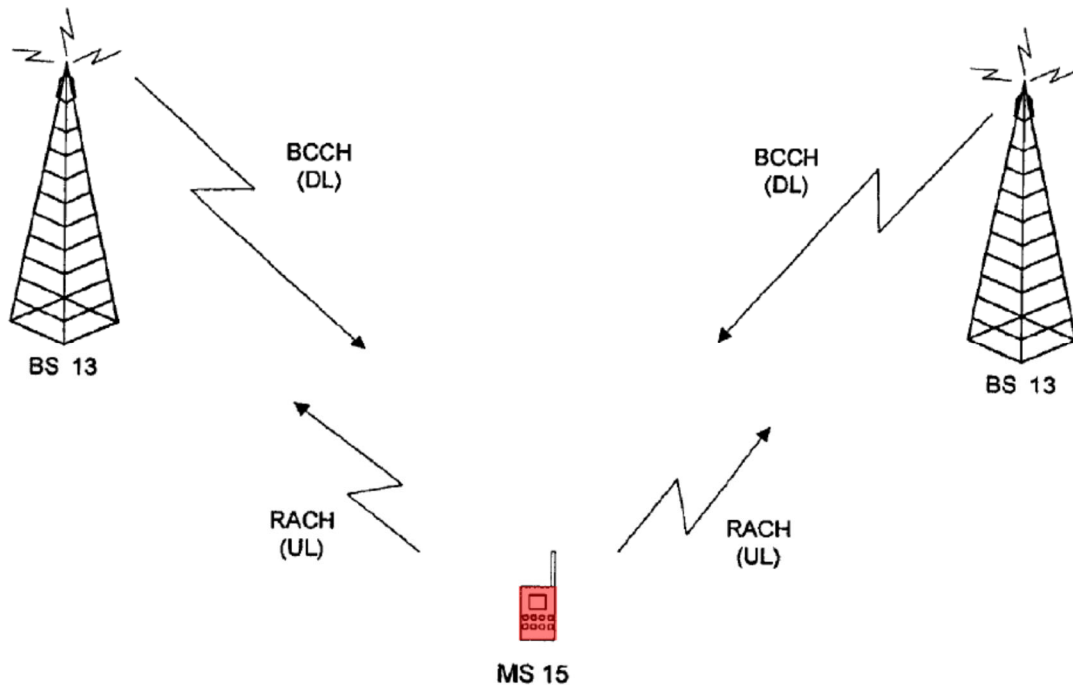
Li discloses or renders obvious [1c] because *Li*’s second preamble is transmitted at the same power or a reduced power (the second transmit power is no greater than the first transmit power). Ex-1003, 107.

Li’s MS generates the composite power control command that includes “(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; Ex-1003, 108-109.

2. Claim 10

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

Li discloses [10Preamble] because *Li* discloses a wireless system including “a plurality of base stations 13 and a plurality of mobile stations 15” (apparatus).² *Id.*, 5:1-14; Ex-1003, 110.



Ex-1005, FIG. 1 (annotated).

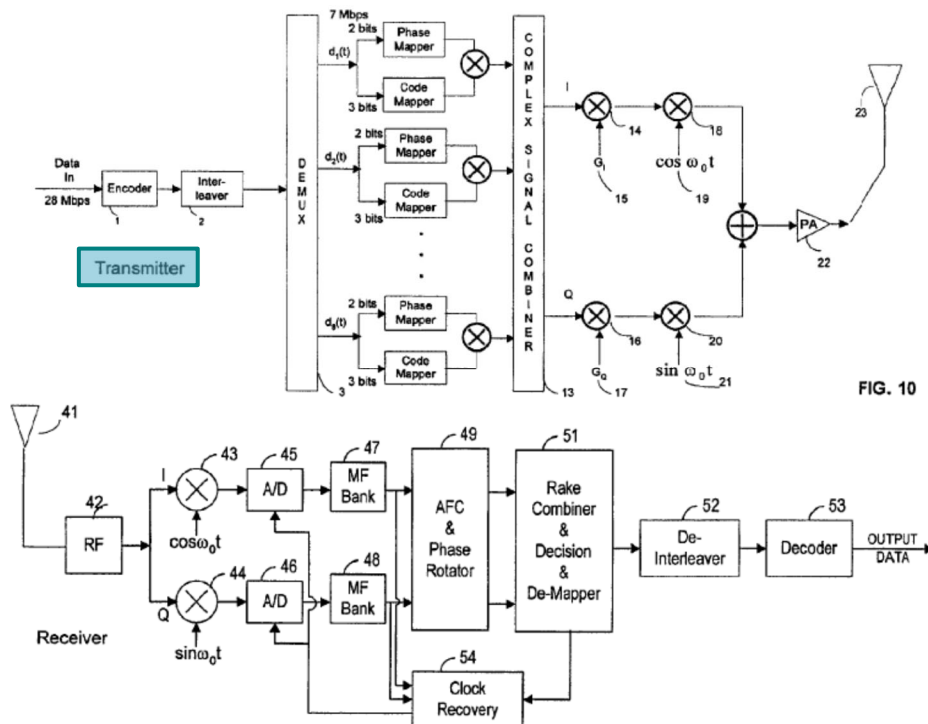
² “The terms ‘mobile station’ and ‘remote station’ interchangeably refer to remote wireless devices.” Ex-1005, 5:21-23.

- 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;”

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

Ex-1003, 111.

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. 10; Ex-1003, 112.



Ex-1005, FIG. 10 (annotated).

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. Ex-1005, 12:45-13:28; Ex-1003, 113.

As explained for [1a] (Section V.B.1.b), *Li*'s transmitter attempts access to a wireless network by sending on a random access channel at a first transmit power a first preamble comprising a signature sequence randomly selected from a set. Ex-1003, 114-115.

- 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,”**

Li discloses or renders obvious [10b] because *Li*'s MS includes a digital signal processor (DSP) and controller. Ex-1003, 116.

Li's MS determines the initial power for sending the first preamble using an initial power estimator algorithm. The “algorithm of an initial power estimator (IPE) [is] usually implemented in a **DSP (digital signal processor)**.” Ex-1005, 6:49-56. *Li*'s MS includes a “**controller**” that controls the **transmitter** and the

receiver of the MS, and determines the initial power level. *Id.*, 5:15-23, 6:49-56, Claims 11, 15, 16. *Li*'s controller includes a processor, e.g., DSP, or would have been understood to include a processor because controlling a transmitter and receiver of the mobile station are functions of a processor. Ex-1003, 117.

As explained for [1b] (Section V.B.1.c), *Li*'s MS determines that the access attempt was unsuccessful, and responsively causes the transmitter to re-attempt access by sending a second preamble at a second transmit power. *Li*'s controller, included in *Li*'s MS, performs these functions because *Li*'s controller controls the transmitter to transmit random-access signals and determines transmit power. Ex-1003, 118-119.

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

Li discloses or renders obvious [10c] as explained for [1c] (Section V.B.1.d). Ex-1003, 120-121.

3. 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”

Li discloses or renders obvious [19Preamble] because *Li*'s MS performs all the functions recited in claim 19. Sections V.B.1.b, V.B.1.c, V.B.1.d. *Li*'s controller also is or includes a processor. Section V.B.2.c. A POSITA would have understood that *Li*'s MS includes a non-transitory computer readable memory

storing program instructions that when executed by the processor result in actions as recited in claim 19. Ex-1003, 122. It was routine and well-known that program instructions executed by a processor were stored in a non-transitory computer readable memory of a mobile device. Ex-1006, [0055]; Ex-1007, [0047]; Ex-1009, [0062]; Ex-1010, [0044]; Ex-1003, 122.

- 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;”**

[19a] is identical to [1a] and disclosed or rendered obvious by *Li* as explained in Section V.B.1.b. Ex-1003, 123.

- 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,”**

[19b] is identical to [1b] and disclosed or rendered obvious by *Li* as explained in Section V.B.1.c. Ex-1003, 124.

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

[19c] is identical to [1c] and disclosed or rendered obvious by *Li* as explained in Section V.B.1.d. Ex-1003, 125.

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

1. 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”**

The '776 patent admits that this limitation was well-known. Section III; Ex-1003, 126.

Li in combination with *Pelletier-750* renders obvious [2a]. Ex-1003, 127.

As explained for [1a] (Section V.B.1.b), *Li* discloses that the preamble code sequence in the first preamble is based on a “random selection method.” Ex-1005, 6:11-36; Ex-1003, 128.

As explained for [1b] (Section V.B.1.c), *Li* discloses that when the first access attempt is unsuccessful, the MS performs a second attempt. Ex-1003, 129.

A POSITA would have understood *Li*'s second preamble, like its first, would be randomly selected from the set of signature sequences. To the extent *Li* does not expressly disclose that the code sequences of the second preamble are randomly selected from the set separately, *Pelletier-750* does. Ex-1003, 130.

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]; Ex-1003, 131.

Both *Li* and *Pelletier-750* disclose a RACH procedure where an MS sends a first preamble including a signature sequence randomly selected from a set. Both *Li* and *Pelletier-750* disclose sends a second preamble including a signature sequence if no response is received. *Pelletier-750* discloses that its use of a new randomly selected signature is the “conventional RACH access” procedure. *Id.* A POSITA would have found it obvious to implement *Pelletier-750*’s “new randomly selected signature” as *Li*’s second preamble because *Li*’s system is already designed for random selection of signature sequences. Ex-1005, 6:11-36; Ex-1003, 132. Doing so is a simple repeat of *Li*’s random selection method, and is the simple substitution of one known element (*Pelletier-750*’s use of a new randomly selected signature sequence for the second preamble) for another (*Li*’s 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. Ex-1003, 132-134. *Pelletier-750*’s disclosure is simply a more detailed explanation of how *Li*’s signature sequences would be selected based on conventional procedure, and a POSITA would have been motivated to look to the

conventional procedure of *Pelletier-750* to implement these additional details. Ex-1003, 133-134.

- 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.”**

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1001, 1:48-57; Ex-1003, 135.

Li in combination with *Pelletier-750* renders obvious [2b]. Ex-1003, 136.

As explained for [1b] (Section V.B.1.c), *Li* discloses determining that the access attempt from sending the first preamble was unsuccessful. *Li* 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 (BCCH), which meets the claim that is not limited to the physical channel. Ex-1003, 137.

To the extent Patent Owner argues the “acquisition channel” is restricted to a physical channel, such as an AICH channel, *Pelletier-750* discloses it. Ex-1003, 138.

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]; Ex-1003, 139.

A POSITA would have been motivated to combine *Li* and *Pelletier-750*. Both *Li* and *Pelletier-750* disclose that a UE monitors a response from a base station after sending a first preamble. *Pelletier-750* further discloses monitoring an AICH channel because this was the conventional RACH procedure. A POSITA would have found it obvious to use an AICH channel in *Li*’s system to monitor a response from a base station because doing so would have been 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 the predictable result of monitoring a response from a base station. Ex-1003, 140-142. *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 to look to the conventional procedure described in *Pelletier-750* to understand and implement monitoring a response from a base station. Ex-1003, 140-142. As the '776 patent admits, AICH channel is specifically designed to carry acquisition indicators, which correspond to signatures on physical RACH channels like that disclosed in *Li*. Ex-1001, 1:35-57; Ex-1003, 140-142.

2. Claim 5

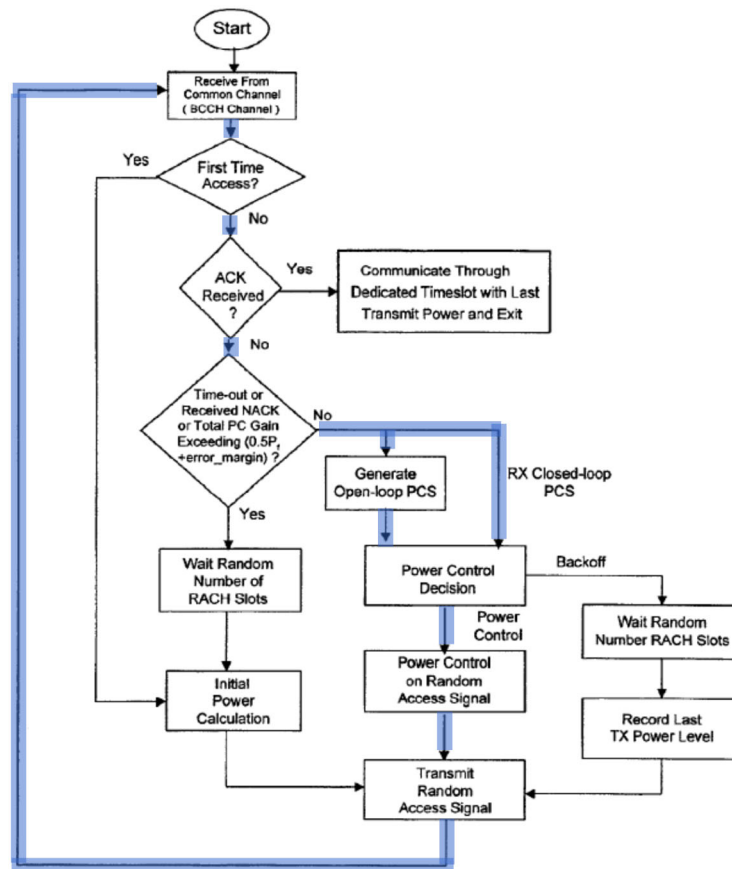
- a. **[5a]: "The method according to claim 2, further comprising: responsive to determining that the access re-attempt from sending the second preamble was unsuccessful, again re-attempting access to the wireless network by sending from the transmitter on the random access channel at a third transmit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

The '776 patent admits that this limitation was well-known. Section III; Ex-1001, 1:48-62; Ex-1003, 143.

Li discloses or renders obvious [5a] because *Li* discloses an iterative process of re-attempts following unsuccessful attempts if a maximum retry threshold has not been reached. Ex-1003, 144.

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 shows iteration until the MS receives an acknowledgement from the base station. Ex-1003, 145.

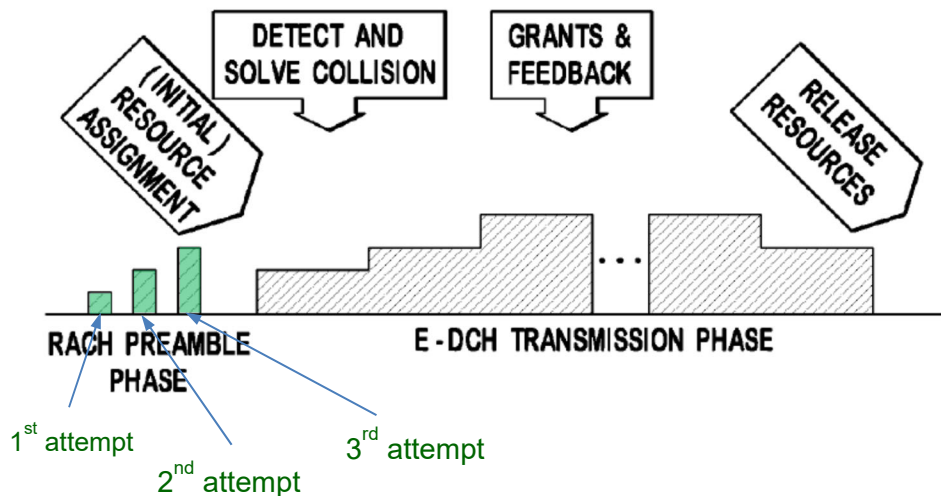


Ex-1005, FIG. 3 (annotated).

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 perform a third attempt. Ex-1003, 146.

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-1003, 147.



Ex-1007, FIG. 1 (annotated).

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]; Ex-1003, 148.

A POSITA would have been motivated to add sending a third preamble comprising a signature sequence when the second preamble was unsuccessful to *Li* because *Li*’s purpose 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; Ex-1003, 149. A

POSITA would have found it obvious for *Li*'s MS to send a third preamble by setting the maximum number of tries to three or more. Ex-1003, 149-150.

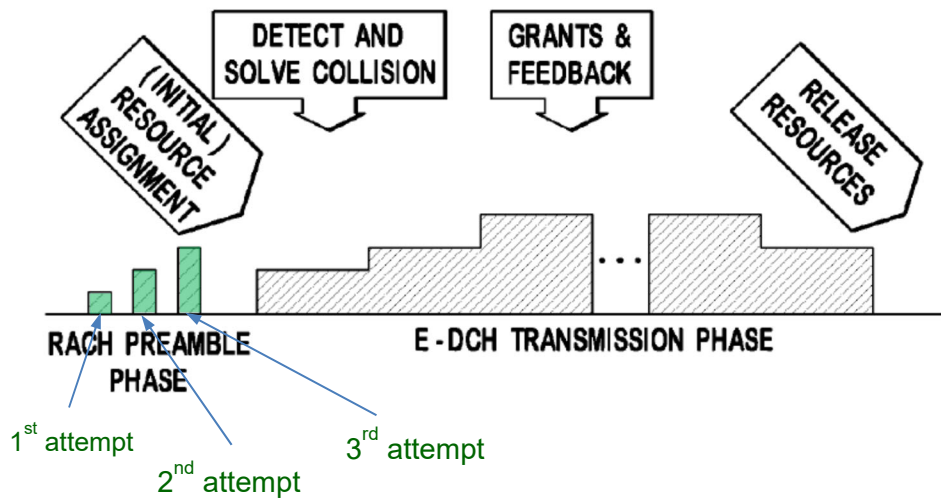
b. [5b]: “in which the third transmit power is greater than the first transmit power and greater than the second transmit power, and”

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1001, 1:48-62; Ex-1003, 151.

Li discloses or renders obvious [5b] because *Li* discloses that the composite power-control command controls “the course of action for the MS (to **power up**, power down, transmit at same power, or to back-off).” Ex-1005, 3:39-55. *Li* 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 $+\Delta$, $-\Delta$, $+\mathbf{n}\Delta$, $-\mathbf{n}\Delta$ or a function of any of them.” *Id.*, 9:17-37. Because *Li* increases power for next random-access signal by $+\Delta$ or $+\mathbf{n}\Delta$ for each transmission, the third transmit power in *Li* is greater than the first transmit power and second transmit power. Ex-1003, 152.

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*'s transmit

power increases for each preamble, the third transmit power is greater than the first transmit power and second transmit power (FIG. 1). Ex-1003, 153-154.



Ex-1007, FIG. 1 (annotated).

- 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.”

The '776 patent admits that this limitation was well-known. Section III.A; Ex-1003, 155.

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* randomly selects signatures for each next preamble, the signature sequences for the first, second, and third preambles are each randomly selected from the set separately. Ex-1003, 156.

A POSITA would have been motivated to implement *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* explains, this was the well-known, conventional procedure. Ex-1007, [0007]; Ex-1003, 157-158.

3. 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”**

[11a] is substantially similar to [2a]. *Li* discloses the apparatus including the processor recited in Claim 10 (Sections V.B.2.a, V.B.2.c). *Li* and *Pelletier-750* render obvious the function of the processor recited in [11a] as explained for [2a] (Section V.C.1.a). Ex-1003, 159.

- 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.”

Li and *Pelletier-750* render obvious [11b]. Ex-1003, 160.

As explained for [2b] (Section V.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. Ex-1003, 161.

Li discloses a 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-1003, 162.

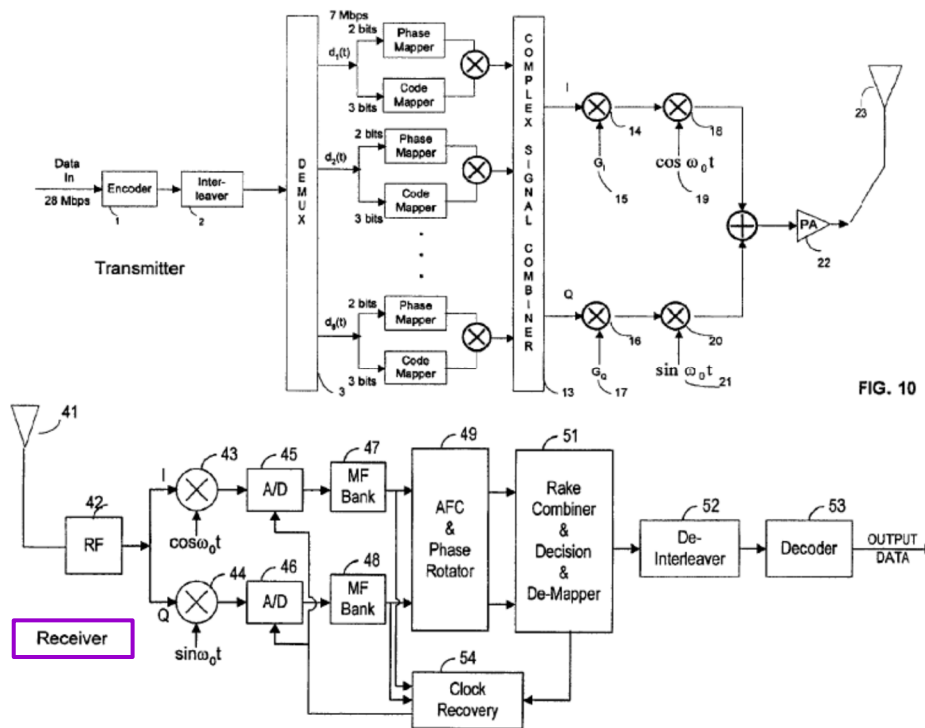


FIG. 10

Ex-1005, FIG. 10 (annotated).

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 because this is the standard function of a receiver. Ex-1003, 163.

4. Claim 14

Claim 14 is substantially similar to that of claim 5, except it depends from claim 11. *Li* and *Pelletier-750* render obvious claim 14 as explained for claim 5 (Sections V.C.2.a-V.C.2.c). Ex-1003, 164.

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

1. 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”

The '776 patent admits that this limitation was well-known. Ex-1001, 2:5-11; Ex-1003, 165.

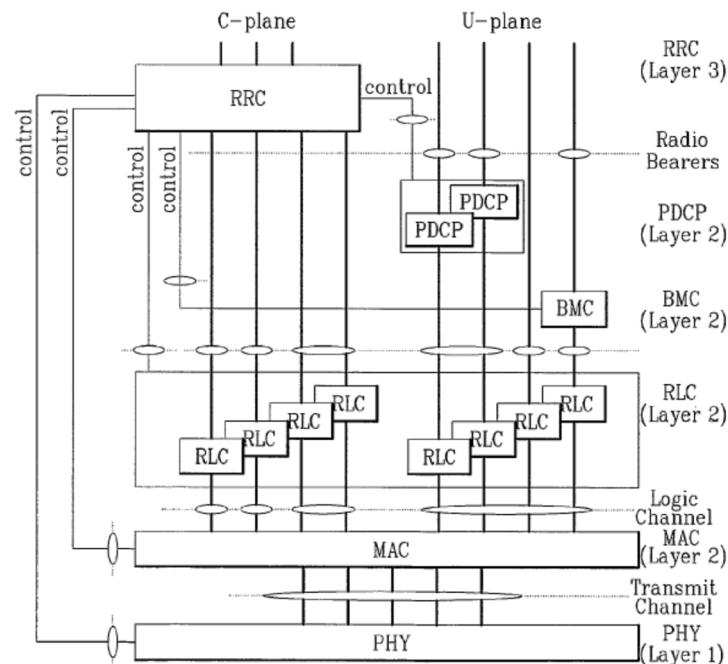
Li in combination with *Pelletier-750* and *Kim* renders obvious [3a]. Ex-1003, 166.

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; Ex-1003, 167.

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

understood that in *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. Ex-1003, 169.

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]. *Kim*'s FIG. 2 discloses that the RRC layer "is part of Layer 3 (L3)," higher than layer 1 or layer 2. *Id.*, [0007]. Ex-1003, 168.



Ex-1008, FIG. 2

A POSITA would have been motivated to 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 disclosed by *Kim*. Ex-1003, 170. 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. Ex-1003, 170.

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. Ex-1003, 171-172. *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*. Ex-1003, 171-172.

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

Li discloses [3b] because *Li* discloses “transmitting the next random-access signal at the **same power**.” Ex-1005, 9:17-37, 3:39-55. Ex-1003, 173.

2. 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”**

Li in combination with *Pelletier-750* and *Kim* renders obvious [4a]. Ex-1003, 175.

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* 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; Ex-1003, 176.

As explained for [3a] (Section V.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. Ex-1003, 177.

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

Li discloses [4b] because *Li* discloses that “[t]he composite power-control command controls not only the course of action for the MS (to power up, **power down**, transmit at same power, or to back-off).” Ex-1005, 3:39-55, 9:17-37.

Because the next random-access signal transmission (the second transmit power) uses reduced power, the first transmission power (the first transmit power) is greater than the second transmit power. Ex-1003, 178-179.

3. 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”

[12a] is substantially similar to [3a]. *Li* in combination with *Pelletier-750* teaches the apparatus including the receiver as recited in Claim 11. Sections V.C.3.a, V.C.3.b. *Li* in combination with *Pelletier-750* and *Kim* renders obvious the function of the receiver recited in [12a] as explained for [3a] (Section V.D.1.a). Ex-1003, 180.

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

Li in combination with *Pelletier-750* render obvious [12b]. Ex-1003, ¶ 181.

As explained for Claim 19 (Section V.B.3.a), a POSITA would have understood that *Li*’s MS includes a memory. Ex-1003, 182.

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]; Ex-1003, 183.

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. Ex-1003, 184.

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

Li in combination with *Pelletier-750* and *Kim* render obvious [12c]. Ex-1003, 185.

As explained for [3a] (Section V.D.1.a), *Li* discloses determining an initial transmit power. Ex-1003, 186.

To the extent Patent Owner argues that *Li* does not explicitly identify the higher layers, *Kim* 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 V.D.1.a). Ex-1003, 187.

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

[12d] is identical to [3b] (Section V.D.1.b) and rendered obvious for the same reasons. Ex-1003, 188.

4. **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”**

[13a] is identical to [12a] (Section V.D.3.a) and rendered obvious for the same reasons. Ex-1003, 189.

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

[13b] is identical to [12b] (Section V.D.3.b) and rendered obvious for the same reasons. Ex-1003, 190.

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

[13c] is identical to [12c] (Section V.D.3.c) and rendered obvious for the same reasons. Ex-1003, 191.

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

[13d] is substantially similar to [4a] and [4b] (Sections V.D.2.a, V.D.2.b) and rendered obvious for the same reasons. Ex-1003, 192.

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

1. 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”**

[6a] is commensurate in scope with limitation [1a] (Section V.B.1.b) and disclosed or rendered obvious for the same reasons. Ex-1003, 193.

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

Li in combination with *Vujcic* renders obvious [6b]. Ex-1003, 194.

As explained for [1b] (Section V.B.1.c), *Li* discloses sending a second preamble with a signature sequence if the first access attempt 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. Ex-1003, 195.

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]; Ex-1003, 196.

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. Ex-1003, 197.

A POSITA would have been motivated to adopt *Vujcic*'s same signature as the first preamble as *Li*'s second preamble because it provides advantages like being easy to implement, reducing computation, and reducing the use of resources. Ex-1003, 198. *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]; Ex-1003, 198. 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 yield a predictable result. *Vujcic*'s disclosure is simply a more detailed explanation of how *Li*'s signature sequence for the second preamble would be selected. Ex-1003, 198.

- 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.”

The '776 patent admits that [6c] was well-known. Sections I, III.A; Ex-1001, 1:48-57; Ex-1003, 199.

Li in combination with *Vujcic* and *Kim* renders obvious [6c]. As explained for [2b] (Section V.C.1.b), *Li* discloses a logical channel (BCCH) and monitoring the BCCH, which meets the claim that is not limited to the physical channel. Ex-1003, 200.

To the extent Patent Owner argues the acquisition channel is restricted to the physical channel, such as an AICH channel, *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; Ex-1003, 201.

A POSITA would have been motivated to modify the *Li-Vujcic* system to implement the AICH channel disclosed by *Kim* such that *Li*’s MS monitors 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. The combination merely implements an AICH channel for its routine purpose in a system configured for such routine purpose to achieve the expected result of monitoring responses from the base station. A POSITA would have found it obvious to use an AICH channel in *Li*'s system to monitor a response from a base station as explained in [2b] (Section V.C.1.b). Ex-1003, 202-203.

2. Claim 7

Claim 7 is identical to claim 3, except it depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious claim 7 as explained for claim 3 (Section V.D.1). Ex-1003, 204.

3. Claim 8

Claim 8 is identical to claim 4, except it depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious claim 8 as explained for claim 4 (Section V.D.2). Ex-1003, 205.

4. **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,”**

[9a] is identical to [5a], except it depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious [9a] as explained for [5a] (Section V.C.2.a). Ex-1003, 206.

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, [0030]. A POSITA would have understood that *Vujcic* transmits a third preamble when the network does not indicate the detection of the second preamble. Ex-1003, 207.

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

[9b] is identical to [5b], except it depends from claim 6. *Li* in combination with *Vujcic* and *Kim* renders obvious [9b] as explained in [5b] (Section V.C.2.b) and [9a] (third transmit power) (Section V.E.4.a). Ex-1003, 208.

- 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.”**

Li in combination with *Vujcic* and *Kim* renders obvious [9c]. Ex-1003, 209.

As explained for [6b] (Section V.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] (Section V.E.4.a), *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 can have the same sequence as the second preamble. Ex-1003, ¶ 209.

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

1. Claim 15

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

Li in combination with *Vujcic* and *Pelletier-750* renders obvious [15a]. As explained for [19Preamble] (Section V.B.3.a), a POSITA would have understood that *Li*’s MS includes a memory. Ex-1003, 210.

Vujcic 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]; Ex-1003, 211.

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

Li discloses [15b]. As explained for [10b] (Section V.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 V.B.1.b, V.B.1.b). Ex-1003, 212.

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

Li in combination with *Vujcic* and *Pelletier-750* renders obvious [15c]. Ex-1003, 213.

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* discloses storing a signature sequence of a preamble in a memory of a preamble receiver. *Id.*, [0089], [0092]; Ex-1003, 214.

A POSITA would have understood *Li*’s MS, modified based on *Vujcic*’s teachings, includes a memory to store the selected signature sequence because *Li* repeatedly uses the same signature sequence and thus, the signature sequence must be stored in a memory so *Li*’s processor can retrieve it for each transmission. Ex-1003, 215.

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

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]; Ex-1003, 216.

- 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.”**

[15e] is identical to [11b], except it depends from claim 10. As explained for [11b] (Section V.C.3.b), *Li* and *Pelletier-750* render obvious [15e]. Ex-1003, 217-218.

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

1. Claim 16

Claim 16 is identical to claim 12, except it depends from claim 15. *Li* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 16 as explained for claim 12 (Sections V.D.3.a-V.D.3.d). Ex-1003, 219.

2. Claim 17

Claim 17 is identical to claim 13, except it depends from claim 15. *Li* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 17 as explained for claim 13 (Sections V.D.4.a-V.D.4.d). Ex-1003, 220.

3. Claim 18

Claim 18 is identical to claim 9, except it depends from claim 15. *Li* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 18 as explained for claim 9 (Sections V.E.4.a-V.E.4.c). Ex-1003, 221.

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

1. Claim 20

Li in combination with *Vujcic* render obvious claim 20. Claim 20 is identical to [15d]-[15e], except it depends from claim 19. *Li*, *Vujcic*, and *Pelletier-750* render obvious claim 20 as explained for [15d]-[15e] (Sections V.F.1.d-V.F.1.e). Ex-1003, 222.

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

A. Overview of the Combination

Pelletier at least suggests all features of the independent claims, but does not expressly disclose other minor limitations that would have been obvious extensions of *Pelletier*, 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 (claim 2, *Pelletier-750*); 2) an indication obtained from higher layers (claim 3, *Kim*); 3) wherein the second transmit power is an initial transmit power and the first transmit power is greater than the second transmit power (claim 4, *Li*); 4) a third transmit power (claim 5, *Pelletier-750*); 5)

sending the same signature sequence as both the first and second preambles (claim 6, *Vujcic*); and 6) a memory storing parameters (claim 12, *Pelletier-750*). Ex-1003, 223.

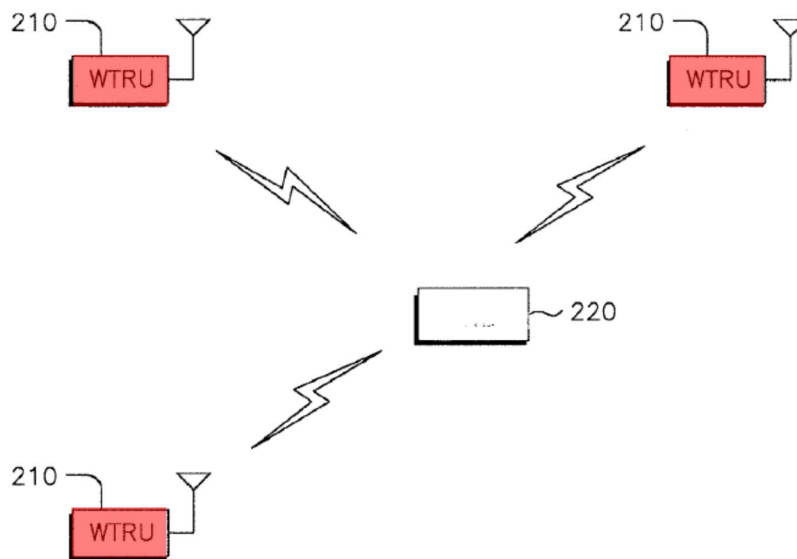
Because these features are well-known, routine features, most of which are at least suggested by *Pelletier*, it would have been obvious by a POSITA to combine *Pelletier* with one or more of the relevant disclosures of the secondary references to accommodate various design needs. Ex-1003, 224.

1. Motivation to Combine the References

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].

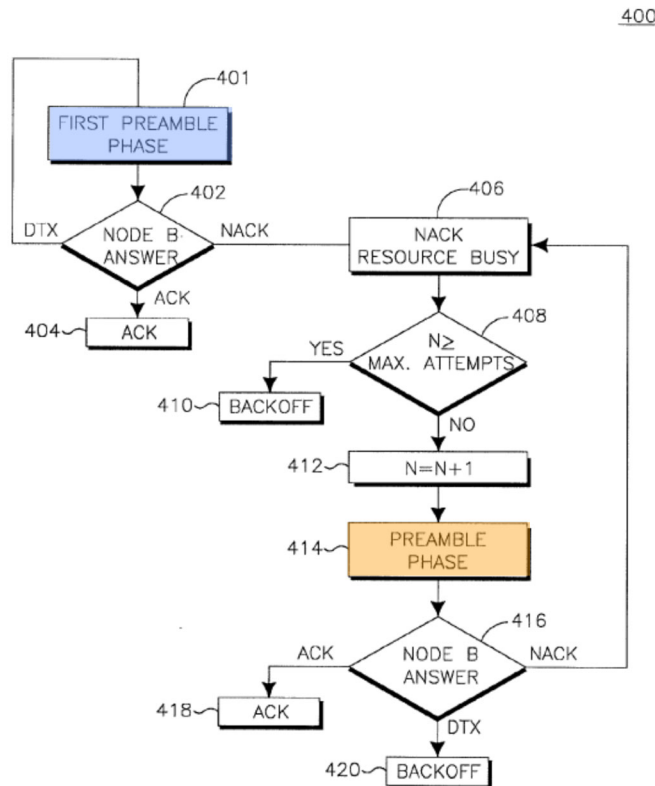
Pelletier discloses that “[t]he WTRU is configured to communicate over an enhanced random access channel (E-RACH)” with the base station 220. *Id.*, [0019]. Ex-1003, 225

200



Ex-1006, FIG. 2 (annotated).

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-1003, 226.



Ex-1006, FIG. 4 (annotated).

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]. Ex-1003, 227-228.

a. Combination with *Pelletier*-750

Although *Pelletier* does not expressly disclose that the signature sequence of the second preamble is randomly selected from the set of signature sequences separately (claim 2); a third transmit power (claim 5); and a memory storing

parameters (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. Ex-1003, 229.

This combination is similar to that in Ground 1 and would have been obvious for the same reasons. Ex-1003, 230.

b. Combination with *Kim*

Although *Pelletier* does not expressly disclose that its indications are obtained from higher layers (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. Ex-1003, 231.

This combination is similar to that in Ground 1 and would have been obvious for the same reasons. Ex-1003, 232.

c. Combination with *Li*

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 (claim 4), *Li* does in disclosing a known method for implementing accessing random access channels. Ex-1003, 233.

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 system so that *Pelletier*'s WTRU sends 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; Ex-1003, 234.

d. Combination with *Vujcic*

Although *Pelletier* does not expressly disclose sending the same signature sequence as both the first and second preambles (claim 6) this is simply 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. Ex-1003, 235.

This combination is similar to that in Ground 1 and would have been obvious for the same reasons. Ex-1003, 236.

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

1. Claim 1

a. [1Preamble]

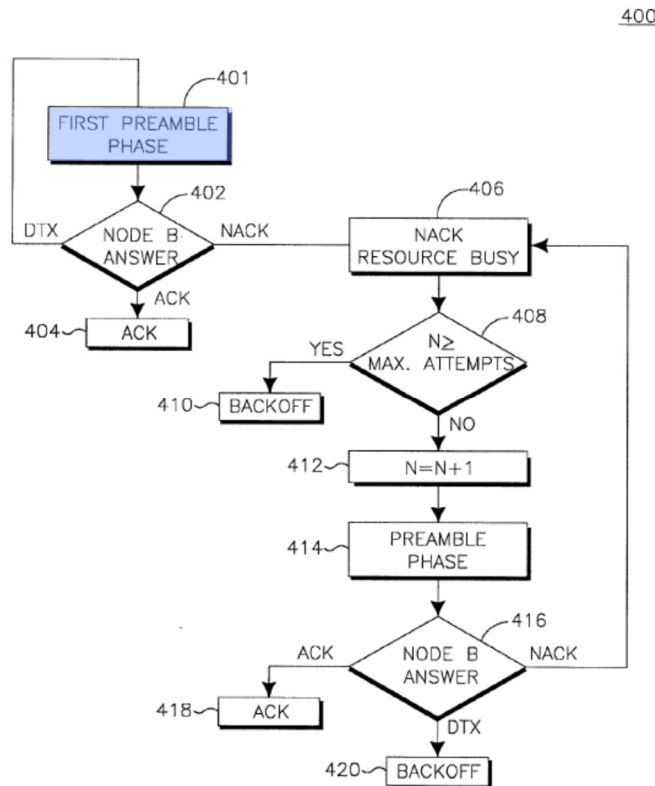
Pelletier discloses a method for transmission over an E-RACH. Ex-1006, [0007], [0032], FIG. 4; Section VI.A.1. Ex-1003, 237.

b. [1a]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1003, 238.

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) randomly chosen. Ex-1003, 239.

Pelletier discloses “MAC-level RACH procedures [that] allow multiple trials at requesting resources before the backoff mechanism is triggered.” Ex-1006, [0031]. As FIG. 4 shows, at a first trial, “a **first preamble** phase is transmitted by a WTRU.” *Id.*, [0032]; Ex-1003, 240.



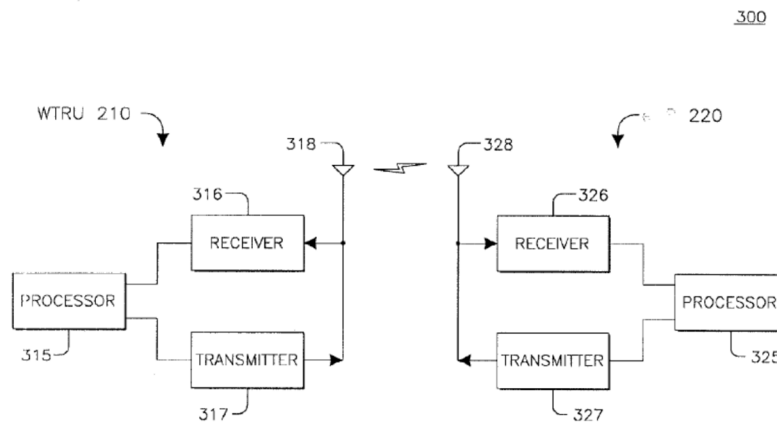
Ex-1006, FIG. 4 (annotated).

Pelletier's first preamble includes a signature sequence randomly selected from a set of signature sequences. *Pelletier*' scheduling information (SI) is used to “select one of the **signature** groups, and the WTRU may **randomly choose** one of the sequences within that group.” *Id.*, [0039]; Ex-1003, 241.

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.” Ex-1006, [0032]; Ex-1003, 242.

Pelletier's WTRU includes a transmitter from which the first preamble is sent. As FIG. 3 shows, *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-1003, 243.



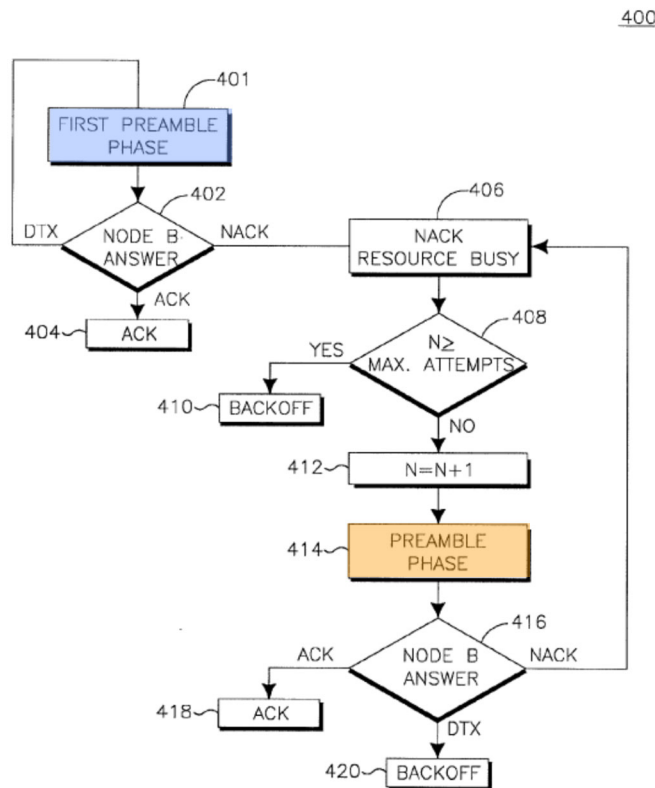
Ex-1006, FIG. 3

c. [1b]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1003, 244.

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 second preamble comprising a signature sequence. Ex-1003, 245.

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 first access attempt was unsuccessful. Ex-1006, [0032]; Ex-1003, 246.



Ex-1006, FIG. 4 (annotated).

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**.” Ex-1006, [0032]; Ex-1003, 247.

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**.” Ex-1006, [0043]; Ex-1003, 248.

d. [1c]

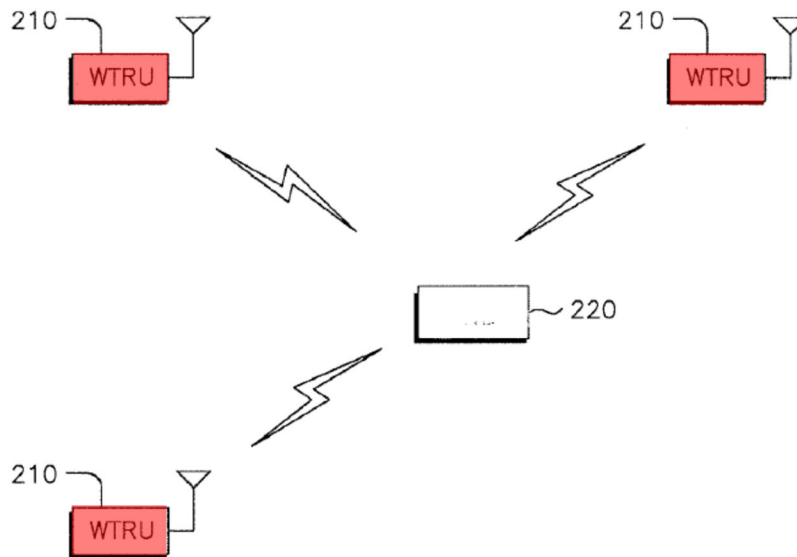
Pelletier discloses or renders obvious [1c] because *Pelletier*’s “WTRU retries accessing the RACH with a different preamble in a subsequent access slot. The **transmission power** can be raised or **kept the same**.” *Id.*, [0032]. *Pelletier*’s WTRU also “send[s] another preamble at the **same transmission power**.” *Id.*, [0042]; Ex-1003, 249-250.

2. Claim 10

a. [10Preamble]

Pelletier discloses a WTRU in a wireless communication system. Ex-1006, [0018]-[0019], FIG. 2; Ex-1003, 251.

200



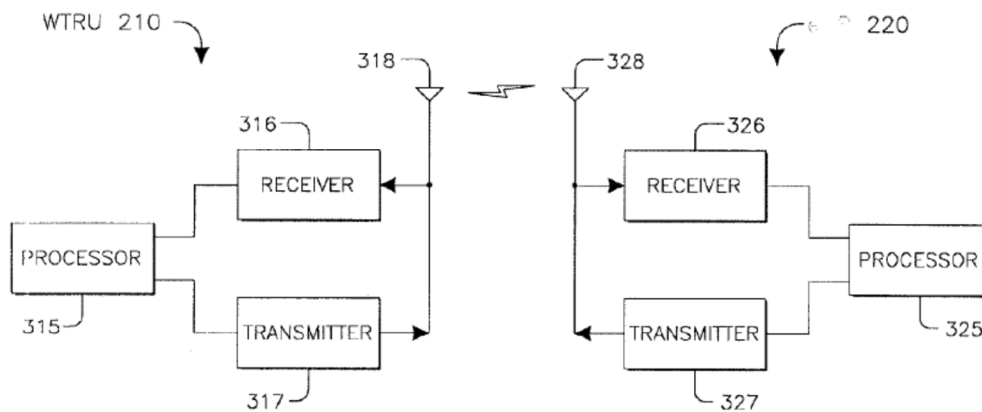
Ex-1006, FIG. 2 (annotated).

b. [10a]

Pelletier discloses [10a] because *Pelletier*'s WTRU includes a transmitter configured to attempt access to a wireless network. Ex-1003, 252.

As FIG. 3 shows, *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-1003, 253.

300



Ex-1006, FIG. 3.

As explained for [1a] (Section VI.B.1.b), *Pelletier*'s transmitter attempts access to a wireless network by sending a first preamble at a first transmit power comprising a signature sequence randomly selected from a set of signature sequences. Ex-1003, 254.

c. [10b]

Pelletier discloses [10b] because *Pelletier*'s WTRU includes a processor. Ex-1003, 255.

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; Ex-1003, 256.

As explained for [1b] (Section VI.B.1.c), if *Pelletier*'s WTRU determines that the first access attempt was unsuccessful, the transmitter responsively re-attempts access by sending on the random-access channel at a second transmit power a second preamble comprising a signature sequence. *Pelletier*'s processor in the WTRU performs these functions because it performs "all processing required for the WTRU 210 to communicate over an E-RACH." Ex-1006, [0020]; Ex-1003, 257.

d. [10c]

Pelletier Li discloses or renders obvious [10c] as explained for [1c] (Section VI.B.1.d). Ex-1003, 258.

3. Claim 19

a. [19Preamble]

Pelletier discloses [19Preamble] because *Pelletier* 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]; Ex-1003, 259.

b. [19a]

[19a] is identical to [1a] (Section VI.B.1.b) and disclosed or rendered obvious for the same reasons. Ex-1003, 260.

c. [19b]

[19b] is identical to [1b] (Section VI.B.1.c) and disclosed or rendered obvious for the same reasons. Ex-1003, 261.

d. [19c]

[19c] is identical to [1c] (Section VI.B.1.d) and disclosed or rendered obvious for the same reasons. Ex-1003, 262.

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

1. Claim 2

a. [2a]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1003, 263.

Pelletier in combination with *Pelletier-750* renders obvious [2a]. Ex-1003, 264.

As explained for [1a] (Section VI.B.1.b), *Pelletier* discloses the preamble signature sequence in the first preamble is randomly chosen. Ex-1003, 265.

As explained for [1b] (Section VI.B.1.c), *Pelletier* discloses that when the first access attempt is unsuccessful, the WTRU performs a second attempt using a second preamble. Ex-1003, 266.

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 explained for [2a] in Ground 1c (Section V.C.1.a). Ex-1003, 267.

Both *Pelletier* and *Pelletier-750* disclose a RACH procedure where 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* states this procedure is the “conventional RACH access” procedure. *Id.*; Ex-1003, 268.

A POSITA would have been motivated to combine *Pelletier* and *Pelletier-750* by adopting *Pelletier-750*’s “new randomly selected signature” as *Pelletier*’s second preamble because this is the well-known, conventional procedure. Ex-1003, 269. Doing so is a simple substitution of one known element (*Pelletier-750*’s sending a second preamble including a new randomly selected signature) for another (*Pelletier*’s sending a second preamble including a signature sequence) to yield the predictable result of sending a second preamble to the base station, as taught in both references. *Pelletier-750* simply provides a more detailed explanation of how *Pelletier*’s signature sequence included in the second preamble was selected based on conventional procedures, and a POSITA would have been

motivated to look to the conventional procedure described in *Pelletier-750* to understand and implement these additional details. *Id.*; Ex-1003, 269. *Pelletier*'s system is already designed for randomly selecting signature sequences. Ex-1006, [0039]. It would have been obvious to a POSITA to randomly select the signature sequence for *Pelletier*'s second preamble, which amounts to a simple repeat of *Pelletier*'s first preamble procedure. Ex-1003, 270-271.

b. [2b]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1001, 1:48-57; Ex-1003, 272.

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]; Ex-1003, 273.

Pelletier-750 also discloses [2b] as explained in Ground 1c (Section V.C.1.b). Ex-1003, 274-275.

2. Claim 11

a. [11a]

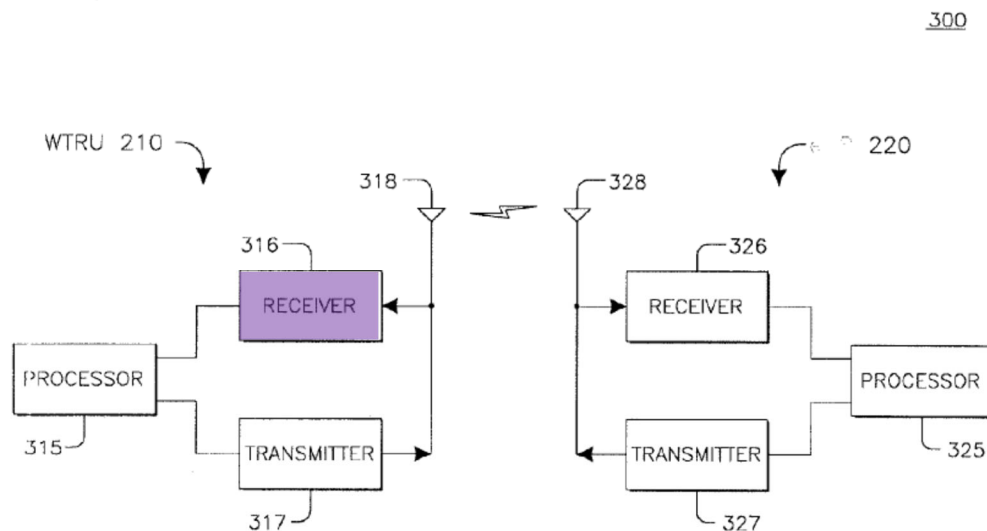
[11a] is substantially similar to [2a]. *Pelletier* discloses the apparatus including the processor recited in Claim 10 (Sections VI.B.2.a, VI.B.2.c). *Pelletier*

and *Pelletier-750* render obvious the function of the processor recited in [11a] as explained for [2a] (Section VI.C.1.a). Ex-1003, 276.

b. [11b]

Pelletier in combination with *Pelletier-750* renders obvious [11b]. As explained for [2b] (Section VI.C.1.b), *Pelletier* alone or in combination with *Pelletier-750* discloses determining that the first access attempt was unsuccessful by monitoring an acquisition channel and determining that no acquisition indicator corresponding to the first preamble was received. Ex-1003, 277.

Pelletier discloses a receiver that performs the monitoring/receiving function. *Pelletier*'s receiver 316 is "in communication with the processor 315," and "configured to receive signals from the base station 220." Ex-1006, [0020]-[0021]; Ex-1003, 278.



Ex-1006, FIG. 3 (annotated).

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

1. Claim 3

a. [3a]

The '776 patent admits that this limitation was well-known. Ex-1001, 2:5-11; Ex-1003, 280.

Pelletier in combination with *Pelletier-750* and *Kim* renders obvious [3a]. Ex-1003, 281.

Pelletier discloses an initial transmit power. *Pelletier*'s "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 subsequent attempts. Ex-1006, [0032]. Ex-1003, 282.

Pelletier-750 also discloses an initial transmit power. *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*'s "**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.” *Id.*, [0039]; Ex-1003, 283.

To the extent neither reference discloses determining the initial transmit power from an indication obtained from higher layers, *Kim* does, as explained for [3a] in Ground 1d (Section V.D.1.a). Ex-1003, 284.

As explained for [2a] and [2b] (Sections VI.C.1.a, VI.C.1.b), *Pelletier*’s method would be modified based on the teachings of *Pelletier-750*. 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 taught by *Kim*. Both *Pelletier* and *Kim* disclose a RACH procedure where the 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 the RRC layer of the base station. Ex-1003, 285.

A POSITA would have been motivated to adopt *Kim*’s method of determining an initial transmit power using information provided by the RRC

layer, because this was a well-known, conventional procedure, as explained by *Kim*. *Kim* merely provides 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. Ex-1003, 286-287.

b. [3b]

Pelletier discloses [3b] because *Pelletier* discloses “transmission power can be raised or **kept the same.**” Ex-1006, [0032]; Ex-1003, 288-289.

2. Claim 12

a. [12a]

[12a] is substantially similar to [3a]. *Pelletier* in combination with *Pelletier-750* teaches the apparatus including the receiver as recited in Claim 11. Section VI.C.2.b. *Pelletier* in combination with *Pelletier-750* and *Kim* renders obvious the function of the receiver recited in [12a] as explained for [3a] (Section VI.D.1.a). Ex-1003, 290.

b. [12b]

Pelletier discloses a memory as explained for [19Preamble] (Section VI.B.3.a). Ex-1003, 291.

Pelletier-750 also discloses a memory as explained for [12b] in Ground 1d (Section V.D.3.b). Ex-1003, 292.

A POSITA would have found it obvious to store the parameters received from the higher layers in the memory so the processor can retrieve the parameters from the memory to determine the initial power. Ex-1003, 293.

c. [12c]

Pelletier in combination with *Pelletier-750* and *Kim* render obvious [12c]. Ex-1003, 294.

As explained for [3a] (Section VI.D.1.a), *Pelletier* and *Pelletier-750* both disclose an initial transmit power. Ex-1003, 295.

To the extent Patent Owner argues that *Pelletier* does not explicitly identify the higher layers, *Kim* 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 VI.D.1.a). Ex-1003, 296.

d. [12d]

[12d] is identical to [3b] (Section VI.D.1.b) and rendered obvious for the same reasons. Ex-1003, 297.

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

1. Claim 4

a. [4a]

Pelletier in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious [4a]. Ex-1003, 298.

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]. The transmit power for the second preamble is an initial transmit power determined by the WTRU. Ex-1003, 299.

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 V.D.2.a). A POSITA would have been motivated to modify *Pelletier* so the second transmission power of *Pelletier* is an initial transmit power determined by the WTRU (taught by *Li*), because it would enhance the accuracy of the power determination, increase power efficiency, and prevent resource wasting. Ex-1003, 300.

As explained for [3a] (Section VI.D.1.a), to the extent 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. Ex-1003, 301.

b. [4b]

Pelletier in combination with *Pelletier-750*, *Kim*, and *Li* renders obvious [4b]. Ex-1003, 302.

Pelletier does not explicitly disclose that the first transmit power is greater than the second transmit power, but *Li* does, as explained for [4b] in Ground 1d (Section V.D.2.b). Ex-1003, 303.

A POSITA would have been motivated to modify *Pelletier*'s WTRU to send a second preamble at a reduced transmit power when necessary (taught by *Li*) 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; Ex-1003, 304-305.

2. Claim 5

a. [5a]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1001, 1:48-62; Ex-1003, 306.

Pelletier-750 discloses [5a] as explained for [5a] in Ground 1c (Section V.C.2.a). Ex-1003, 307.

b. [5b]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1001, 1:48-62; Ex-1003, 308.

Pelletier-750 discloses [5b] as explained for [5b] in Ground 1c (Section V.C.2.b). Ex-1003, 309.

c. [5c]

The '776 patent admits that this limitation was well-known. Section III.A; Ex-1003, 310.

Pelletier-750 discloses [5c] as explained for [5c] in Ground 1c (Section V.C.2.c). Ex-1003, 311-312.

3. Claim 13

a. [13a]

[13a] is identical to [12a] (Section VI.D.2.a) and rendered obvious for the same reasons. Ex-1003, 313.

b. [13b]

[13b] is identical to [12b] (Section VI.D.2.b) and rendered obvious for the same reasons. Ex-1003, 314.

c. [13c]

[13c] is identical to [12c] (Section VI.D.2.c) and rendered obvious for the same reasons. Ex-1003, 315.

d. [13d]

[13d] is substantially similar to [4a] and [4b] (Sections VI.E.1.a, VI.E.1.b) and rendered obvious for the same reasons. Ex-1003, 316-317.

4. Claim 14

Claim 14 is substantially similar to claim 5, except it depends from claim 11. *Pelletier* in view of *Pelletier-750*, *Kim*, and *Li* renders obvious claim 14 as explained for claim 5 (Sections VI.E.2.a-VI.E.2.c). Ex-1003, 318.

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

1. Claim 6

a. [6a]

[6a] is commensurate in scope with limitation [1a] (Section VI.B.1.b) and disclosed or rendered obvious by *Pelletier* for the same reasons. Ex-1003, 319.

b. [6b]

Pelletier in combination with *Vujcic* renders obvious [6b]. Ex-1003, 320.

As explained for [1b] (Section VI.B.1.c), *Pelletier* discloses sending a second preamble with a signature sequence if the first access attempt was unsuccessful. Ex-1003, 321.

Pelletier does not expressly disclose that the signature sequence of the second preamble is the same as the first preamble, but *Vujcic* does, as explained for [6b] in Ground 1e (Section V.E.1.b). Ex-1003, 322.

Both *Pelletier* and *Vujcic* disclose a RACH procedure in which a WTRU sends a first preamble including a randomly selected signature sequence. 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 that 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. Ex-1003, 323.

A POSITA would have been motivated to adopt *Vujcic*'s same signature as the first preamble as *Pelletier*'s second preamble because it is easy to implement, reduces computation, and reduces 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]. Ex-1003, 324. Doing so would have been a simple substitution of one known element (*Vujcic*'s using the same signature sequence for the second preamble) for another (*Pelletier*'s second preamble including a signature sequence) to yield a predictable result. *Vujcic*'s disclosure is simply a more detailed explanation of how *Pelletier*'s signature sequence for the second preamble would be selected. Ex-1003, 324.

c. [6c]

The '776 patent admits that this limitation was well-known. Sections I, III.A; Ex-1001, 1:48-57; Ex-1003, 325.

[6c] is identical to [2b], and *Pelletier* discloses [6c] as explained for [2b] (Section VI.C.1.b). Ex-1003, 326-327.

2. Claim 15

a. [15a]

Pelletier discloses [15a]. *Pelletier* discloses a memory as explained for [19Preamble] (Section VI.B.3.a). Ex-1003, 328.

Pelletier-750 also discloses a memory as explained for [12b] in Ground 1d (Section V.D.3.b). Ex-1003, 329.

b. [15b]

Pelletier discloses [15b]. As explained for [10b] (Section VI.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 explained for [10b] and [1a] (Sections VI.B.2.c, VI.B.1.b). Ex-1003, 330.

c. [15c]

Pelletier in combination with *Vujcic* renders obvious [15c] because *Vijcic* discloses this limitation as explained for [15c] in Ground 1f (Section V.F.1.c). Ex-1003, 331.

A POSITA would have understood that *Pelletier*'s MS, modified by *Vujcic*, includes a memory to store the selected signature sequence. Ex-1003, 332.

d. [15d]

Pelletier in combination with *Vujcic* renders obvious [15d] because *Vujcic* discloses this limitation as explained for [15d] in Ground 1f (Section V.F.1.d). Ex-1003, 333.

e. [15e]

[15e] is identical to [11b], except it depends from claim 10. As explained for [11b] (Section VI.C.2.b), *Pelletier* discloses [15e]. Ex-1003, 334-335.

3. Claim 20

Claim 20 is identical to [15d]-[15e], except it depends from claim 19. *Pelletier* and *Vujcic* renders obvious claim 20 as explained for [15d]-[15e] (Sections VI.F.2.d-VI.F.2.e). Ex-1003, 336-337.

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

1. Claim 7

Claim 7 is identical to claim 3, except it depends from claim 6. *Pelletier* in combination with *Vujcic* and *Kim* renders obvious claim 7 as explained for claim 3 (Sections VI.D.1.a, VI.D.1.b). Ex-1003, 338.

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

1. Claim 16

Claim 16 is identical to claim 12, except it depends from claim 15. *Pelletier* in combination with *Vujcic*, *Pelletier-750*, and *Kim* renders obvious claim 16 as explained for claim 12 (Sections VI.D.2.a-VI.D.2.d). Ex-1003, 339.

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

1. Claim 8

Claim 8 is substantially similar to claim 4, except it depends from claim 6. *Pelletier* in combination with *Vujcic* and *Li* renders obvious claim 8 as explained for claim 4 (Sections VI.E.1.a, VI.E.1.b). Ex-1003, 340.

2. Claim 17

Claim 17 is identical to claim 13, except it depends from claim 15. *Pelletier* in combination with *Vujcic* and *Li* renders obvious claim 17 as explained for claim 13 (Sections VI.E.3.a-VI.E.3.d). Ex-1003, 341.

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

1. Claim 9

a. [9a]

[9a] is identical to [5a], except it depends from claim 6. *Pelletier* in combination with *Vujcic, Li, and Pelletier-750* renders obvious [9a] as explained for [5a] (Section VI.E.2.a). Ex-1003, 342.

b. [9b]

[9b] is identical to [5b], except it depends from claim 6. *Pelletier* in combination with *Vujcic, Li, and Pelletier-750* renders obvious [9b] as explained for [5b] (Section VI.E.2.b). Ex-1003, 343.

c. [9c]

Pelletier in combination with *Vujcic, Li, and Pelletier-750* renders obvious [9c]. As explained for claim 6 (Section VI.F.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] (Section VI.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.**” Ex-1009, [0057]; Ex-1003, 344.

2. Claim 18

Claim 18 is identical to claim 9, except it depends from claim 15. *Pelletier* in combination with *Vujcic, Li, and Pelletier-750* renders obvious claim 18 as explained for claim 9 (Sections VI.J.1.a-VI.J.1.c). Ex-1003, 345.

VII. NON-INSTITUTION UNDER 35 U.S.C. § 314 IS IMPROPER

No factors articulated in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5-6 (PTAB Mar. 20, 2020), weigh in favor of non-institution under 35 U.S.C. § 314(a) because no trial date has been set in the parallel litigation against Petitioner, and the parallel litigation is administratively stayed pending proper service of the complaint.

VIII. NON-INSTITUTION UNDER 35 U.S.C. § 325 IS IMPROPER

Non-institution under § 325 would also be improper. The prior art and grounds in this Petition were not previously considered by the Office and are materially different and not cumulative of what was previously considered.

IX. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Party-in-Interest

The real parties-in-interest are ZTE (USA) Inc. and ZTE Corporation.

B. Related Matters

Patent Owner has asserted the '776 patent in *WSOU Investments LLC v. ZTE Corporation et al.*, 6:22-cv-00137 (Feb. 8, 2022, W.D. Tex.) and in *WSOU*

Investments LLC v. Oneplus Technology (Shenzhen) Co., LTD., 6:20-cv-00952

(Oct. 14, 2020, W.D. Tex).

C. Lead and Backup Counsel Information

Petitioner provides the following designation of counsel:

Lead Counsel	Back-Up Counsel
Lionel Lavenue (Reg. No. 46,859) lionel.lavenue@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 1875 Explorer Street, Suite 800 Reston, VA 20190-6023 Tel: (571) 203-2000 Fax: (202) 408-4400	Kara Specht (Reg. No. 69,560) kara.specht@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 271 17th Street, NW, Suite 1400 Atlanta, GA 30363-6209 Tel: (404) 653-6400 Fax: (404) 653-6444 Mingji Jin (Reg. No. 69,674) mingji.jin@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 901 New York Avenue, NW Washington, DC 20001-4413 Tel: (202) 408-6020 Fax: (202) 408-4400 Bradford Schulz (Reg. No. 75,006) bradford.schulz@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 1875 Explorer Street, Suite 800 Reston, VA 20190-6023 Tel: (571) 203-2700 Fax: (202) 408-4400

Petitioner submits a Power of Attorney with this Petition. Petitioner consents to service by email at the addresses listed above.

X. GROUNDS FOR STANDING

The '776 patent is available for IPR and Petitioner is not barred or estopped from challenging the claims on the grounds identified herein.

XI. CONCLUSION

Petitioner respectfully requests that the Board grant *inter partes* review and find all claims unpatentable.

Dated: February 8, 2023

By: /Lionel M. Lavenue/
Lionel M. Lavenue, Lead Counsel
Reg. No. 46,859

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(a)(1)(i), the undersigned hereby certifies that the foregoing PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,149,776 contains 13,938 words, excluding parts of this Petition exempted under § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: February 8, 2023

/Lionel M. Lavenue/
Lionel M. Lavenue, Lead Counsel
Reg. No. 46,859

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **Petition for *Inter Partes* Review**, the associated **Power of Attorney**, and **Exhibits 1001 through 1010** are being served on February 8, 2023, by FedEx Priority Overnight® at the following address of record for the subject patent.

Sean Burdick
WSOU Investments, LLC
11150 Santa Monica Blvd., Suite 1400
Los Angeles CA 90025

A courtesy copy is also being sent via FedEx Priority Overnight® to
litigation counsel at:

Jonathan K. Waldrop
Kasowitz Benson Torres, LLP
333 Twin Dolphine Drive, Suite 200
Redwood Shores, CA 94065

/Lisa C. Hines/

Lisa C. Hines
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