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I hereby appoint:

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OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

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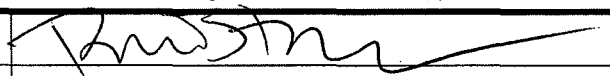
☐	Firm or Individual Name	Volpe and Koenig, P.C.		
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: Signal Trust For Wireless Innovation
1011 Centre Road, Suite 327
Wilmington, Delaware 19805

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	November 25, 2013
Name	HCJ Advisors LLC, as Trustee, by Bruce Bernstein	Telephone	302-573-3819
Title	President		

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Signal Trust for Wireless Innovation

Application No./Patent No.: Not Yet Assigned Filed/Issue Date: Herewith

Titled: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

Signal Trust for Wireless Innovation, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Benoit Pelletier, Diana Pani, Rocco DiGirolamo, Christopher R. Cave, Vincent Roy, Paul Marinier and Eldad M. Zeira To: INTERDIGITAL PATENT HOLDINGS, INC.

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STATEMENT UNDER 37 CFR 3.73(c)

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Abhik A. Huq/	June 30, 2014
Signature	Date
Abhik A. Huq	40,656
Printed or Typed Name	Title or Registration Number

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[0001] METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

[0002] CROSS REFERENCE TO RELATED APPLICATIONS

[0003] This application is a continuation of U.S. Patent Application No. 12/238,910 filed September 26, 2008, which claims the benefit of U.S. Provisional Application No. 60/975,985 filed on September 28, 2007; U.S. Provisional Application No. 60/982,528 filed on October 25, 2007; U.S. Provisional Application No. 61/018,999, filed on January 4, 2008; U.S. Provisional Application No. 61/025,441 filed on February 1, 2008; U.S. Provisional Application No. 61/038,576 filed on March 21, 2008; U.S. Provisional Application No. 61/074,288 filed on June 20, 2008; and U.S. Provisional Application No. 61/083,409 filed on July 24, 2008, which are incorporated by reference as if fully set forth. This application is also related to the application referred to as Attorney Docket No. SIG-2-1853US04 filed on the same date herewith and is incorporated by reference as if fully set forth.

[0004] FIELD OF INVENTION

[0005] The present application is related to wireless communication.

[0006] BACKGROUND

[0007] In wireless communications systems, access to radio resources is controlled by a radio network. When a wireless transmit receive unit (WTRU) has data to transmit to the network, the WTRU requires access to the radio resources before transmitting its data payload. In a Third Generation Partnership Project (3GPP) network, the WTRU may transmit on the uplink using a contentious channel known as a random access channel (RACH). Because access to the RACH is contentious, a collision might occur when multiple WTRUs are accessing the resources simultaneously.

[0008] The current RACH access procedure in the 3GPP comprises a preamble phase with power ramp-up, followed by channel acquisition information and message

transmission for random access. Because the RACH is a shared channel, in order to avoid WTRUs holding the shared radio resource for a long time, only relatively short message payloads are transmitted on the RACH; this leads to a relatively small data rate. The RACH is thus used for the transmission of short control messages. Typically, the WTRUs demanding larger data rates may be configured by the network to use dedicated resources.

[0009] The data rate provided by the RACH is sufficient for the transmission of short control messages supporting mostly speech communications, however it may be inefficient for transmission of data messages associated to the new non real-time data services such as internet browsing, e-mail, etc. For such data services, the traffic is ruptured by nature and long periods of inactivity may exist between successive transmissions. For example, applications requiring frequent transmission of keep-alive messages, may result in an inefficient utilization of dedicated resources. In such cases, it may be advantageous for the network to use shared resources for data transmission instead. The difficulty however, resides in the low data rate offered by the RACH.

[0010] To overcome these difficulties, it was proposed to use the enhanced dedicated channel (E-DCH) in the CELL_FACH state to increase the data rate of the shared channel.

[0011] Figure 1 is a diagram of an enhanced RACH (E-RACH) access. The E-RACH procedure may include, a RACH preamble phase and an E-RACH message phase. During the initial RACH preamble phase, a WTRU transmits a RACH preamble, it continues transmitting the preamble while ramping up the power of the transmission until it receives an initial resource assignment. The WTRU may also perform collision detection and resolution, if other WTRUs are attempting to access the RACH during this time. Once the WTRU has received permission to access the RACH, the WTRU may transmit data until the resources are released or the WTRU transitions to another state.

[0012] As mentioned above, it was proposed to use the E-DCH in a CELL_FACH state to increase the data rate of the shared channel. However, in the current standard, there are no methods to terminate the E-RACH message phase. Accordingly, it would be beneficial to provide a method and apparatus to terminate an E-RACH message phase in an E-RACH.

[0013] SUMMARY

[0014] A method and an apparatus is provided for terminating an E-RACH message in an E-RACH transmission. Triggers for terminating the E-RACH message are also provided. The actions upon termination of the E-RACH messages or transition to CELL_DCH state are provided in order to release the shared E-DCH resources while in the CELL_FACH state.

[0015] A method for terminating an enhanced random access channel (E-RACH) message in an E-RACH transmission determining that a buffer is empty; triggering a transmission of a scheduling information (SI) with the value of total enhanced dedicated channel (E-DCH) buffer status (TEBS) equal to zero; determining last hybrid automatic repeat request (HARQ) data transmission; and releasing the E-DCH resources allocation is provided.

[0016] A method for terminating an enhanced random access channel (E-RACH) message in an E-RACH transmission where the network waits until a HARQ buffer is empty and when the SI with a value of zero is received, the resources are released.

[0017] BRIEF DESCRIPTION OF THE DRAWINGS

[0018] A more detailed understanding may be had from the following description, given by way of example and to be understood in conjunction with the accompanying drawings wherein:

[0019] Figure 1 is a diagram of an E-RACH access with an E-DCH;

[0020] Figure 2 shows a wireless communication system;

[0021] Figure 3 is a functional block diagram of a WTRU and the base station of the wireless communication system shown in Figure 2;

[0022] Figure 4 is a flow diagram of a E-DCH resource allocation and de-allocation;

[0023] Figure 5 is a diagram of triggers for starting the timer that the WTRU may initiate for the timers;

[0024] Figure 6 is a flow diagram of a method to release E-DCH resources based on the status of a WTRU's queue or buffer;

[0025] Figure 7 is a flow diagram of a network configured to determine termination of an E-RACH message transmission;

[0026] Figure 8 is a flow diagram of E-DCH resources release when the WTRU transitions from the CELL_FACH state to the CELL_DCH state; and

[0027] Figure 9 is a flow diagram for releasing the E-DCH resources while in the CELL_FACH state.

[0028] DETAILED DESCRIPTION

[0029] When referred to hereafter, the terminology "wireless transmit/receive unit (WTRU)" includes but is not limited to a user equipment (UE), a mobile station, a fixed or mobile subscriber unit, a pager, a cellular telephone, a personal digital assistant (PDA), a computer, or any other type of user device capable of operating in a wireless environment. When referred to hereafter, the terminology "base station" includes but is not limited to a Node-B, a site controller, an access point (AP), or any other type of interfacing device capable of operating in a wireless environment.

[0030] When referred to herein, the term RACH and E-RACH may be used to describe a resource that is selected by a WTRU for uplink contention based access. The term E-RACH resource may also indicate any combination of a scrambling code, a channelization code, a timeslot, an access opportunity, or a signature sequence that are associated to an E-RACH channel in a future system architecture. The term E-RACH

may also indicate the use of the E-DCH in CELL_FACH, CELL_PCH, URA_PCH states or Idle mode.

[0031] When referred to hereafter, the term enhanced medium access control (MAC)-e/es entities may refer to the MAC entities used to perform E-DCH transmission in the CELL_FACH state, which in release 8 is referred to as MAC-i/is. MAC-e/es and MAC-i/is are the MAC entities that handle the transport channel such as the enhanced dedicated transport channel (E-DCH).

[0032] Figure 2 shows a wireless communication system 200 including a plurality of WTRUs 210, a base station 220, a CRNC 230, an SRNC 240, and a core network 250. As shown in Figure 2, the WTRUs 210 are in communication with the base station 220, which is in communication with the CRNC 230 and the SRNC 240. Although three WTRUs 210, one base station 220, one CRNC 230, and one SRNC 240 are shown in Figure 3, it should be noted that any combination of wireless and wired devices may be included in the wireless communication system 200.

[0033] Figure 3 is a functional block diagram 300 of a WTRU 210 and the base station 220 of the wireless communication system 200 of Figure 2. As shown in Figure 3, the WTRU 210 is in communication with the base station 220 and both are configured to perform a method to terminate transmission of a message in an E-RACH.

[0034] In addition to the components that may be found in a typical WTRU, the WTRU 210 includes a processor 215, a receiver 216, a transmitter 217, and an antenna 218. The processor 215 is configured to perform a method to terminate transmission of a message in an E-RACH. The receiver 216 and the transmitter 217 are in communication with the processor 215. The antenna 218 is in communication with both the receiver 216 and the transmitter 217 to facilitate the transmission and reception of wireless data.

[0035] In addition to the components that may be found in a typical base station, the base station 220 includes a processor 225, a receiver 226, a transmitter 227, and an antenna 228. The processor 225 is configured to perform a method to terminate transmission of a message in an E-RACH. The receiver 226 and the transmitter 227

are in communication with the processor 225. The antenna 228 is in communication with both the receiver 226 and the transmitter 227 to facilitate the transmission and reception of wireless data.

[0036] Figure 4 is a flow diagram of E-DCH resource allocation and de-allocation 400 using triggering for a WTRU. The first state corresponds to a WTRU 210 that operates with no E-DCH resources allocated to it 405. Once uplink (UL) data has to be transmitted, the WTRU 210 requests E-DCH resources from the network, by transmitting a preamble and waiting for the response on the acquisition indication channel (AICH). In other words, the WTRU 210 may remain in this state until it receives a positive acknowledgement (ACK) on the AICH, or a negative acknowledgement (NACK) on the AICH followed by a resource assignment index over the E-AICH, which may also be referred to as the WTRU 210 receiving an E-DCH index. After receiving the E-DCH resource assignment, the WTRU may transition to the next state wherein E-DCH resources are allocated for enhanced uplink transmissions 410. The WTRU 210 may use these E-DCH resources for UL transmission until it receives a trigger, at which point the WTRU 210 will release the resources 415. After the WTRU 210 releases the resources, it returns to the initial state. As will be described in further detail hereafter, the trigger may be timer based, it may be based on the WTRU buffer status, or may be based on signaling from the RNC or the Node-B 220.

[0037] In one embodiment, the WTRU 210 may be configured to include a timer module. The timer module may include multiple timers, wherein a timer may be associated to each logical channel or each MAC-d flow. The timer module may be configured to indicate the maximum allowable transmission time for a logical channel (i.e., dedicated control channel (DCCH), dedicated traffic channel (DTCH), common control channel (CCCH), etc.). The values for the timer module may be preconfigured or signaled to the WTRU 210. The timers may be activated upon the WTRU's 210 first transmission, once an E-DCH resource index is received. The WTRU may be configured to release an E-DCH resource upon expiry of its associated timer. For example, the

WTRU 210 may be configured to release a common E-DCH resource when the maximum common E-DCH resource allocation time for the CCCH has been reached. This embodiment would allow the flexibility to configure a smaller transmission time duration for a logical channel such as the CCCH.

[0038] The timer module may also be configured based on logical channel identity and the absence of an E-DCH radio network temporary identifier (E-RNTI). More specifically, a maximum E-DCH allocation time may be allocated to the CCCH transmission when an E-RNTI is not present. If the timer expires, and the WTRU 210 that is performing a CCCH transmission does not have the E-RNTI present, the E-RACH access is terminated and the resources are released. If a CCCH transmission is occurring and an E-RNTI is present, (which may occur during period cell update procedure) then the WTRU 210 is not configured to have a maximum E-DCH allocation time and the timer will not affect the WTRU 210.

[0039] Alternatively, the network may configure the transmission duration timer based on the presence or absence of an E-RNTI. The WTRU 210 may be configured to have a maximum E-DCH allocation time if it has data (user plane or control plane) to transmit and no E-RNTI is present. Otherwise if an E-RNTI is present the WTRU 210 is not configured with a maximum E-DCH allocation time.

[0040] Figure 5 shows a diagram of triggers for starting the timer that the WTRU 210 may initiate for the timers T_1 and T_2 500. The timers such as collision resolution T_1 and CCCH timer T_2 are started according to one of the triggers 501 to 505. This embodiment may include any combination of at least one of the shown trigger 501-505 for starting the timer 506. The timer may start if an ACK associated to the preamble signature transmitted is received on the AICH or E-AICH 501. The timer may start as soon as the radio resource control (RRC) provides the MAC with the timer values, and after receiving the E-DCH resource index 502. The timer may start if the WTRU 210 starts the first dedicated physical control channel (DPCCH) preamble transmission 503. The timer may start when the initial DPCCH transmission is completed after E-DCH transmission backoff transmission time intervals (TTIs) or the

first MAC protocol data unit (PDU) is passed to the physical layer 504. Or, the timer may start when the WTRU 210 starts the E-DCH transmission 505. In addition, the WTRU 210 may initiate the timer when the collision resolution E-DCH absolute grant channel (E-AGCH) carrying the WTRU 210 E-RNTI is received. Other triggers may also be used as designed.

[0041] Alternatively, the WTRU 210 timer module may be configured such that the length of time available to the WTRU 210 is based on the number of data bits that need to be transmitted. The length of the time variable to the WTRU 210 may also be based on the number of radio link controller (RLC) or MAC PDUs. Additionally, it may also be based on the number of RLC service data units (SDUs).

[0042] Alternatively, the E-RACH message duration may be fixed at either 10 msec or 20 msec (as is specified in the current 3GPP standards). As a result, the E-RACH message phase may be active for a maximum number of frames or sub-frames. An E-RACH message duration information element (IE) may be broadcast as part of the system information broadcast (SIB), or may be included as part of L1 signaling. For example, the E-RACH message duration IE may be transmitted with the initial resource assignment or during the collision resolution phase. In addition, the E-RACH message duration may be linked to an access service class.

[0043] Alternatively, the WTRU 210 may count the number of transmissions and retransmissions and use the count as a trigger to stop the transmission of the E-RACH message phase. For example, if the WTRU 210 is configured for repeat automatic repeat request (ARQ) type of operation and transmission on consecutive TTIs, then the WTRU may be configured to terminate the transmission of the E-RACH message phase after K retransmissions. It is noted that the value of K may be preconfigured in the WTRU, broadcasted as part of the SIB, or signaled during the E-RACH allocation phase.

[0044] Figure 6 is a flow diagram of a method to release E-DCH resources based on the status of a WTRU's 210 queue or buffer. When the WTRU 210 has data in the transmit buffer, the WTRU 210 may transmit the data 605. After a transmission, the

WTRUs 210 may check if the transmit buffer is empty 610. If the transmit buffer is not empty, then the WTRU 210 will transmit the data that is in the buffer 605. If the transmit buffer is empty 610 (i.e., the Total E-DCH Buffer Status (TEBS) is equal to zero), optionally it is checked if an inactivity timer has expired 615. If the inactivity timer has expired, then the WTRU 210 may be configured to transmit a special or reserved value of the SI where TEBS is set to zero 620. The WTRU 210 may be configured to release E-DCH resource 630 after the inactivity timer has expired 615, wherein the inactivity timer is started once the TEBS is equal to zero. The WTRU 210 is considered to be inactive, if no UL or downlink (DL) traffic has been received. Alternatively, the implicit release timers (i.e., the inactivity timer) may be restarted based on a trigger mechanism when the WTRU 210 decodes its H-RNTI on the high speed shared control channel (HS-SCCH). Once the inactivity timer has expired, the WTRU 210 may be configured to transmit a special or reserved value of the SI 620. For example, the special or reserved value of the SI may comprise a TEBS with a value set to zero 620. The SI with the TEBS set to zero may be used to signal to the network for releasing the resources. After successfully transmitting the SI and emptying the HARQ buffers 625, the WTRU 210 releases the E-DCH resources 630.

[0045] Alternatively, the WTRU 210 may transmit a signal to the network indicating to release the resources. The signal may comprise a special combination of the SI and a Happy Bit, a new MAC signaling, where a special combination of MAC header fields may be re-interpreted. Alternatively, a field may be added in the enhanced MAC-e header or MAC-e trailer denoting a request to terminate transmission of the E-RACH message phase. For example, the WTRU 210 may transmit this signal to the network via a reserved data description indicator (DDI) combination. In another alternative, the signal may be a new RRC message; special value of the enhanced transport format combination index (E-TFCI) field in the E-DPCCH or a special combination of the E-DPCCH fields; or, a new L1 message. The final decision to release the resources may be determined by the network; which may indicate the release of resources back to the WTRU 210. Alternatively, the WTRU 210

may simply stop transmission of the E-DCH as a means to indicate the termination of the E-RACH message phase, at which point the network may release the radio resources.

[0046] Alternatively, the timer module may be configured to start when the WTRU 210 has transmitted all PDUs which were present when the E-RACH was initiated, or the buffer has passed a predetermined threshold level. The threshold level may be an absolute value or based on a relative measure using the initial queue size.

[0047] Releasing the resources upon the transmission of all PDUs in the buffer that pass a predetermined threshold level, may free up the E-RACH resources for other WTRUs 210. For example, the threshold levels may be set to allow the network to tradeoff fairness between WTRUs 210 and transmission delay. These levels may be configured through system information or they may be preconfigured in the WTRU 210.

[0048] In addition, there may be procedures for physical layer that may trigger a termination of the E-RACH message transmission. This includes cell reselection and measurements controlled by the FACH measurement occasions or detection of radio link (RL) failure.

[0049] Alternatively, the WTRU 210 may suspend all transmission during the measurement occasion. Also, the scheduler at the Node-B 220 may be aware of the measurement occasion and may also suspend any grant, ACK, or NACK downlink transmission. Upon resuming normal operation, the network may optionally transmit an initial grant so that the power control loop may be re-established. Or, the network may wait for an indication from the WTRU 210 using a preamble power ramp or similar procedure. Optionally, the WTRU 210 may indicate the reason for termination in the termination signal or the termination message. Reasons for E-RACH termination may include a RL failure and E-RACH transmission complete.

[0050] Figure 7 shows a flow diagram of a network configured to determine termination of an E-RACH message transmission 700. The termination of the E-RACH message phase may be established by the network based on the reception of the

amount of data indicated in an initial SI 705 by the Universal Mobile Telecommunications System (UMTS) Terrestrial Radio Access Network (UTRAN). Alternatively, it may be established based on the UTRAN receiving the amount of data indicated in subsequent SIs or indicated using a different mechanism. The UTRAN may use the values of SI to determine when to terminate the message transmission. More specifically, an SI with TEBS set to zero 710 signals to the network that the WTRU 210 is releasing the resources once the transmission of data in the HARQ buffers is completed. The UTRAN releases E-DCH resources 720 after SI with TEBS set to zero is received and there is no more HARQ transmission 715.

[0051] Alternatively, the UTRAN may simply turn off transmission of the associated F-DPCH and explicit additional signaling is not used. This approach may be used in the case where both the WTRU 210 and the network are aware that the transmission is to be terminated.

[0052] Alternatively, SI may be transmitted every time the buffer occupancy changes. Alternatively, an SI may be transmitted every time the buffer occupancy changes by a pre-defined or signaled amount (i.e., additional data is received in the buffer), even if the new data is not from higher priority logical channels. If the TEBS is equal to zero then the SI triggering mechanism may be modified to allow the SI to be transmitted. The SI with TEBS set to zero signals to the network that the WTRU is releasing the resources once the transmission of data in the HARQ buffers is completed and the UTRAN also releases the E-DCH resources. Alternatively, an SI may be transmitted in every HARQ transmission when the WTRU 210 is in CELL_FACH state or occupying E-RACH resources.

[0053] In another termination option, the UTRAN may explicitly signal the end of the E-RACH transmission. Once the UTRAN determines the end of the E-RACH message transmission, it signals to the WTRU 210 by transmitting a special value over the E-AGCH (e.g., a 0 grant). Or, the UTRAN signals to the WTRU 210 by transmitting an RRC message over the FACH or over the High Speed Downlink Shared channel (HS-DSCH) if the WTRU 210 is configured for HS-DSCH in CELL_FACH state.

Alternatively, the network signals to the WTRU 210 by using L1 signaling. This may include stopping the fractional dedicated physical channel (F-DPCH) or transmitting a flag or combination of pre-determined fields on the HS-SCCH if the WTRU 210 is configured for HS-DSCH in CELL_FACH state, for example, using an HS-SCCH order.

[0054] Alternatively, the termination of the E-RACH message may be established based on a lack of activity on the enhanced dedicated physical data channel (E-DPDCH) or enhanced DPCCH (E-DPCCH) transmission.

[0055] The termination of the E-RACH part may also be established based on the status of the WTRU 210 scheduling requests. As an example, the UTRAN may monitor the received SI or Happy Bit status. If this information indicates low usage, the network may decide to terminate the current transmission of the E-RACH message so that the other WTRUs 210 may have an opportunity to access the resources. Alternatively, if this information indicates high usage and continued need with the Happy Bit set to unhappy, then the UTRAN may decide to transition the WTRU 210 to CELL_DCH state. As another alternative, the UTRAN may use the traffic volume measurement report (such as uplink RRC measurement report) to determine that the WTRU 210 does not have any further data or a small amount of data to transmit.

[0056] Alternatively, the UTRAN may implicitly signal the WTRU 210 to release the E-RACH resource by not transmitting predefined physical channels or signals for a predetermined amount of time. In other words, the WTRU 210 releases the E-RACH resources if it does not receive any transmission from the UTRAN on either channel E-AGCH destined to the WTRU 210, E-RGCH associated with E-RACH resource that is used by the WTRU 210, F-DPCH associated with the E-RACH resource that is used by the WTRU 210, and/or, HS-SCCH or high speed physical downlink shared channel (HS-PDSCH) that is destined to the WTRU 210.

[0057] Optionally, the UTRAN may indicate the reason for termination in the termination signal or termination message. Reasons for E-RACH termination may include, but are not limited to an RL failure, completion of the E-RACH transmission, and network congestion.

[0058] Figure 8 is a flow diagram of the E-DCH resources released when the WTRU 210 transitions from the CELL_FACH state to the CELL_DCH state. The WTRU 210 operates without any E-DCH resources allocated 805. Upon receiving an E-DCH resource assignment on the AICH or E-AICH or a NACK on the AICH followed by a resource assignment index over the E-AICH, which may also be referred to as the WTRU 210 receiving an E-DCH index, the WTRU 210 may access the E-DCH resources allocated to it in the CELL_FACH state 810. The WTRU 210 retains control of the E-DCH resources until it receives a reconfiguration message, (e.g., via the FACH or the HS-DSCH), indicating that a switch to the CELL_DCH state may be performed. The E-DCH resources are then released 815. And, the WTRU 210 may transition to the CELL_DCH state 820. If the UTRAN reconfigures the WTRU 210 to the CELL_DCH state with dedicated E-DCH resources while the WTRU 210 is transmitting over the E-RACH, then the WTRU 210 may release the E-RACH resources at the activation time that is specified in the reconfiguration message in the case of synchronous reconfiguration. Alternatively, the WTRU 210 may release the E-RACH resources at a fixed delay prior to or after the activation time. Alternatively, the WTRU 210 may release the E-RACH resources immediately upon reception of the RRC reconfiguration message.

[0059] Additionally, the WTRU 210 may be configured to release the E-RACH resources at the same time as it configures itself for a transmission over the dedicated E-DCH resources. Alternatively, the WTRU 210 may release the E-RACH resources at a fixed delay prior to or after configuring itself for transmission using the dedicated E-DCH resources; or, release the E-RACH resources once the WTRU 210 is fully synchronized with the UTRAN with the dedicated E-DCH resources.

[0060] Figure 9 is a flow chart of a procedure for releasing the E-DCH resources while in the CELL_FACH state or idle mode, when the E-RACH termination triggers occur. The WTRU 210 begins the E-RACH termination process 905. The WTRU 210 may be configured to stop any E-AGCH, E-RGCH, and E-HICH reception procedures that are occurring 910. The WTRU 210 may be further configured to stop any E-

DPCCH and E-DPDCH transmission procedures that are occurring 915. The WTRU 210 may then perform a MAC reset procedure 920 and release HARQ buffers 930. The enhanced MAC-e/es reset procedure may include flushing the HARQ processes, discarding any remaining segments in the segmentation entity of the enhanced MAC-e/es and resetting the CURRENT_transmission sequence number (TSN) value to zero. Alternatively, if the remaining segment is from a DTCH or a DCCH logical channel the WTRU 210 may resume transmission of the segment at a remaining process. An indication may be transmitted to the SRNC 240 via Iub signaling to discard any stored segment and reset the TSN reordering numbers.

[0061] If the E-DCH has terminated and the DTCH or the DCCH transmission is active, the WTRU 210 may flush the HARQ processes 930 and discard any remaining segments in the segmentation entity of the MAC-i/is.

[0062] The other logical channels or queues of the MAC-i/is entity that do not correspond to the CCCH are not reset. The Node-B 220 may be configured to perform a reset of the MAC-is entity of the CCCH. In other words, any segment may be discarded and the expected TSN is set to its initial value. If the MAC-is entity is in the CRNC 230, Node-B 220 uses Iub signaling indicating to the MAC-is entity to perform a reset. In addition, the MAC-i entity associated to the E-DCH resource is reset (i.e., HARQ soft buffers are flushed).

[0063] When the WTRU 210 performs a full MAC-i/is reset, the MAC-is entity in the SRNC 240 may be notified via a new Iub/Iur signaling that E-RACH access has been terminated; thus MAC-is entity in the SRNC 240 may also perform a reset. More specifically, when the Node-B 220 terminates the E-DCH connection with the WTRU 210, it releases the E-DCH resources, flushes the HARQ buffers, and notifies the SRNC 240 or CRNC 230 that the connection has been terminated and thus the CRNC 230 or SRNC 240 also perform a reset of the MAC. The CRNC 230 or SRNC 240 is notified via Iub or Iur signaling. A new control bit may be introduced in the Iub or Iur frame format or a new frame format may be defined to signal to the SRNC 240 or CRNC 230 the release of the resources.

[0064] Also, optionally, the reset of the MAC-i/is or only discarding of the segments may be performed after a time interval (Tr) because the termination of the E-RACH resource. The timer is also initiated in the network side. Tr may be a system configured timer signaled to the WTRU 210 via RRC message, via system information block (SIB), or preconfigured in the WTRU 210. The timer is initiated as soon as the E-DCH resources are terminated in the WTRU 210.

[0065] The WTRU 210 may be configured to stop the timer if it is running and if the WTRU 210 attempts to perform E-RACH access. Also, the WTRU 210 may also stop the timer, if the WTRU 210 attempts the E-RACH access and obtains the E-DCH resources assigned, or the WTRU 210 obtains the E-DCH resources assigned and resolves the contention resolution phase.

[0066] Alternatively, the WTRU 210, the Node-B 220 and/or the RNCs may be configured with a TSN_RESET_TIMER, wherein the WTRU 210 is configured to perform a TSN reset when the timer expires. Optionally, the WTRU 210 may perform a full enhanced MAC-e/es reset procedure when the timer expires.

[0067] The E-DCH resources are released when a transition from CELL_FACH to CELL_DCH occurs.

[0068] The WTRU 210 and the RNC may reset the value of the last used TSN number (i.e., CURRENT_TSN) to the initial value upon the release of the E-DCH resource set being used by the WTRU 210. The WTRU 210 and the RNC may each include synchronized timers, wherein the expiry of the timer signals the release of the E-DCH resources. After the timer expires and the resources are released, the WTRU 210 may reset the TSN and optionally perform a full enhanced MAC-e/es reset procedure.

[0069] Alternatively, the UTRAN may order the release of the resources. The UTRAN may signal the WTRU indicating that the resources must be released. In this case, upon reception of the message, the WTRU 210 and UTRAN reset the TSN to an initial value.

[0070] Alternatively, the TSN number may be reset upon the expiration of an inactivity timer. In this case, an inactivity timer may be started in both the WTRU 210 and the network after the last MAC-e PDU is transmitted and received, respectively. If the timer expires, the WTRU 210 and the RNC resets the TSN to its initial value. Optionally, a full enhanced MAC-e/es reset procedure may be performed.

[0071] In another alternative, the TSN number may not reset. The last TSN values used are stored in memory and continuously incremented for each new transmission, regardless of the E-DCH resource set being used or the time in which the transmission is taking place.

[0072] Alternatively, the TSN number may be set to its initial value and optionally a full enhanced MAC-e/es reset may take place when a cell reselection occurs. Resetting the TSN or the MAC-e/es may always occur after the WTRU 210 performs cell reselection. Alternatively, it may only occur when a serving radio network subsystem (SRNS) relocation occurs. The RNC may signal the TSN reset via an explicit enhanced MAC-e/es reset indicator or the WTRU 210 may implicitly detect that SRNS relocation has occurred due to the presence or the change of a new UTRAN RNTI (U-RNTI).

[0073] Although features and elements are described above in particular combinations, each feature or element may be used alone without the other features and elements or in various combinations with or without other features and elements. The 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. Examples of computer-readable storage mediums include a read only memory (ROM), a random access memory (RAM), a register, cache memory, semiconductor memory devices, magnetic media such as internal hard disks and removable disks, magneto-optical media, and optical media such as CD-ROM disks, and digital versatile disks (DVDs).

[0074] Suitable processors include, by way of example, a general purpose processor, a special purpose processor, a conventional processor, a digital signal

processor (DSP), a plurality of microprocessors, one or more microprocessors in association with a DSP core, a controller, a microcontroller, Application Specific Integrated Circuits (ASICs), Field Programmable Gate Arrays (FPGAs) circuits, any other type of integrated circuit (IC), and/or a state machine.

[0075] A processor in association with software may be used to implement a radio frequency transceiver for use in a wireless transmit receive unit (WTRU), user equipment (UE), terminal, base station, radio network controller (RNC), or any host computer. The WTRU may be used in conjunction with modules, implemented in hardware and/or software, such as a camera, a video camera module, a videophone, a speakerphone, a vibration device, a speaker, a microphone, a television transceiver, a hands free headset, a keyboard, a Bluetooth® module, a frequency modulated (FM) radio unit, a liquid crystal display (LCD) display unit, an organic light-emitting diode (OLED) display unit, a digital music player, a media player, a video game player module, an Internet browser, and/or any wireless local area network (WLAN) or Ultra Wide Band (UWB) module.

* * *

CLAIMS

What is claimed is:

1. A method for communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining, by the WTRU, that a E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, triggering a transmission to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determining if a hybrid automatic repeat request (HARQ) buffer is empty; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and the HARQ buffer is empty, releasing an E-DCH resource.

2. The method as in claim 1, wherein an inactivity timer is started when the E-DCH buffer is empty.

3. The method as in claim 2, wherein the transmission of the SI is triggered when the inactivity timer expires.

4. The method as in claim 1, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. The method as in claim 1, further comprising completing the transmission in case of cell reselection or radio link failure.

6. A wireless transmit/receive unit (WTRU) capable of communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor is configured to:

determine that the E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the Node B of scheduling information (SI) including a E-DCH buffer status (TEBS) equal to zero;

determine if the HARQ buffer is empty; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and the HARQ buffer is empty, release the E-DCH resource.

7. The WTRU as in claim 6, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

8. The WTRU as in claim 6, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

9. The WTRU as in claim 8, wherein the transmission of the SI is triggered when the inactivity timer expires.

10. The WTRU as in claim 6, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. A wireless transmit/receive unit (WTRU) capable of communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor is configured to:

determine that an E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determine if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and that a last HARQ data transmission has been made, release the E-DCH resource.

12. The WTRU as in claim 11, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

13. The WTRU as in claim 11, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

14. The WTRU as in claim 13, wherein the transmission of the SI is triggered when the inactivity timer expires.

15. The WTRU as in claim 11, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. A method for communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty by the WTRU;

on a condition that the E-DCH buffer is empty, triggering a transmission to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determining if a last hybrid automatic repeat request (HARQ) buffer is empty; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last HARQ buffer is empty, releasing an E-DCH resource.

17. The method as in claim 16, wherein an inactivity timer is started when the E-DCH buffer is empty.

18. The method as in claim 17, wherein the transmission of the SI is triggered when the inactivity timer expires.

19. The method as in claim 16, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. The method as in claim 16, further comprising completing the transmission in case of cell reselection or radio link failure.

ABSTRACT

A method and an apparatus is provided for terminating an enhanced random access channel (E-RACH) message in an E-RACH transmission. Triggers for terminating the E-RACH message are provided. The actions upon termination of the E-RACH messages are provided to release enhanced dedicated channel (E-DCH) resources while in cell forward access channel (CELL_FACH) state or transition to cell dedicated channel (CELL_DCH) state.

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Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SIG-2-1853US03
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	

Application Information:

Title of the Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL		
Attorney Docket Number	SIG-2-1853US03	**Small Entity Status Claimed** ☐	
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	**Suggested Figure for Publication (if any)**	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	03624		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SIG-2-1853US03
	Application Number	
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Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12238910	2008-09-26
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	60975985	2007-09-28
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	60982528	2007-10-25
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	61018999	2008-01-04
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	61025441	2008-02-01
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	61038576	2008-03-21
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	61074288	2008-06-20
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12238910	Claims benefit of provisional	61083409	2008-07-24

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SIG-2-1853US03
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[j] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

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If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(•) Assignee	( ) Legal Representative under 35 U.S.C. 117	( ) Joint Inventor
( ) Person to whom the inventor is obligated to assign.	( ) Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :	
If the Applicant is an Organization check here. ☒	
Organization Name	Signal Trust for Wireless Innovation

Mailing Address Information For Applicant:

Address 1	1011 Centre Road		
Address 2	Suite 327		
City	Wilmington	**State/Province**	DE
Country	US	Postal Code	19805
Phone Number		Fax Number	

PTO/AIA/14 (12-13)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SIG-2-1853US03
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	

Email Address	

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Signal Trust for Wireless Innovation

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	1011 Centre Road		
Address 2	Suite 327		
City	Wilmington	**State/Province**	DE
Country i	US	Postal Code	19805
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature	/Abhik A. Huq/			Date (YYYY-MM-DD)	2014-06-30
First Name	Abhik A.	Last Name	Huq	Registration Number	40656

Additional Signature may be generated within this form by selecting the Add button.

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Approved for use through 01/31/2014. OMB 0651-0032
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SIG-2-1853US03
	Application Number	
Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent C o o p eration Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Filer:	Abhik A. Huq/Sandy Yi
Attorney Docket Number:	SIG-2-1853US03

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Independent claims in excess of 3	1201	1	420	420
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	1051	1	140	140

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**2160**

Electronic Acknowledgement Receipt	
EFS ID:	19453655
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	30-JUN-2014
Filing Date:	
Time Stamp:	16:24:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$2160
RAM confirmation Number	3864
Deposit Account	220493
Authorized User	HUQ, ABHIK A.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Drawings-only black and white line drawings	SIG_2_1853US03_Figures.PDF	334317 b19927c89225ac9a1b56140baa3633112359def5	no	9
Warnings:					
Information:					
2	Power of Attorney	SIG_Trust_POA.PDF	165839 2a002e9c7289f27f2d31af413491301f13334d9b	no	2
Warnings:					
Information:					
3	Assignee showing of ownership per 37 CFR 3.73.	20140630_SIG_2_1853US03_373c.PDF	4234593 7d31f7fca646b892b4395141c1ae30c68a33a715	no	3
Warnings:					
Information:					
4		20140630_SIG_2_1853US03_Application.pdf	116196 6e28df437f9e5bf40b731028c21fc0c0e21e0376	yes	22

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	17
Claims	18	21
Abstract	22	22

Warnings:					
Information:					
5	Application Data Sheet	20140630_SIG_2_1853US03_ADS.pdf	4343552 ce853ecccbf64035a0b96420fd6d76c7a0da079a	no	10
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
6	Fee Worksheet (SB06)	fee-info.pdf	38352 92f14b7c057eaffc62b60326ac7ba7bc445510d5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	9232849		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

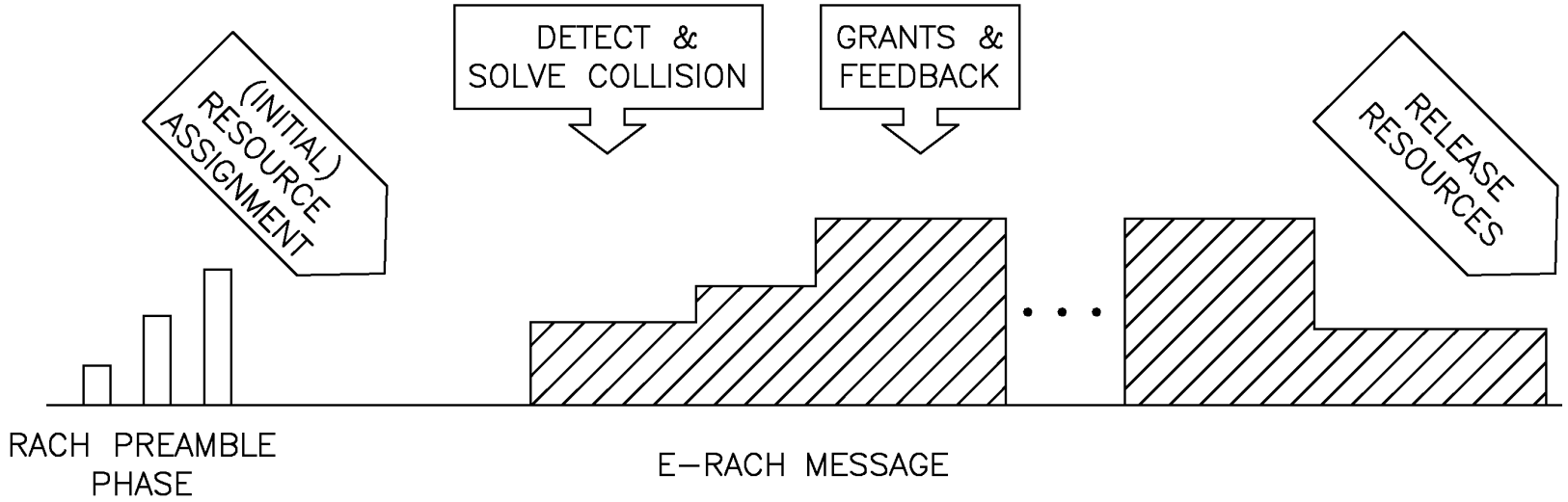


FIG. 1 (PRIOR ART)

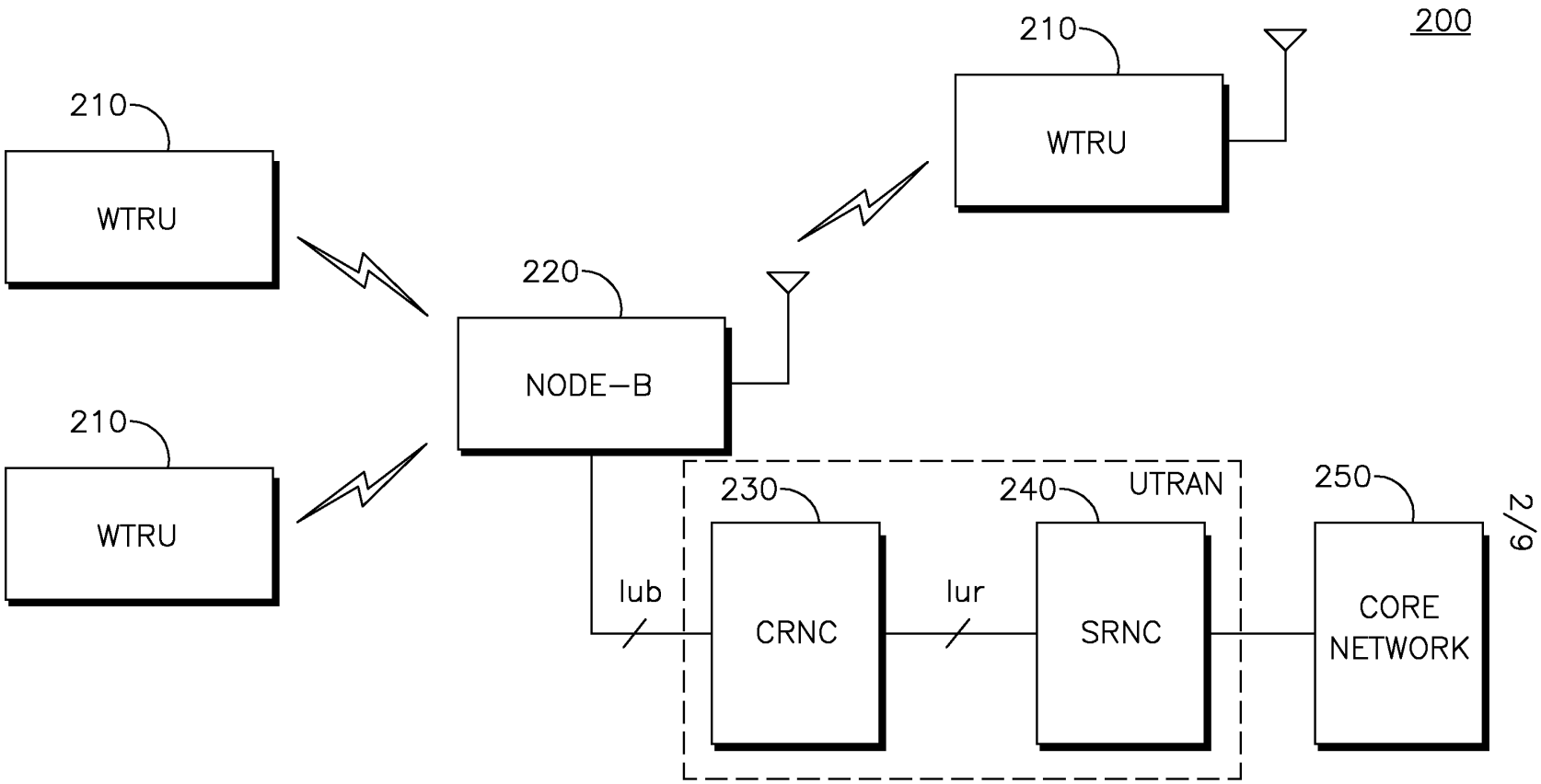

200
210
WTRU
210
WTRU
220
NODE–B
210
WTRU
230
CRNC
240
UTRAN
SRNC
250
CORE
NETWORK
Iub
Iur

FIG. 2

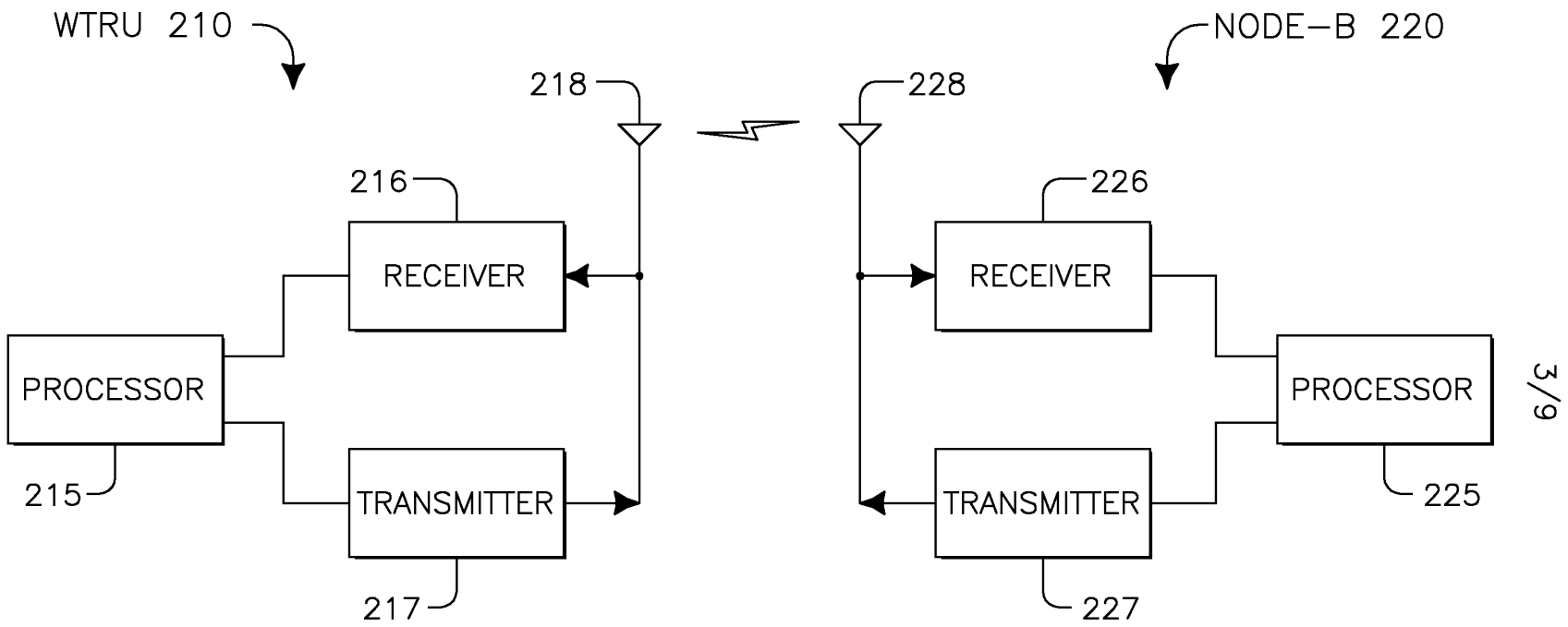

300
WTRU 210
NODE-B 220
218
228
216
226
RECEIVER
RECEIVER
PROCESSOR
PROCESSOR
215
TRANSMITTER
TRANSMITTER
225
217
227

FIG. 3

400
410
E-DCH RESOURCES ALLOCATED
RELEASE TRIGGER
415
E-DCH RESOURCE RELEASE
405
NO E-DCH RESOURCES ALLOCATED
RECEIVING AN E-DCH INDEX

FIG. 4

500

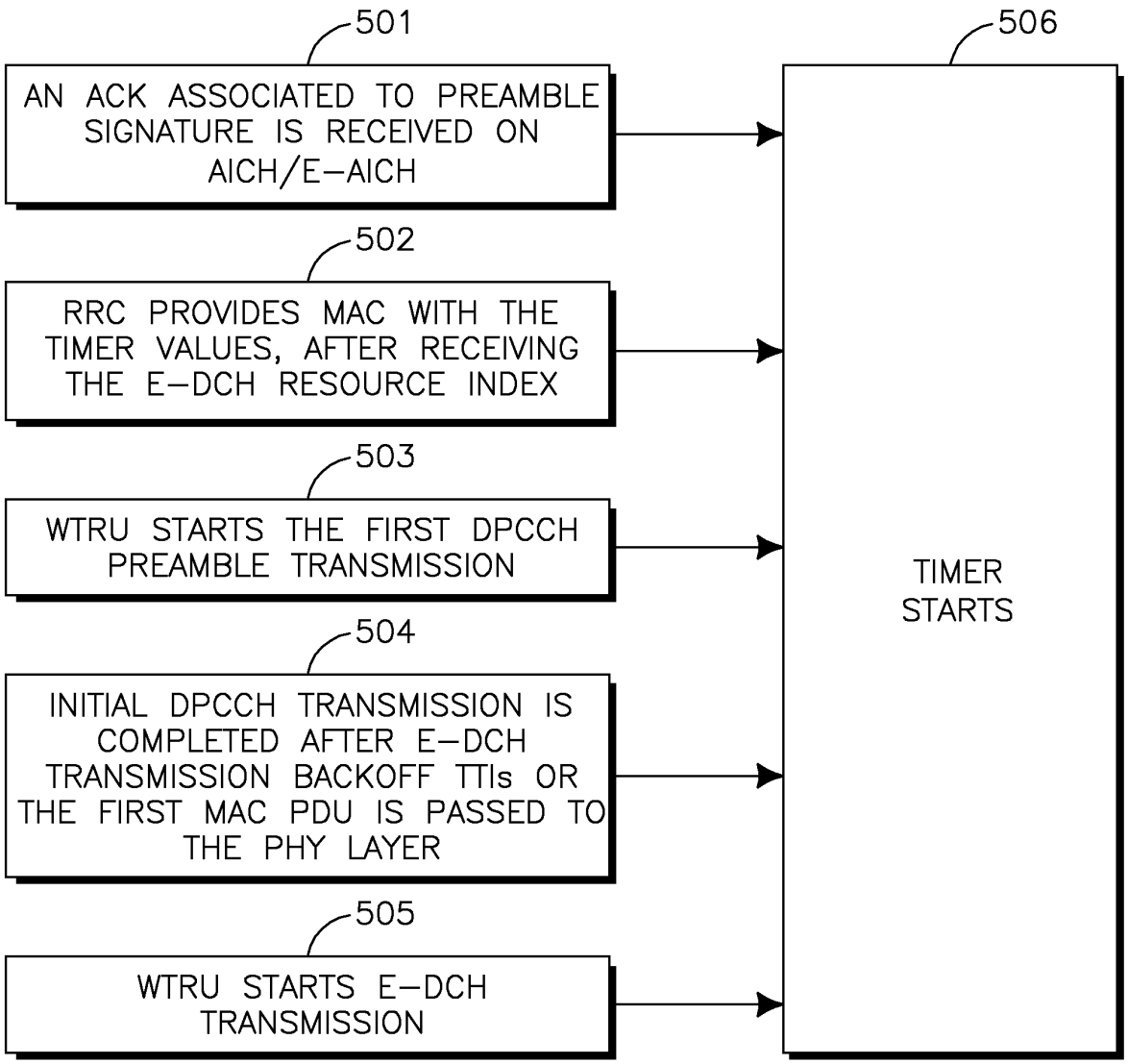

501
AN ACK ASSOCIATED TO PREAMBLE SIGNATURE IS RECEIVED ON AICH/E-AICH
502
RRC PROVIDES MAC WITH THE TIMER VALUES, AFTER RECEIVING THE E-DCH RESOURCE INDEX
503
WTRU STARTS THE FIRST DPCCH PREAMBLE TRANSMISSION
504
INITIAL DPCCH TRANSMISSION IS COMPLETED AFTER E-DCH TRANSMISSION BACKOFF TTIs OR THE FIRST MAC PDU IS PASSED TO THE PHY LAYER
505
WTRU STARTS E-DCH TRANSMISSION
506
TIMER STARTS

FIG. 5

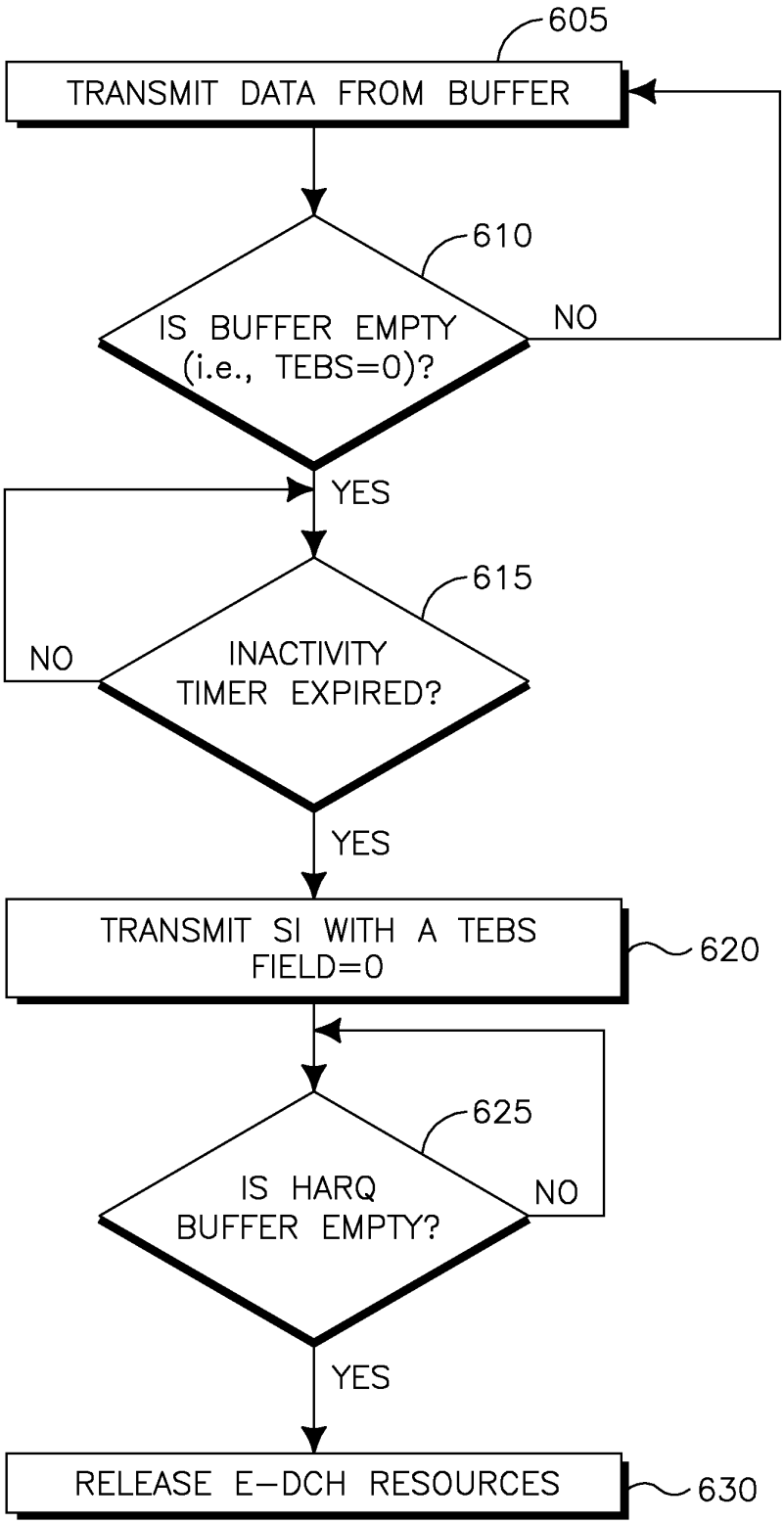

600
605
TRANSMIT DATA FROM BUFFER
610
IS BUFFER EMPTY (i.e., TEBS=0)?
NO
YES
615
INACTIVITY TIMER EXPIRED?
NO
YES
TRANSMIT SI WITH A TEBS FIELD=0
620
625
IS HARQ BUFFER EMPTY?
NO
YES
RELEASE E-DCH RESOURCES
630

FIG. 6

700

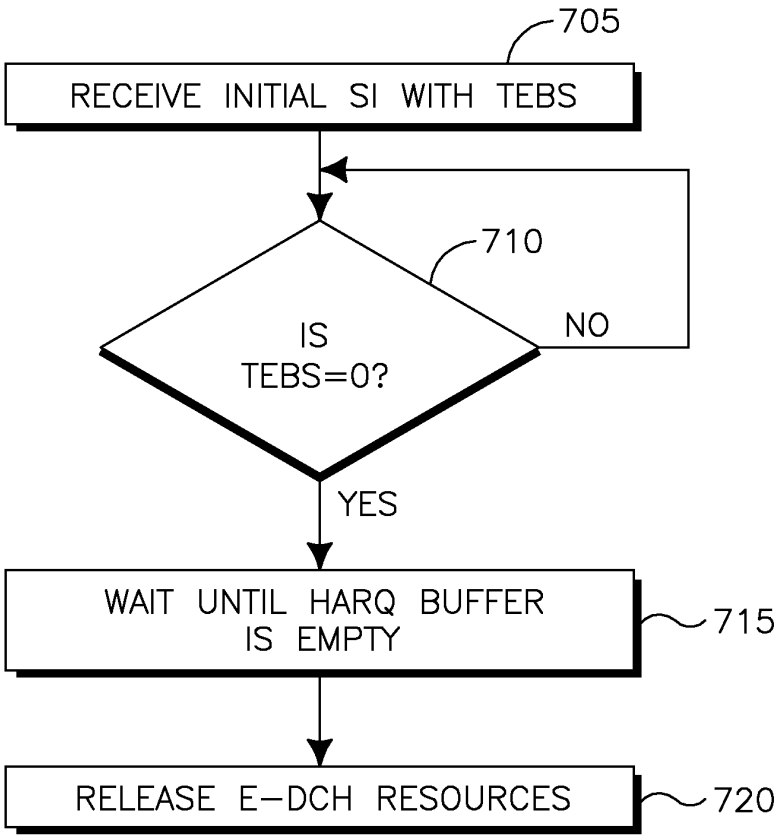

705
RECEIVE INITIAL SI WITH TEBS
710
IS
TEBS=0?
NO
YES
WAIT UNTIL HARQ BUFFER
IS EMPTY
715
RELEASE E-DCH RESOURCES
720

FIG. 7

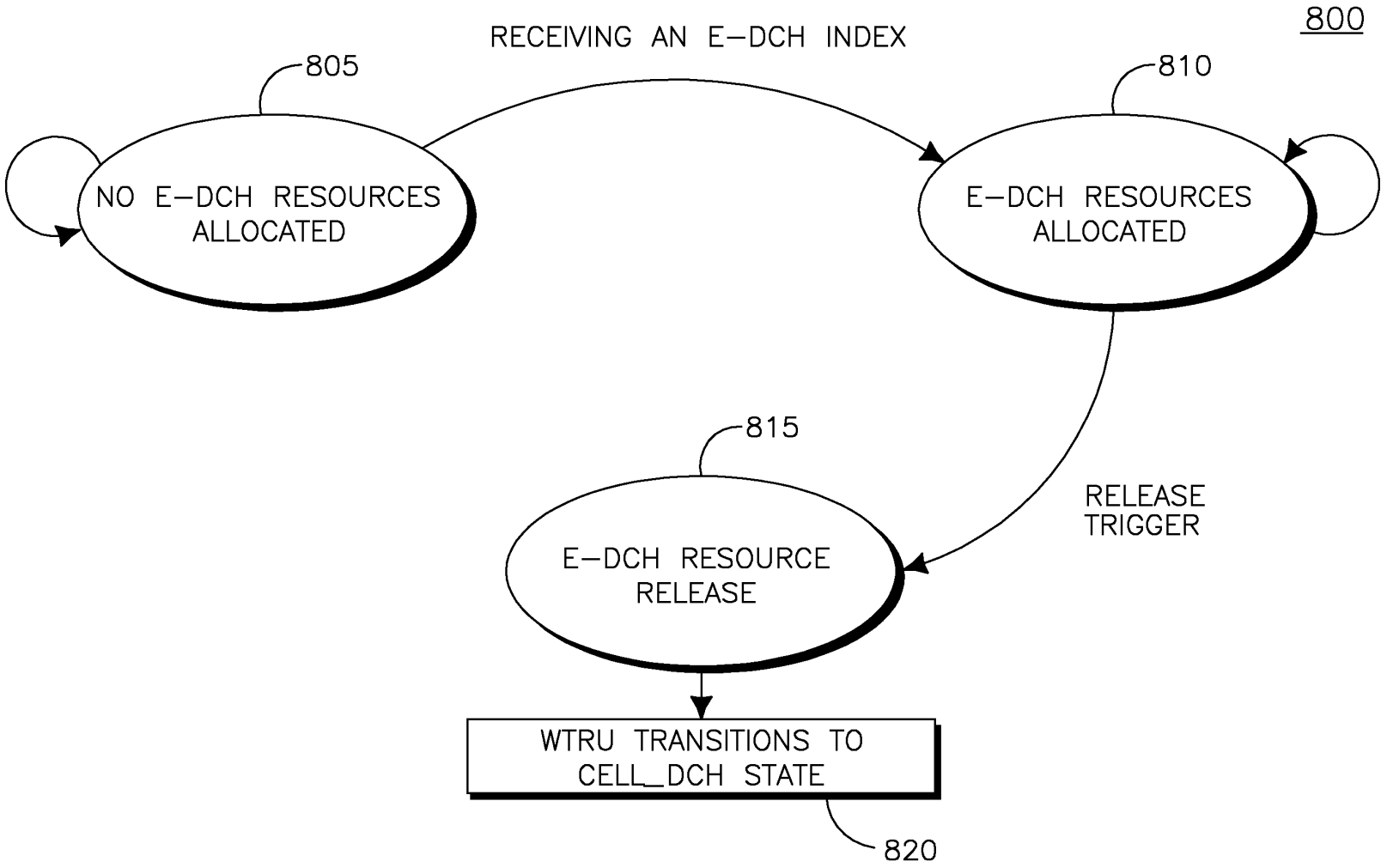


FIG. 8

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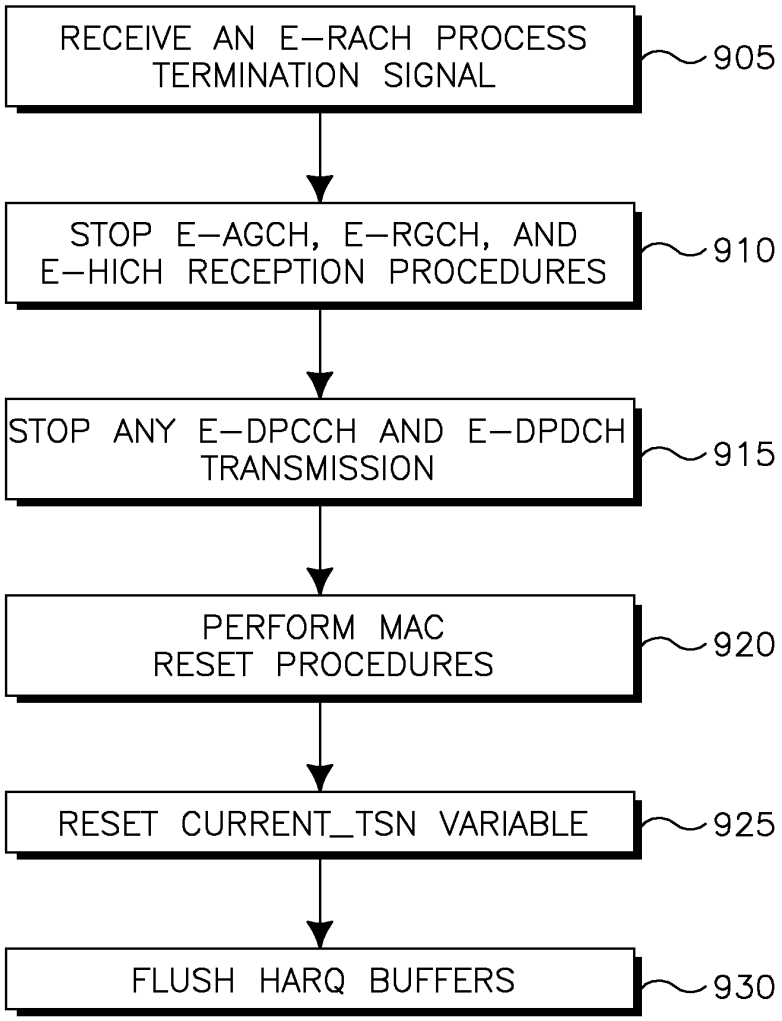

900
RECEIVE AN E-RACH PROCESS TERMINATION SIGNAL
905
STOP E-AGCH, E-RGCH, AND E-HICH RECEPTION PROCEDURES
910
STOP ANY E-DPCCH AND E-DPDCH TRANSMISSION
915
PERFORM MAC RESET PROCEDURES
920
RESET CURRENT_TSN VARIABLE
925
FLUSH HARQ BUFFERS
930

FIG. 9

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03

CONFIRMATION NO. 5147

3624
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

NOTICE

OC000000069459691

Date Mailed: 07/10/2014

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Benoit Pelletier
  Diana Pani
  Rocco DiGirolamo
  Christopher R. Cave
  Vincent Roy
  Paul Marinier
  Eldad M. Zeira

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/319,608

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1				x 420 =	420
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2020

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/319,608	06/30/2014	2414	2160	SIG-2-1853US03	20	4

CONFIRMATION NO. 5147

3624
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

FILING RECEIPT

OC000000069459690

Date Mailed: 07/10/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Benoit Pelletier, Roxboro, CANADA;
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Christopher R. Cave, Dollard-des-Ormeaux, CANADA;
Vincent Roy, Longueuil, CANADA;
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Eldad M. Zeira, Huntington, NY;

Applicant(s)

Signal Trust for Wireless Innovation, Wilmington, DE

Assignment For Published Patent Application

Signal Trust for Wireless Innovation, Wilmington, DE

Power of Attorney: The patent practitioners associated with Customer Number 03624

Domestic Priority data as claimed by applicant

This application is a CON of 12/238,910 09/26/2008 PAT 8774104
which claims benefit of 60/975,985 09/28/2007
and claims benefit of 60/982,528 10/25/2007
and claims benefit of 61/018,999 01/04/2008
and claims benefit of 61/025,441 02/01/2008
and claims benefit of 61/038,576 03/21/2008
and claims benefit of 61/074,288 06/20/2008
and claims benefit of 61/083,409 07/24/2008

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 07/08/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/319,608**

Projected Publication Date: 10/16/2014

Non-Publication Request: No

Early Publication Request: No

Title

METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

Preliminary Class

370

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03

CONFIRMATION NO. 5147

3624
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

PUBLICATION NOTICE

OC000000071380093

Title:METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

Publication No.US-2014-0307683-A1
Publication Date:10/16/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/319,608
	Filing Date	2014-06-30
	First Named Inventor	Pelletier et al.
	Art Unit	2464
	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,167,248	12/2000	Hamalainen et al.			
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		2005/0054298	03/2005	Chen			
		2005/0101299	05/2005	Farnsworth			

1 Corresponds to JP 2003-509982
2 Corresponds to JP 2007-531350
3 Corresponds to RU 2305372
4 Corresponds to JP 2007-506378
5 Corresponds to TW 200640268
6 Corresponds to JP 2009-147920
7 Corresponds to JP 2005-539468
8 Corresponds to RU 2310276

EXAMINER	DATE CONSIDERED

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3498020-1

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/319,608
	Filing Date	2014-06-30
	First Named Inventor	Pelletier et al.
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	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		2005/0180371	08/2005	Malkamaki et al.			
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		2009/0143074	06/2009	Pelletier et al.			
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9 Corresponds to RU 2005122724
10 Corresponds to KR 2006-0054117
11 Corresponds to EP 1 796 416
12 Corresponds to EP 1 583 292
13 Corresponds to WO 07/148634
14 Corresponds to KR 2007-0073578

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	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		2009/0225709	09/2009	Wager et al.			
		2009/0225739	09/2009	Yeo et al.			
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		2011/0164540	07/2011	Lee et al.			
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
		2 615 915	03/2004	CA				
		2 371 179	07/2002	GB				
		04/100598	11/2004	WO				
		05/006829	01/2005	WO				
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		07/078155	07/2007	WO				
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		08/137421	11/2008	WO				

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

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	Art Unit	2464
	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		ERICSSON, "Contention resolution for enhanced uplink in CELL_FACH," 3GPP TSG RAN WG2 #60bis, R2-080043, Sevilla, Spain (January 14-18, 2008).
	*	ERICSSON, "Enhanced Uplink for CELL_FACH," 3GPP TSG RAN WG1 #50-bis, R1-073954, Shanghai, China (October 8-12, 2007).
		ERICSSON, "Implicit release for enhanced uplink in CELL_FACH," 3GPP TSG RAN WG2 #61bis, R2-081501 (March 31-April 8, 2008).
		ERICSSON, "Resource release of common E-DCH in CELL_FACH," 3GPP TSG RAN WG2 #60bis, R2-080044 (January 14-18, 2008).
		HUAWEI, "Release procedure of E-RACH," 3GPP TSG RAN2 #60bis, R2-080262 (January 14-18, 2008).
		INFINEON TECHNOLOGIES, "Multiplexing option selection in case of E_DCH_TRANSMISSION equal FALSE," 3GPP TSG- RAN WG2 Meeting #58, R2-072054, Kobe, Japan, (May 7 – 11, 2007).
		INFINEON, "CELL_FACH E-DCH scheduling simplifications," 3GPP TSG-RAN WG2 Meeting #61, R2-080894, Sorrento, Italy, (February 11-15, 2008).
		INFINEON, "Resource release mechanisms for CELL_FACH E-DCH," 3GPP TSG-RAN WG2 Meeting #60bis, R2-080148 (January 14-18, 2008).
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		NOKIA CORPORATION, ET AL., "Introduction of Uplink Enhanced CELL_FACH in 25.321 (Draft CR)", Change Request, 25.23, CR CRNum, Current Version: 8.1.0, 3GPP TSG-RAN WG2 Meeting #62, R2-082371, (Kansas City, USA, May 5-9, 2008).
		NOKIA ET AL., "CELL_FACH state E-DCH – coverage comparison," 3GPP TSG-RAN WG1 Meeting #50bis, R1-074302 (October 8-12, 2007).
		NOKIA ET AL., "Enhanced CELL_FACH State with E-DCH," 3GPP TSG-RAN WG2 Meeting #59bis, R1-074300 (October 8-12, 2007).

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

3498020-1

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/319,608
	Filing Date	2014-06-30
	First Named Inventor	Pelletier et al.
	Art Unit	2464
	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		NOKIA ET AL., "Resource assignment for E-DCH access in CELL_FACH state," 3GPP TSG-RAN WG1 Meeting #50-BIS, R1-074303 (October 8-12, 2007).
		NOKIA SIEMENS NETWORKS, "Draft CR on TS25.435 For Enhanced Uplink In CELL_FACH", Change Request, 25.435, CR, Current Version: 7.8.0, 3GPP TSG-RAN WG3 Meeting #60, R3-081276, (Kansas City, USA, May 5-9, 2008).
		NOKIA SIEMENS NETWORKS, "Introduction of Enhanced CELL_FACH state," 3GPP TSG-2 Meeting #57, R2-071556, St. Julian's, Malta (March 26-30, 2007).
		NSN ET AL, "Further Discussion On Enhanced CELL_FACH in REL8", 3GPP TSG-RAN WG-2 Meeting #59, R2-073254, (Athens, Greece, August 20-24, 2007).
		NTT DOCOMO, INC., "Issues regarding persistent scheduling," 3GPP TSG RAN WG2 #59, R2-073567, Athens, Greece (August 20-24, 2007).
		QUALCOMM EUROPE, "L1/2 aspects for enhanced UL for CELL_FACH," 3GPP TSG-RAN WG1 #50-bis, R1-074126 (October 8-12, 2007).
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		QUALCOMM EUROPE, "Empty Buffer Status reporting and Implicit release for CCCH messages using enhanced uplink in CELL_FACH," 3GPP TSG-RAN WG2 #61-bis, R2-081581, Shenzhen, China (March 31-April 4, 2008).
		QUALCOMM EUROPE, "E-RNTI handling in Active Set Update procedure," 3GPP TSG-RAN WG 2 Meeting #51, R2-060682 (February 13–17, 2006).
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EXAMINER	DATE CONSIDERED

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	First Named Inventor	Pelletier et al.
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	Examiner Name	Kan Yuen
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EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Enhanced Uplink; Overall Description; Stage 2 (Release7)", 3GPP TS 25.319, V7.2.0, (March 2007).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Enhanced Uplink; Overall Description; Stage 2 (Release7)", 3GPP TS 25.319, V7.6.0, (May 2007).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Enhanced Uplink; Overall Description; Stage 2 (Release7)", 3GPP TS 25.319, V8.3.0, (September 2008).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Physical Channels And Mapping Of Transport Channels Onto Physical Channels (FDD) (Release 7)", TS 25.211, V7.3.0, (September 2007).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Physical Channels And Mapping Of Transport Channels Onto Physical Channels (FDD) (Release 8)", TS 25.211, V8.2.0, (September 2008).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Medium Access Control (MAC) Protocol Specification (Release 7), 3GPP TS 25.321, V7.5.0, (June 2007).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Medium Access Control (MAC) Protocol Specification (Release 7), 3GPP TS 25.321, V7.10.0, (June 2008).
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		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams (Release 6)," 3GPP TS 25.425 V6.4.0 (December 2006).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams (Release 6)," 3GPP TS 25.425 V6.5.0 (September 2008).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams (Release 7)," 3GPP TS 25.425 V7.8.0 (September 2008).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams (Release 8)," 3GPP TS 25.425 V8.0.0 (September 2008).

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		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Medium Access Control (MAC) protocol specification (Release 4)," 3GPP TS 25.321 V4.10.0 (June 2004).
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		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iub/Iur interface user plane protocol for DCH data streams (Release 8)," 3GPP TS 25.427 V8.0.0 (March 2008).
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		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iub/Iur interface user plane protocol for DCH data streams (Release 5)," 3GPP TS 25.427 V5.5.0 (June 2005).
		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iub/Iur interface user plane protocol for DCH data streams (Release 6)," 3GPP TS 25.427 V6.8.0 (December 2006).
		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iub/Iur interface user plane protocol for DCH data streams (Release 4)," 3GPP TS 25.427 V4.5.0 (December 2003).
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		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iur interface user plane protocols for Common Transport Channel data streams (Release 1999)," 3GPP TS 25.425 V3.8.0 (December 2003).
		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iur interface user plane protocols for Common Transport Channel data streams (Release 4)," 3GPP TS 25.425 V4.4.0 (December 2003).
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		THIRD GENERATION PARTNERSHIP PRORGAM SUPPORT TEAM, "Current Minutes of the 59bis TSG-RAN WG2 Meeting (Shanghai, China, 08-12 October 2007)", TSG-RAN WG2 Meeting #60, R2-7xxxx, (Korea, November 05-09, 2007).

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		TSG-RAN-WG2, "Reply LS on Enhanced Uplink for CELL_FACH state in FDD," 3GPP TSG-RAN-WG2 Meeting #60, R2-075472 (November 5-9, 2007).

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First Named Inventor/Applicant Name:	Benoit Pelletier
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1	Non Patent Literature	R2_082368_Nokia.pdf	775663 6f7980d80d23b26c48d603f29190067b8cd21240	no	61

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2	Foreign Reference	wo05020474.pdf	2470922 f5f736dcf5e37607505fe6a042407f6f1ac13b9e	no	50
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3	Foreign Reference	wo05101886.pdf	1180502 985ccd9b576b186ce7a299af93ac5f6f873b2c4f	no	29
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4	Transmittal Letter	IDS.pdf	63632 e9f4dc17de01ab84e253cb2d9bd104c3956b952d	no	3
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5	Information Disclosure Statement (IDS) Form (SB08)	MasterList.pdf	96993 64de669c35f3aa438af04b817e3ba93c73490b26	no	9
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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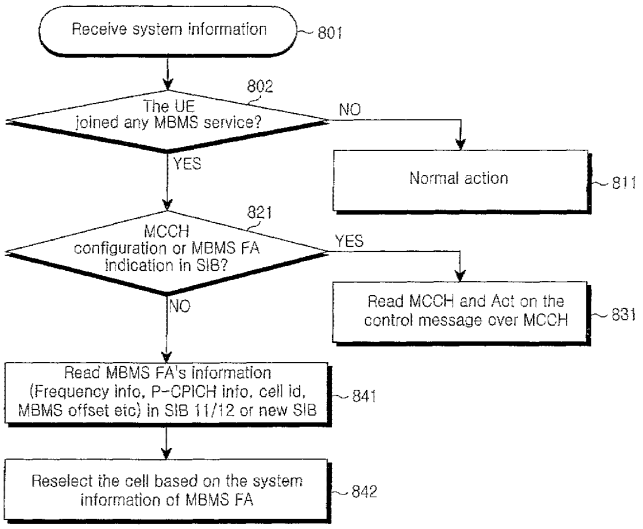
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(54) Title: CELL RESELECTION METHOD FOR RECEIVING PACKET DATA IN A MOBILE COMMUNICATION SYSTEM SUPPORTING MBMS



(57) Abstract: A method for selecting a cell by a user equipment (UE) to receive a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area. In the method, a radio network controller (RNC) transmits information on an MBMS cell to the UE, and the MBMS cell information includes an MBMS offset for guaranteeing priority for cell reselection to the MBMS cell. The UE performs cell reselection using the MBMS cell information and receives the MBMS service from the reselected cell.

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CELL RESELECTION METHOD FOR RECEIVING PACKET DATA IN A MOBILE COMMUNICATION SYSTEM SUPPORTING MBMS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a packet data service, and in particular, to a method for transmitting information on a cell available for a particular packet data service to a user equipment (UE) when the cell available for the packet data service overlaps with a cell unavailable for the packet data service thereby to provide the packet data service to the UE.

2. Description of the Related Art

FIG. 1 is a diagram schematically illustrating a configuration of a general mobile communication system. Referring to FIG. 1, the mobile communication system, a Universal Mobile Telecommunications System (UMTS) mobile communication system, is comprised of a core network (CN) 100, a plurality of radio network subsystems (RNSs) 110 and 120, and a user equipment (UE) 130. Each of the RNSs 110 and 120 includes a radio network controller (RNC) 111 and 112 and a plurality of Node Bs 113-116 (i.e. base stations). For example, the RNS 110 is comprised of an RNC 111 and Node Bs 113 and 115, and the RNS 120 is comprised of an RNC 112 and Node Bs 114 and 116.

The RNCs 111 and 112 are classified into a serving RNC (SRNC), a drift RNC (DRNC) and a controlling RNC (CRNC) according to their operation. The SRNC is an RNC that manages information on each UE and controls data exchange with the CN 100. The DRNC, when data of a UE is transmitted and received to/from the SRNC via a specific RNC, is the specific RNC. The CRNC is an RNC that controls each Node B.

For example, in FIG. 1, if information on the UE 130 is managed by the RNC 111, the RNC 111 serves as an SRNC for the UE 130, and if data of the UE 130 is transmitted and received via the RNC 112 due to movement of the UE 130, the RNC 112 becomes a DRNC of the UE 130. In addition, the RNC 111 that controls the Node B 113 in communication with the UE 130 becomes a CRNC for the Node B 113.

In FIG. 1, the RNCs 111 and 112 are connected to their Node Bs 113 to

116 via Iub interfaces, and the RNC 111 is connected to the RNC 112 via an Iur interface. Although not illustrated in FIG. 1, the UE 130 is connected to a UMTS Terrestrial Radio Access Network (UTRAN) via a Uu interface.

The RNC assigns radio resource to a plurality of their Node Bs, and each of the Node Bs provides the radio resources assigned from the RNC to the UE. The radio resources are provided on a cell-by-cell basis. The radio resources provided by the Node B are radio resources for a particular cell managed by the Node B. The UE sets up a radio channel using the radio resources for the particular cell managed by the Node B, and transmits/receives data using the set radio channel. Therefore, since the UE identifies only physical channels separately formed for cells, distinguishing between the Node B and the cell is meaningless and not necessary. Herein, the terms "Node B" and "cell" are used interchangeably.

In order to support multicast/multimedia communication, there is provided Broadcast/Multicast Service in which one data source provides a particular service to a plurality of UEs. Broadcast/Multicast Service can be divided into Cell Broadcast Service (CBS) supporting a message-based service and Multimedia Broadcast/Multicast Service (MBMS) supporting real-time images and voice, still images, text data, etc.

FIG. 2 is a diagram schematically illustrating a network configuration for providing an MBMS service in a mobile communication system. Referring to FIG. 2, a Broadcast/Multicast-service center (BM-SC) 210 is a source that provides an MBMS data stream, and the BM-SC 210 schedules an MBMS data stream and delivers the scheduled MBMS data stream to a transit network (NW) 220. The transit network 220 exists between the BM-SC 210 and a serving GPRS (General Packet Radio Services) support node (SGSN) 230, and delivers the MBMS data stream provided from the BM-SC 210 to the SGSN 230. The SGSN 230 can be comprised of a gateway GPRS support node (GGSN) and an external network. The SGSN 230 receiving the MBMS data stream from the transit network 220 controls an MBMS-related service for users, or UEs, desiring to receive an MBMS service, i.e., controls an MBMS-related service such as a service for managing MBMS accounting-related data and a service for selectively transmitting MBMS data to a particular RNC 240. In addition, the SGSN 230 configures and manages an SGSN service context for an MBMS service X, and delivers the MBMS data stream to the RNC 240.

The RNC 240 controls a plurality of Node Bs, and transmits the MBMS data to a Node B where a UE requesting the MBMS service is located among its Node Bs. In addition, the RNC 240 controls a radio channel set up procedure for providing the MBMS service, and configures and manages an RNC service context for the MBMS service X using the MBMS data stream provided from the SGSN 230.

It will be assumed herein that a Node B1 (or cell 1) 260 corresponds to a cell where a UE1 261, a UE2 262 and a UE3 263 are located, and Node B2 (or cell 2) 270 corresponds to a cell where a UE4 271 and a UE5 272 are located, and one radio channel is set up between the Node B1 260 and the UEs 261 to 263 to provide the MBMS service.

Although not illustrated in FIG. 2, a home location register (HLR) is connected to the SGSN 230 and performs user authentication for the MBMS service.

A description will now be made of an operation performed between nodes supporting an MBMS service. FIG. 3 is a message flow diagram illustrating a procedure for performing an MBMS service between an RNC and a UE desiring to receive an MBMS service.

The procedure includes 4 successive processes of Announcement, Joining, Notification, and Radio Bearer (RB) Setup processes. The 4 processes will be described herein below. In the processes, an RNC provides an MBMS service to UEs requesting the MBMS service via a Node B. Although the Node B is not illustrated in FIG. 3, it is obvious to those skilled in the art that the MBMS service is provided via the Node B. Also, a description will be made of an MBMS control message transmitted for the MBMS service.

Referring to FIG. 3, through an Announcement process in step 331, an SGSN 304 announces, to a particular UE 300, fundamental information on a particular MBMS service, for example, an MBMS service identifier (ID) and information on availability of the MBMS service, i.e., start time information and duration information of the MBMS service.

If it is determined through the MBMS service Announcement process that

there is a desired MBMS service, the UE 300 performs a Joining process in step 341 to send an MBMS service request to the SGSN 304.

In the Joining process of step 341, the UE 300 transmits a Joining Request message to the SGSN 304. The Joining Request message includes an identification code for a particular MBMS service the UE 300 desires to receive in an MBMS service list transmitted by the SGSN 304, and an UE ID of the UE desiring the MBMS service. The SGSN 304 then performs authentication on the UE 300 that requested the MBMS service, and informs the UE 300 whether the MBMS service is available as a result of the authentication. Further, the SGSN 304 stores therein a list of UEs desiring to receive a particular MBMS service, and position information of the UEs.

Thereafter, if a message indicating a start of the MBMS service is received from a BM-SC, the SGSN 304 transmits in step 351 a Session Start message to an RNC 302 that controls a cell where the UE 300 is located.

In step 352, the RNC 302 informs the UE 300 of availability of the MBMS service through a Notification message. The RNC 302 assigns the Notification message to a common channel such as a secondary-common control physical channel (S-CCPCH) before transmission to the UE 300. The Notification message is transmitted over an MBMS control channel (MCCH) to inform the UE 300 that the SGSN 304 will start providing the MBMS service to the UE 300 that desires the MBMS service. The Notification message is paged by a plurality of UEs, and is used for performing a group paging process. The group paging process in step 352 is distinguishable from the individual paging process.

In step 361, the UE 300 transmits a Notification Response message to the SGSN 304 in response to the Notification message. The RNC 302 determines the number of UEs desiring to receive the MBMS service for each cell through the Notification Response message, and determines a type of a radio channel to a corresponding cell. If the number of UEs desiring to receive the MBMS service is larger than or equal to a predetermined threshold, the RNC 302 provides the MBMS service to the UEs over a common channel for point-to-multipoint (PtM) transmission. However, if the number of UEs desiring to receive the MBMS service is smaller than the predetermined threshold, the RNC 302 separately provides the MBMS service to each UE over a dedicated channel for point-to-point (PtP) transmission.

In step 371, the RNC 302 transmits information on a radio bearer (RB) for transmitting the MBMS service to the UE 300 over an MBMS control channel (MCCH). Based on the MBMS RB information, a radio bearer is set up between the RNC 302 and the UE 300. The RB setup process sends information on a radio channel for providing the MBMS service to related devices, so that the UE 300 can correctly restore the transmitted MBMS service using the MBMS RB information. The MBMS RB information includes radio channel information, for example, Orthogonal Variable Spreading Factor (OVSF) code information, transport format information, radio link control (RLC) information, packet data convergence control information, etc.

If a type of the MBMS channel is determined to be a PtP type, the MBMS RB information is transmitted to the UE 300 over a dedicated control channel. However, if a type of the MBMS channel is determined as a PtM type, the MBMS RB information is transmitted to UE 300 over the MCCH.

The MCCH is a channel provided with control information related to the MBMS service, and exact characteristics of the MCCH is now under discussion. According to the discussion results made to date, the MCCH has the following characteristics:

1. MCCH is separately formed for each cell.
2. MCCH is transmitted over a common physical channel such as S-CCPCH.
3. UEs can acquire information on MCCH separately formed for each cell as system information.

In step 381, the RNC 302 transmits MBMS data provided from the SGSN 304 to the UE 300 over an MBMS RB, and the UE 300 receives the MBMS data transmitted over the MBMS RB.

FIG. 4 is a diagram illustrating a structure where a plurality of Frequency Allocations (FAs) overlap each other in a particular area. Referring to FIG. 4, an RNC has one or more FAs, and provides MBMS data through the FAs. Reference numerals 401, 402, 403 and 404 illustrated in FIG. 4 represent the same geographical area, and represent cells where MBMS services are provided using different FAs. One or more UEs located in the four FAs are provided with MBMS

data transmitted from the FAs. That is, the FAs represent the same area in terms of geography, but represent 4 different service cells in terms of frequency at which the MBMS data is supported. As described above, conventionally, a plurality of FAs overlap each other in the same geographical area, and each of the FAs serves the same MBMS data to one or more UEs.

Here, the MBMS data to be transmitted is the same MBMS data, and radio resources are separately assigned to the FAs for transmission of the MBMS data, resulting in a waste of limited radio resources.

If the MBMS service is unavailable at a particular FA among the FAs, UEs included in the FA where the MBMS service is unavailable cannot receive the MBMS service. For example, if FA2 402 can support the MBMS service but FA1 401, FA3 403 and FA4 404 cannot support the MBMS service, then UEs included in FA1 401, FA3 403 and FA4 404 cannot receive the MBMS service.

Therefore, a method for providing the MBMS service to UEs included in an FA that cannot support the MBMS service is required.

SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a method for allowing a UE located in a cell unavailable for a packet data service to receive the packet data service in a mobile communication system.

It is another object of the present invention to provide a method for transmitting information on a cell available for a packet data service among cells located in the same area but having different frequencies, to a UE located in a particular cell as system information.

It is further another object of the present invention to provide a method for transmitting information on a cell available for a packet data service among cells located in the same area but having different frequencies, to a UE located in a particular cell over a control channel.

It is yet another object of the present invention to provide a method for transmitting information on a neighbor Node B to a UE located in a particular cell among cells located in the same area but having different frequencies.

It is still another object of the present invention to provide a method for performing cell reselection at a preferred frequency band for an MBMS service to a UE located in a particular cell among cells located in the same area but having different frequencies.

It is still another object of the present invention to provide a method for performing efficient inter-frequency measurement and inter-frequency cell reselection for a UE receiving an MBMS service in a mobile communication system.

In accordance with a first aspect of the present invention, there is provided a method for selecting a cell by a user equipment (UE) to receive a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area, the method including transmitting, by a radio network controller (RNC), information on an MBMS cell to the UE, the MBMS cell information including an MBMS offset for guaranteeing priority for cell reselection to the MBMS cell; and performing, by the UE, cell reselection using the MBMS cell information and receiving the MBMS service from the reselected cell.

In accordance with a second aspect of the present invention, there is provided a method for reselecting a cell for a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area, the method including transmitting, by a radio network controller (RNC), a system information block (SIB) to a user equipment (UE), the SIB including identification information indicating whether a neighbor cell is available for the MBMS service; and performing, by the UE, cell reselection to an MBMS cell using the SIB.

In accordance with a third aspect of the present invention, there is provided a method for reselecting a cell for a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area, the method including periodically transmitting, by a radio network controller (RNC), identification information indicating whether a neighbor cell is available for an

MBMS service, to a user equipment (UE) through a control message; and performing, by the UE, cell reselection to an MBMS cell using the identification information received through the control message.

In accordance with a fourth aspect of the present invention, there is provided a method for performing cell reselection to a preferred frequency band by a user equipment (UE) in a mobile communication system which supports a Multimedia Broadcast/Multicast Service (MBMS) service with different frequency allocations (FAs) in the same area, the method including receiving, from a radio network controller, a message including an MBMS service identifier (ID), information on a preferred frequency for the MBMS service, and an MBMS offset for guaranteeing cell reselection; and performing inter-frequency measurement using the information included in the message, and performing cell reselection if a preferred frequency band for an MBMS cell is higher in reception power than a frequency band for a current cell.

In accordance with a fifth aspect of the present invention, there is provided a method for providing by a radio network controller (RNC) a Multimedia Broadcast/Multicast Service (MBMS) service to a user equipment (UE) located in a non-MBMS frequency allocation (FA) in a mobile communication system which supports the MBMS service with different FAs in the same geographical area, the method including transmitting, by the RNC, a system information block (SIB) including information on an MBMS FA to the UE; and periodically transmitting a message including information on the MBMS FA to the UE.

In accordance with a sixth aspect of the present invention, there is provided a method for receiving a Multimedia Broadcast/Multicast Service (MBMS) service by a user equipment (UE) located in a non-MBMS frequency allocation (FA) in a mobile communication system which supports the MBMS service with different FAs in the same geographical, the method including receiving, from a radio network controller (RNC), a system information block (SIB) including information on an MBMS FA; analyzing the information on the MBMS FA in the SIB, and performing cell reselection to the MBMS FA based on the analysis result.

In accordance with a seventh aspect of the present invention, there is provided a method for receiving a Multimedia Broadcast/Multicast Service

(MBMS) service by a user equipment (UE) located in a non-MBMS frequency allocation (FA) in a mobile communication system which includes at least one non-MBMS cell and supports the MBMS service with different FAs in the same area, the method including receiving, by the UE, information on an MBMS cell from a radio network controller (RNC); requesting, by the UE, a particular MBMS service; analyzing the received information; and reselecting a cell available for the particular MBMS service based on the analyzed information.

In accordance with an eighth aspect of the present invention, there is provided a method for providing a Multimedia Broadcast/Multicast Service (MBMS) service to a user equipment (UE) located in a cell unavailable for the MBMS service by a radio network controller (RNC) including at least one cell unavailable for the MBMS service and other cells providing the MBMS service with different frequencies in the same area in a mobile communication system, the method including transmitting, by the RNC, a system information block (SIB) for the MBMS service to the UE; reselecting, by the UE, a cell available for a particular MBMS service upon receiving a request for the particular MBMS service; and assigning radio resources for providing the particular MBMS service to the UE.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects, features and advantages of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings in which:

FIG. 1 is a diagram schematically illustrating a configuration of a general mobile communication system;

FIG. 2 is a diagram schematically illustrating a configuration of an MBMS system;

FIG. 3 is a message flow diagram illustrating an operation between nodes in a mobile communication system supporting an MBMS service;

FIG. 4 is a diagram illustrating a configuration where a plurality of cells overlap each other in a particular area;

FIG. 5 is a message flow diagram illustrating a procedure for reselecting an MBMS cell according to a first embodiment of the present invention;

FIG. 6 is a message flow diagram illustrating a procedure for reselecting an MBMS cell according to a second embodiment of the present invention;

FIG. 7 is a message flow diagram illustrating a procedure for performing

cell reselection to a preferred frequency band supporting an MBMS service according to a third embodiment of the present invention;

FIG. 8 is a flowchart illustrating an operation of a UE supporting an MBMS service according to the present invention; and

FIG. 9 is a flowchart illustrating another operation of a UE supporting MBMS service according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Several preferred embodiments of the present invention will now be described in detail with reference to the annexed drawings. In the following description, a detailed description of known functions and configurations incorporated herein has been omitted for conciseness.

The present invention proposes a method for providing an MBMS service to a plurality of UEs located in different FAs covering the same geographical area. In addition, the present invention proposes a method for allowing UEs located in an FA unavailable for an MBMS service to receive the MBMS service.

With reference to FIG. 5, a description will now be made of a method for allowing UEs located in FAs unavailable for an MBMS service to receive the MBMS service when there is one FA available for the MBMS service among FAs overlapping each other in the same area.

FIG. 5 is a message flow diagram illustrating a procedure for providing information on an FA available for an MBMS service to UEs according to an embodiment of the present invention. Referring to FIG. 5, reference numeral 501 represents an FA providing (or available for) an MBMS service (hereafter referred to as an "MBMS FA" for simplicity), and reference numerals 502 and 503 represent FAs not providing (or unavailable for) the MBMS service (hereafter referred to as "non-MBMS FAs" for simplicity). Reference numerals 501, 502 and 503 represent FAs which overlap each other in the same geographical area and use different frequencies. Each of the FAs can be comprised of one or more cells. It will be assumed herein that each FA has one cell, for the convenience of explanation. In the following description, the terms "FA" and "cell" are used interchangeably. Reference numeral 511 represents an RNC for providing the MBMS service, and reference numeral 521 represents an SGSN. In the following description, it will be assumed that a UE is in an idle mode.

In step 531, the RNC 511 transmits a system information block (SIB) including information on the MBMS FA 501 to respective FAs. Here, the RNC 511 transmits different system information to the FAs 501, 502 and 503. Therefore, UEs located in the FAs 501, 502 and 503 can have different SIBs. The RNC 511 newly adds information on the MBMS FA 501 to the SIB, and transmits the new SIB to all the cells (of FAs) 501, 502 and 503.

In this regard, the present invention proposes the following 3 methods for defining an SIB for transmitting information on the FA.

A first method partially adds information on the MBMS FA while using an SIB currently used in the 3GPP (Third Generation Partnership Project) standard.

A second method uses a dedicated SIB for supporting the MBMS service.

A third method adds offset information for the MBMS FA. The third method can be applied to the SIB used in the current 3GPP standard according to the first method, or can be applied to the MBMS-dedicated SIB according to the second method. In an embodiment of the present invention, the third method adds the offset information to the first method.

First Method

Table 1 illustrates an SIB obtained by adding information on an MBMS FA to the SIB currently used in the 3GPP standard according to an embodiment of the present invention. For convenience, the SIB will be referred to as "SIB 11/12." SIB 11/12 represents information including information SIB 11 for a UE in an idle mode and information SIB 12 for a UE in a connected mode.

Table 1

Information Element/Group name	Need	Multi	Type and reference	Semantics Description	Version
MBMS enabled cell indication			Integer (0,1,2)	0 indicates not MBMS enabled cell, 1 indicates MBMS enabled cell belonging to the different Node B, 2 indicates MBMS enabled cell belonging to the same Node B.	
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB. Default value is 0 dB Used to offset measured quantity value.	

Reference time difference to cell	OP		Reference time difference to cell	In chips. This IE is absent for serving cell.	
Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell.	
CHOICE *mode*	MP				
>FDD					
>>Primary CPICH info	OP		Primary CPICH info	This IE is absent only if measuring RSSI only (broadband measurement.)	
>>Primary CPICH Tx power	OP		Primary CPICH Tx power	Required if calculating pathloss.	
>>TX Diversity Indicator	MP		Boolean	TRUE indicates that transmit diversity is used.	
:					

The SIB 11/12 includes measurement control information used in a cell, and includes intra-frequency measurement control information, inter-frequency measurement control information, inter-RAT (Radio Access Technology) measurement control information.

The measurement control information, a list of neighbor cells which are measurement objects in the cell, includes intra-frequency cell info list, inter-frequency cell info list, inter-RAT cell info list.

The list of neighbor cells includes information on the MBMS FA. That is, the list of neighbor cells includes MBMS FA's frequency information, cell identification, cell information, etc.

The FA's frequency information is comprised of an uplink UTRAN Absolute Radio Frequency Channel Number (UARFCN), and a downlink UARFCN.

The cell identification (cell ID) is identification information uniquely assigned to each cell. That is, the cell ID is a unique value assigned to each cell to identify a plurality of cells existing in one FA. In the present invention, because it is assumed that each FA has one cell, the cell ID can also be used as an ID for identifying the FA.

The cell information represents a primary scrambling code for a primary common pilot channel (P-CPICH) of a cell corresponding to the MBMS FA.

Therefore, the RNC 511 adds information on a cell available for the MBMS service (hereinafter referred to as an "MBMS cell"), i.e., 'MBMS enabled cell indication' information of Table 1, to the SIB 11/12, and tranmsits the information-added SIB 11/12 to the UEs.

The 'MBMS enabled cell indication' information is given a value of an integer. If the MBMS enabled cell indication is set to '0', it means that the target cell, or the FA 501, is a cell unavailable for the MBMS service (a "non-MBMS cell"). However, if the MBMS enabled cell indication is set to '1', it means that the target cell, or the FA 501, is an MBMS cell, which belongs to a Node B being different from the Node B where the UE is currently located. In addition, if the MBMS enabled cell indication is set to '2', it means that the target cell, or the FA 501, is an MBMS cell, which belongs to a Node B being identical to the Node B corresponding to the cell (FA 502 or FA 503) where the UE is currently located.

The MBMS enabled cell indication can be optimized into a 2-bit length instead of the 3-bit length illustrated in Table 1. In this case, the MBMS enabled cell indication is represented with one integer in determining whether the cell where the UE is located and the target cell for cell reselection both belong to the same Node B.

In other words, rather than representing the MBMS enabled cell indication with an integer 1 and an integer 2 in determining whether the MBMS cell belongs to the same Node B, the MBMS enabled cell indication is set to an integer 1 for an MBMS cell and an integer 0 for a non-MBMS cell. Decision on to which cell the UE will perform cell reselection among cells available for the MBMS service is made based on frequency measurement result regardless of the Node B. That is, the UE selects a cell for which the MBMS enabled cell indication is set to '1' among the cells located in the highest rank as a result of the frequency measurement.

Referring back to FIG. 5, in step 531, a UE located in FA 502 or FA 503 analyzes the SIB 11/12 including the MBMS enabled cell indication field separately transmitted to each corresponding cell, and determines whether a neighbor cell is available for the MBMS service. That is, the corresponding UE located in FA 502 or FA 503 determines whether the neighboring FA 501 is available for the MBMS service and whether the cell of FA 501 belongs to a Node B identical to the Node B corresponding to its current cell, based on the MBMS

enabled cell indication field in the SIB 11/12.

However, a UE located in the cell for FA 501 cannot determine whether its cell is an MBMS cell based on the SIB 11/12 transmitted from the cell 501. This is because the SIB 11/12 includes FA information for a neighbor cell.

Therefore, the UE located in the FA 501 analyzes information on MCCH through another SIB transmitted to its cell, and determines whether the FA 501 is an MBMS cell. Alternatively, the UE determines whether its cell 501 is an MBMS cell by applying the 'MBMS enabled cell indication' information used in the SIB 11/12 to an SIB 3/4 supporting the MBMS service in the cell.

The SIB 3/4 includes information on cell selection and cell reselection for a UE in an idle mode and a UE in a connected mode. The SIB 3/4 includes the MBMS enabled cell indication field to indicate whether the current cell is an MBMS cell. Also, the MBMS enabled cell indication field can be included in other SIBs.

Therefore, the UE located in the cell for the FA 501 compares the 'MBMS enabled cell indication' information used in the SIB 11/12 with the 'MBMS enabled cell indication' information used in the SIB 3/4, and determines whether the FA 501 is an MBMS cell if there is the MBMS enabled cell indication of the SIB 3/4.

Second Method

Table 2 illustrates a dedicated SIB for supporting an MBMS service according to an embodiment of the present invention.

Table 2

Information Element/Group name	Need	Multi	Type and reference	Semantics Description	Version
MBMS enabled cell info			**1 to maxMBMS CellMeas**		
>same service area indication				**True indicates the cell belongs to the same Node B**	
>cell id					
>frequency info					
>cell info					
>>FDD					
>>>Primary CPICH info			**Primary CPICH info**		

:

As illustrated in Table 2, the RNC 511 sets a MBMS-dedicated SIB (or MBMS-only SIB) including information on an MBMS cell and separately transmits the MBMS-dedicated SIB to a corresponding cell.

An MBMS enabled cell info field in the MBMS-dedicated SIB indicates whether a current UE's cell is an MBMS cell. If the current UE's cell corresponds to an MBMS FA, the MBMS enabled cell info field indicates whether the current UE's cell is an MBMS cell, and the MBMS enabled cell info field includes information on the UE's cell.

A same service area indication field in the MBMS-dedicated SIB indicates whether the MBMS cell is a cell having the same service area as the current UE's cell, i.e., whether the MBMS cell is a cell included in the same Node B as the UE's Node B.

A cell ID field in the MBMS-dedicated SIB indicates an ID of an MBMS cell.

A frequency info field in the MBMS-dedicated SIB indicates an uplink UTRAN Absolute Radio Frequency Channel Number (UARFCN), and a downlink UARFCN.

A cell info field in the MBMS-dedicated SIB indicates a primary scrambling code for a primary common pilot channel (P-CPICH) of a cell corresponding to the MBMS FA.

Therefore, a UE of a particular FA, or cell, receiving the MBMS-dedicated SIB, sends an MBMS service request to a cell for which the same service area indication field has a True value, and then preferentially performs cell reselection on the cell. After analyzing the MBMS-dedicated SIB illustrated in Table 2 in step 531, each of UEs located in the FA 501, FA 502 and FA 503 determines whether its current cell is available for the MBMS service.

Third Method

Table 3 proposes a method for allowing a UE to perform cell reselection using MBMS_Qoffset_s,n information. For convenience, the third method applies

the MBMS_Qoffset_s,n information to the SIB used in the first method. Alternatively, the third method can apply the MBMS_Qoffset_s,n information to the SIB used the second method. An SIB according to the third method represents an SIB 11/12 including an MBMS_Qoffset_s,n field instead of the MBMS enabled cell indication field, as illustrated in Table 3.

Table 3

Information Element/Group name	Need	Multi	Type and reference	Semantics Description	Version
MBMS_Qoffset_s,n	**OP**		**Integer**	**In dB. This IE is presented only in MBMS enabled cell for offset value compared with serving cell.**	
Cell individual offset	MD		Real(-10..10 by step of 0.5)	In dB. Default value is 0 dB Used to offset measured quantity value.	
Reference time difference to cell	OP		Reference time difference to cell	In chips. This IE is absent for serving cell.	
Read SFN indicator	MP		Boolean	TRUE indicates that read of SFN is requested for the target cell.	
CHOICE *mode*	MP				
>FDD					
>>Primary CPICH info	OP		Primary CPICH info	This IE is absent only if measuring RSSI only (broadband measurement.)	
>>Primary CPICH Tx power	OP		Primary CPICH Tx power	Required if calculating pathloss.	
>>TX Diversity Indicator	MP		Boolean	TRUE indicates that transmit diversity is used.	
			:		

The MBMS_Qoffset_s,n value is an optional value included in the SIB 11/12 only when a neighbor cell which is an object of the frequency measurement supports the MBMS service. The MBMS_Qoffset_s,n value is applied when UEs in an idle mode or in CELL_FACH, CELL_PCH and URA_PCH states perform cell selection and cell reselection.

Referring back to FIG. 5, in step 541, the UEs in the FA 501, FA 502 and FA 503 perform a Joining procedure (or service request procedure). In the Joining procedure of step 541, each of the UEs in the FA 501, FA 502 and FA 503 transmits an identification code for the desired MBMS service and its UE ID to the SGSN 521. The SGSN 521 performs authentication on the UEs in the FA 501, FA 502 and FA 503.

According to the first method, in step 551, UEs in the non-MBMS FAs 502 and 503 preferentially perform cell reselection to a cell for which the MBMS enabled cell indication field in the SIB 11/12 is set to 2. If there is no MBMS enabled cell indication field having a value 2, the UEs perform cell reselection to an MBMS cell for which the MBMS enabled cell indication field has a value 1. In this case, the MBMS enabled cell indication field has a 3-bit length.

However, in the case where the MBMS enabled cell indication field has a 2-bit length, the UEs perform cell reselection to a cell located in the highest rank among the MBMS cells as a result of the frequency measurement. The UEs in the non-MBMS FAs 502 and 503 cover the same service area, and first perform intra-frequency measurement rather than inter-frequency measurement in order to preferentially reselect the cell corresponding to the MBMS FA 501 rather than a particular neighbor FA (or cell) covering another service area.

According to the second method, in step 551, the UEs in the non-MBMS FAs 502 and 503 analyze information on an MBMS cell through an MBMS enabled cell info field in the MBMS-dedicated SIB. Further, the UEs analyze the same service area indication field to determine whether the MBMS cell is a cell belonging to the same Node B as the Node B where they are located, and perform cell selection to the cell belonging to the same Node B. In order to perform cell reselection to the cell corresponding to the MBMS FA, the UEs must satisfy a reception power measurement result.

According to the third method, in step 551, the UEs in the non-MBMS FAs 502 and 503 perform cell reselection using Equation (3) hereinbelow when they have an MBMS service context after joining the MBMS service in step 541.

Equation (1) and Equation (2) below are equations applied for cell reselection by a UE, currently defined in the 3GPP standard.

When a UE reselects a cell, if neighbor cells satisfy S criteria for cell selection as a result of frequency measurement, cells are sequentially ranked by R criteria. In the current 3GPP standard, equations for the R criteria are defined as follows. Because parameters used in the following equations are defined in 3GPP TS25.304, a detailed description thereof will be omitted herein.

$$Rs = Qmeas,s + Qhysts \quad \ldots\ldots\ldots (1)$$

$$Rn = Qmeas,n - Qoffset,n - Ton * (1 - Ln) \quad \ldots\ldots\ldots (2)$$

Here, Rs denotes an R criterion of a current serving cell, and Rn denotes a neighbor cell included in an SIB 11/12. The Rn, as described above, is applied only for the cells satisfying the S criterion.

In order to reselect an MBMS cell, if the MBMS_Qoffset_s,n value of Table 3 is applied to the R criteria of Equation (2), it becomes Equation (3):

$$Rn = Qmeas,n - Qoffset,n - Ton * (1 - Ln) + MBMS\_Qoffset\_s,n \quad \ldots\ldots (3)$$

In other words, if a UE has an MBMS service context after joining an MBMS service in step 541 in order to receive the MBMS service, the UE reselects a cell using Equation (3). That is, the FA 501 transmitting an SIB 11/12 including the MBMS_Qoffset_s,n value has a larger Rn value than the FAs 502 and 503 not having the MBMS_Qoffset_s,n value in the SIB 11/12.

Therefore, in step 551, the UEs in the non-MBMS FAs 502 and 503 reselect the cell having an SIB 11/12 including the MBMS_Qoffset_s,n value. In this way, a UE increases selection probability of an MBMS cell using the MBMS_Qoffset_s,n value when performing cell reselection according to resource of cell, thereby securing continuity of the MBMS service during movement of the UE.

That is, by reflecting an MBMS offset value for an MBMS cell in the R criteria equation for cell reselection, the MBMS cell is located in a higher rank than the non-MBMS cell.

Therefore, a UE that requested the MBMS service increases reselection probability of a cell corresponding to the MBMS FA by the modified R criteria equation. The same MBMS_Qoffset_s,n value is applied to all cells available for the MBMS service, or different MBMS_Qoffset_s,n values are separately applied to neighbor cells of the current serving cell.

Further, in step 551, a time when UEs that requested an MBMS service perform cell reselection to a cell for the MBMS FA can be differently set for a UE in an idle mode and a UE in a connected mode. That is, because the UE in an idle

mode currently transmits no MBMS data, i.e., performs no specific operation, it moves to the MBMS FA 501 immediately after sending an MBMS service request. However, the UE in a connected mode moves to the MBMS FA 501 when an actual session for MBMS data is started, rather than after sending the MBMS service request.

For simplicity of an UE's operation, UEs in other connected states except a CELL_DCH state can be identical in operation to the UE in an idle mode. Although a time when UEs perform cell reselection to an MBMS cell is differently set for a UE in an idle mode and a UE in a connected mode in the following description, if a time when UEs in other connected states except the CELL_DCH state perform cell reselection to an MBMS cell is applied as in the idle mode, the UEs are identical in operation to the UE in an idle mode, for simplicity of an UE's operation.

In step 561, a UE in an idle mode that performed cell reselection to the MBMS FA 501 sends a dedicated-radio resource request in response to a user's voice call request, and the UE intends to make a transition to the CELL_DCH state. In this case, due to lack of available dedicated radio resources except the resources previously reserved to provide the MBMS service, the UE intends to perform cell reselection to another cell.

Therefore, the cell reselection in step 561 is performed using a redirection info field in a Radio Resource Controller (RRC) Connection Reject message transmitted from an RNC to a UE in a process of setting up an RRC connection. That is, in step 561, the UE that completed an operation in the CELL_DCH state after moving to another cell other than the MBMS FA 501, performs cell selection to a cell corresponding to the MBMS FA 501 using the redirection info field to receive the MBMS service again.

In step 571, a UE that moved to another cell after being located in the MBMS FA 501 performs cell re-selection to an MBMS cell. The UE analyzes "MBMS enabled cell indication" or "MBMS enabled cell info" information on a neighbor MBMS cell through the SIB illustrated in Table 1 or Table 2, and performs cell reselection to the corresponding MBMS cell

FIG. 6 is a message flow diagram illustrating a procedure for reselecting a cell available for an MBMS service in the case where the number of MBMS FAs

among FAs overlapping each other in the same area is at least 2. Referring to FIG. 6, reference numerals 601 and 602 represent MBMS FAs, and reference numerals 603 to 604 represent non-MBMS FAs. The reference numerals 601, 602 , 603 and 604 represent FAs which overlap each other in the same geographical area and use different frequencies. Each of the FAs can be comprised of one or more cells. It will be assumed herein that each FA has one cell, for the convenience of explanation. In the following description, the FAs represent different cells, and the terms "FA" and cell are used interchangeably. Reference numeral 611 represents an RNC for providing the MBMS service, and reference numeral 621 represents an SGSN. Reference numeral 631 represents a system information block (SIB) transmitted from the RNC 611, and SIB 631 has different information in the FAs 601, 602, 603 and 604. A method for providing information on MBMS FAs to UEs located in the FAs 601, 602, 603 and 604 using the SIB employs the first, second and third methods proposed in FIG. 5.

According to the first method, an SIB transmitted to the MBMS FA 601 includes information on the MBMS FA 602 as information on a neighbor cell, and an SIB transmitted to the MBMS FA 602 includes information on the MBMS FA 601 as information on a neighbor cell. In addition, SIBs transmitted to the non-MBMS FAs 603 and 604 include information on the MBMS FAs 601 and 602 as information on neighbor cells.

As illustrated in conjunction with FIG. 5, information on a neighbor MBMS cell and information indicating whether a UE's cell is available for an MBMS service can be analyzed by checking whether MCCH configuration information is included in another SIB, or checking information indicating whether the UE's cell is available for the MBMS service through a comparison with an SIB 3/4.

According to the second method, when a new MBMS-dedicated SIB for an MBMS service is used, a UE can simultaneously analyze the information on a neighbor cell and the information on its current cell.

According to the third method, a UE determines an MBMS cell by analyzing the MBMS FAs 601 and 602 that transmit an SIB 11/12 including the MBMS_Qoffset_s,n value.

In a Joining procedure of step 641, an MBMS service is requested.

In step 651, a UE in an idle mode in a cell corresponding to the MBMS FA 603 or 604 performs cell reselection to a cell corresponding to an MBMS FA after performing the Joining procedure in step 641. In this case, the UE in an idle mode has information on both cells for the MBMS FAs 601 and 602 covering the same area, acquired in step 631. In the case shown in FIG. 5, because only one FA (or cell) is available for the MBMS service, when a UE moves to an MBMS FA in the same area, the UE can receive a desired MBMS service. However, in the case shown in FIG. 6, because there are two MBMS FAs, the UE cannot determine which MBMS FA provides the desired MBMS service, with only the SIB separately transmitted for each cell in step 631.

Therefore, if the FAs 601 and 602 provide the same MBMS service, the FA 601 or the FA 602 is selected in step 651 according to reception power measurement results of UEs. That is, a cell is reselected according to a preferred frequency of a UE. However, if the FAs 601 and 602 provide different MBMS services, the UE reselects in step 651 an FA according to whether the requested MBMS service is available, instead of reselecting an FA according to a desired particular MBMS service.

In step 661, the SGSN 621 recognizing a start of the MBMS service transmits a Session Start message indicating an impending start of the MBMS service to the RNC 611. In step 662, the RNC 611 receiving the Session Start message transmits an MBMS Notification message to an MBMS FA corresponding to the Session Start message among the FAs 601 and 602. The Notification message is not transmitted to the cells for the non-MBMS FAs 603 and 604. The Notification message includes a corresponding MBMS service ID, a counting indication for informing a UE in an idle mode of the necessity for an RRC connection, a probability factor necessary for the RRC connection operation, and information on an MBMS FA providing the MBMS service. The MBMS FA information includes frequency information of a corresponding FA, cell ID, cell information, and MBMS offset.

For example, in step 662, if an MBMS service corresponding to the Notification message is an MBMS service corresponding to the FA 601 among the MBMS FAs 601 and 602, UEs located in the FA 602, receiving the Notification message, reselect the cell for the FA 601 to receive data for the MBMS service. That is, in step 651, the UEs select an MBMS FA according to

availability of the MBMS service, and in step 662, the UEs reselect an MBMS FA according to a desired particular MBMS service.

In step 671, UEs in an idle mode located in the FA 602 reselect a cell for the FA 601 after receiving the Notification message. In this case, the UEs in an idle mode located in the FA 602 must satisfy a reception power measurement result in connection with a cell for the FA 601. That is, the UEs located in the FA 602 reselect a cell for the FA 601 if they can receive an MBMS service provided by the FA 601 as a result of reception power measurement in connection with the cell for the FA 601.

In the case of steps 662 and 671, the UEs select an FA according to a desired particular MBMS service before a session for the MBMS service is started. In the case of step 681, when the MBMS service is in progress, the UEs select an FA according to the desired particular MBMS service. In step 681, the UEs preferentially reselect an MBMS cell among neighbor cells using the system information received in step 631. Cell reselection is achieved through reception power measurement by the UEs, and the UEs analyze MBMS availability information received from the selected cell over the MCCH.

The MBMS availability information is information indicating whether a particular MBMS service the UE desires to receive is available. Therefore, the UE determines whether a particular MBMS service is available in the reselected cell by analyzing the MBMS availability information. If it is determined that the reselected cell is a cell unavailable for the particular MBMS service requested by the UE, the UE moves to another MBMS FA servicing the same area using the system information. That is, the UE reselects a cell for another MBMS FA using the system information.

The MBMS availability information can further include information on an actual MBMS FA available for a particular MBMS service requested by the UE as well as information on whether an MBMS service is available for the cell including the current UE. That is, the MBMS availability information includes information on an actual FA where the MBMS service requested by the UE is in progress.

In other words, the MBMS availability information includes an MBMS service ID for an MBMS service in progress in the reselected cell, frequency

information of the cell, cell ID, P-CPICH information, MBMS offset information, etc. Therefore, the UE receiving the MBMS availability information over MCCH determines whether a particular MBMS service is available in its current cell, and performs cell reselection to a cell available for the particular MBMS service if the particular MBMS service is unavailable in its current cell.

FIG. 7 is a message flow diagram illustrating a procedure for providing an MBMS service in at least two MBMS FAs in connection with the procedure illustrated in FIG. 6. In this case, an MBMS offset value is used according to an embodiment of the present invention, and the procedure illustrates a method for transmitting a service provided in another FA and information on the corresponding FA through an MCCH Availability message, and a process of transmitting information on a preferred frequency band for each service to the UEs after a session start. It is assumed herein that the at least two FAs provide different MBMS services, e.g., Service 1 and Service 2.

Referring to FIG. 7, reference numerals 701 and 702 represent UEs receiving an MBMS service, and reference numeral 703 represents an RNC for providing the MBMS service. Here, the UEs 701 and 702 are located in a cell corresponding to a frequency band other than a preferred frequency band for the MBMS service.

In step 711, the RNC 703 receiving a Session Start message 705 from the SGSN 704 sends a Notification message 711 including information necessary for movement to a preferred frequency band for the MBMS service to the UEs 701 and 702 before start of a session. In this Notification process, the RNC 703 can use the currently defined Session Start message or another separate message. The RNC 703 includes an MBMS service ID for the MBMS service whose session is to be started, information on a preferred frequency for the MBMS service, and MBMS offset information used for reselection of a cell using another frequency.

In step 712, the UE 701 receiving the Notification message performs inter-frequency measurement using the preferred frequency for the MBMS service in order to reselect a cell to the preferred frequency band in connection with the MBMS service.

In steps 713 and 714, the RNC 703 periodically transmits to the UEs 701 and 702 a message including MBMS service ID, preferred frequency information

and MBMS offset information in order to support mobility of the UEs. The message can be transmitted over the MCCH.

The UEs 701 and 702 receiving the MBMS service immediately perform inter-frequency measurement in the following cases:

1) Before start of a session, a UE immediately performs inter-frequency measurement when it determines through a Notification message that a preferred frequency band for a joined MBMS service is not a frequency band for a current cell.

2) During a session, a UE immediately performs inter-frequency measurement when it performs cell reselection and determines through periodically transmitted Control messages that a frequency of the reselected cell is not identical to a preferred frequency band for the corresponding MBMS service.

In other words, a UE requesting the MBMS service performs inter-frequency measurement when it receives the Notification message 711 including information on the preferred frequency for the MBMS service, transmitted before start of the MBMS session.

Alternatively, when an MBMS session for an MBMS service is in progress and a UE receiving the MBMS service reselects a new cell due to movement of the UE, , the UE should perform inter-frequency measurement if it determines through periodically transmitted Control messages 713 and 714 that a preferred frequency band for the MBMS service is not identical to a frequency of the selected cell.

When the UE 701 or 702 receives the Notification message transmitted before start of a session or the Control message transmitted during a session and attempts cell reselection to a preferred frequency band for the MBMS service, if cell reselection is performed to another frequency band other than the frequency band supporting the MBMS service due to a poor radio condition of the transmission frequency band, the UE stays in the current cell rather than performing cell reselection to another frequency band. This is because cell reselection to another frequency band other than the preferred frequency band is equal in performance to staying in the current cell, and causes another

measurement and cell reselection. The UE staying in the current cell can receive an MBMS service even in the current cell by requesting the MBMS service.

The UE receiving an MBMS service while staying in the current cell must perform inter-frequency measurement even though Sx (representing a value obtained by performing frequency measurement in the current cell for a particular MBMS service X) is larger than Sinter (representing a threshold set for performing inter-frequency measurement) for a period for the inter-frequency measurement. This is because unless Sx is smaller than Sinter, a UE that failed in cell reselection to the preferred frequency band will not perform inter-frequency measurement for cell reselection to the preferred frequency band for the MBMS service, thereby avoiding cell reselection to the preferred frequency.

For example, in a measurement period of a compressed mode or a Forward Access Channel (FACH) measurement occasion period, i.e., an inter-frequency measurement period assigned according to a state and mode of the UE, which is a period for performing the inter-frequency measurement, the UE performs inter-frequency measurement regardless of a value of the Sx.

Even though Sx > Sinter, the UE must periodically perform measurement on a preferred frequency band for cell reselection to the preferred frequency band. The UE periodically performs the measurement based not only on the measurement period but also based on a predetermined timer value or period. The timer value is previously transmitted through system information.

Therefore, the UEs that failed in cell reselection to the preferred frequency band perform periodic inter-frequency measurement while staying in the current cell, and makes cell reselection to the preferred frequency band for the MBMS service if the inter-frequency measurement result satisfies the cell reselection condition.

The UE performing cell reselection to the preferred frequency band for the MBMS service uses an MBMS offset from the RNC 703 in steps 711, 713 and 714. That is, the MBMS offset information included in the messages transmitted in steps 711, 713 and 714 is provided to give priority to the preferred frequency band supporting the MBMS service over other frequency bands. By applying the MBMS offset to the preferred frequency band, a cell reselection probability at the preferred frequency is higher than a cell reselection probability at other

frequencies.

As described in connection with Equation (3), Rn values for cells corresponding to a preferred frequency band for a particular MBMS service are larger by the MBMS offset than Rn values for cells corresponding to other frequencies. As a result, there is high probability that the cells corresponding to the preferred frequency band will have higher priority (or rank) than the cells corresponding to other frequencies. Also, there is high probability that a UE desiring to receive the MBMS service will perform cell reselection to the preferred frequency band. If a cell for other frequency bands is reselected although the MBMS offset is applied, the UE stays in the current cell without performing cell reselection.

FIG. 8 is a flowchart illustrating an operation of a UE based on the first and second methods according to an embodiment of the present invention. Referring to FIG. 8, in step 801, a UE in an idle mode receives system information from a cell where it is currently located. The system information includes information on MBMS FAs overlapping each other in the same geographical area and information on neighbor cells which are not located in the same area but available for the MBMS service.

That is, the UE receives system information including an MBMS enabled cell info field according to the first method, receives a newly defined MBMS-dedicated SIB according to the second method, or receives an SIB including an MBMS_Qoffset_s,n value according to the third method.

In step 802, the UE determines whether a desired particular MBMS service is available in the current cell. The UE proceeds to step 821 if the desired particular MBMS service is available in the current cell. However, if the desired particular MBMS service is unavailable in the current cell, the UE proceeds to step 811 where it performs a normal operation.

In step 821, the UE determines whether MCCH configuration information is included in the system information transmitted from the cell where it is currently located. That is, according to the first method, the UE analyzes an SIB including an MBMS enabled cell indication to determine whether the MBMS service is available in the current cell and whether the MBMS service is available in the neighbor cell. According to the second method, the UE determines whether

the MBMS service is available in the current cell based on an MBMS enabled cell info field and a same service area indication field in the MBMS-dedicated SIB. According to the third method, the UE determines whether the MBMS service is available in the current cell based on the MBMS_Qoffset_s,n value.

If it is determined in step 821 that MCCH configuration information for the MBMS service is not included in the system information from the current cell or the current cell is unavailable for the particular MBMS service, the UE proceeds to step 841. However, if it is determined in step 821 that MCCH configuration information is included in the system information from the current cell or the current cell is available for the particular MBMS service, the UE proceeds to step 831.

In step 831, the UE receives the periodically transmitted MCCH and operates according to a control message transmitted over the MCCH. In step 841, the UE receives an SIB 11/12 including information on a neighbor MBMS cell, or receives a newly defined MBMS-dedicated SIB including an MBMS enabled cell info field indicating information on a neighbor cell, and information on its cell. In addition, the UE receives an SIB including an MBMS_Qoffset_s,n value indicating a cell having priority for providing the MBMS service over other cells.

In addition, the UE periodically receives MCCH including information on the MBMS FA taking its mobility into consideration. The MCCH includes MBMS service ID and preferred frequency information.

In step 842, the UE performs cell reselection to an MBMS FA, or MBMS cell, based on the received information on the MBMS FA. The UE analyzes the MBMS enabled cell info field, and preferentially selects a cell belonging to the same Node B as the Node B for its cell, i.e., selects a cell covering the same area as the area covered by its cell. If there is no information on an MBMS cell covering the same area, the UE performs cell reselection to another neighbor cell. If there is an MBMS cell covering the same area but the reception power is lower than a threshold as a result of reception power measurement for receiving the MBMS service, the UE performs cell reselection to another neighbor MBMS cell. That is, the reselection on all cells must satisfy the reception power measurement result. If the UE cannot perform cell reselection to a preferred frequency band supporting the MBMS service, it performs periodic inter-frequency measurement while staying in the current cell thereby to perform cell reselection to the

preferred frequency band while satisfying the cell reselection condition.

FIG. 9 is a flowchart illustrating an operation of a UE based on the third method according to an embodiment of the present invention. Referring to FIG. 9, in step 901, a UE receives a Session Start message, or receives information for FLC (Frequency Layer Convergence), i.e., service ID, frequency/cell info and MBMS offset information, through a Notification message or a periodically transmitted message during a session. In step 902, the UE checks a service ID in the information for FLC to determine whether an MBMS service in session in the cell is an MBMS service that the UE joined.

If it is determined in step 902 that the ongoing MBMS service is an MBMS service that the UE joined, the UE checks in step 911 whether the frequency info/cell info is identical to cell information of the current cell. However, if it is determined in step 902 that the ongoing MBMS service is not an MBMS service that the UE joined, or if it is determined in step 911 that the frequency info/cell info is identical to cell information of the current cell, the UE proceeds to step 912. In step 912, the UE says in the current cell without having to perform cell reselection for the MBMS service.

However, if it is determined in step 911 that the frequency info/cell info is not identical to cell information of the current cell, the UE checks in step 921 whether there is any cell to measure for cell reselection. That is, the UE determines in step 921 whether there is any cell on which measurement should be performed according to the frequency info/cell info. If it is determined in step 921 that there is a cell to measure, the UE performs measurement on the corresponding cell in step 922.

In step 931, the UE checks whether the measurement result of step 922 satisfies S criteria. If the measurement result satisfies S criteria, the UE ranks, in step 932, the cell in a priority list for cell reselection by applying a modified R criteria equation that uses an MBMS offset proposed in the present invention. The process then returns to step 921.

However, if it is determined in step 921 that there is no cell on which measurement should be performed according to the frequency info/cell info, the UE checks in step 941 whether there is any cell satisfying S criteria. If there is a cell satisfying S criteria, the UE selects the cell with highest priority (or a highest

ranked cell) from the priority list for cell reselection in step 942. In step 951, the UE checks whether the highest ranked cell corresponds to the frequency info/cell info received in step 901.

If the highest ranked cell corresponds to the frequency info/cell info received in step 901, the UE checks in step 961 whether the cell is restricted by system information received in step 942 in staying (or camping) in the current cell. If it is determined in step 961 that the cell is not restricted by the system information, the UE reselects the highest ranked cell in step 962. The system information can be PLMN(Public Land Mobile Network) ID, forbidden LA(Location Area) or cell status. However, if it is determined in step 961 that the cell is restricted by the system information, if it is determined in step 951 that the highest ranked cell does not correspond to the frequency info/cell info, or if it is determined in step 941 that there is no cell satisfying S criteria, the UE stays in the current cell without having to perform cell reselection for the MBMS service.

As can be understood from the foregoing description, the present invention transmits radio resource information for a cell available for a particular packet data service to a UE located in a cell unavailable for the packet data service when the cell available for the packet data service overlaps with the cell unavailable for the packet data service in the same area, thereby efficiently providing the packet data service. In addition, the present invention transmits information on a neighbor cell and information on a serving cell to the UE, thereby facilitating mobility of the UE and efficient cell selection.

While the invention has been shown and described with reference to a certain preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A method for selecting a cell by a user equipment (UE) to receive a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area, the method comprising the steps of:

transmitting, by a radio network controller (RNC), information on an MBMS cell to the UE, the MBMS cell information including an MBMS offset for controlling priority for cell reselection to the MBMS cell; and

performing, by the UE, cell reselection using the MBMS cell information and receiving the MBMS service from the reselected cell.

2. The method of claim 1, wherein the MBMS cell information further includes frequency information of the MBMS cell.

3. The method of claim 1, wherein the MBMS cell information further includes a cell identifier (ID) for identifying the MBMS cell and a target cell.

4. The method of claim 1, wherein the UE reselects a cell by applying the MBMS offset to an equation predefined for cell reselection.

5. The method of claim 1, wherein the MBMS cell information further includes an MBMS service ID of an MBMS service available in the MBMS cell.

6. The method of claim 1, wherein the RNC transmits the MBMS cell information through a system information block (SIB) separately transmitted for each cell.

7. The method of claim 1, wherein the RNC separately transmits the MBMS cell information through an MBMS-dedicated SIB, for each cell.

8. The method of claim 7, wherein the MBMS-dedicated SIB further includes information indicating whether a serving cell where the UE is located is available for the MBMS service.

9. The method of claim 1, wherein the UE performs cell reselection

to a neighbor cell with highest priority using the MBMS offset.

10. A method for reselecting a cell for a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area, the method comprising the steps of:

transmitting, by a radio network controller (RNC), a system information block (SIB) to a user equipment (UE), the SIB including identification information indicating whether a neighbor cell is available for the MBMS service; and

performing, by the UE, cell reselection to an MBMS cell using the SIB.

11. The method of claim 10, wherein the identification information includes a cell identifier (ID) of the MBMS cell, frequency information indicating an FA of the MBMS cell, cell information indicating a primary scrambling code for a primary common pilot channel (P-CPICH) of the MBMS cell, and an offset for guaranteeing priority for cell reselection.

12. The method of claim 10, wherein the identification information is separately transmitted to each cell over a broadcasting control channel (BCCH).

13. The method of claim 10, wherein the UE performs cell reselection to the MBMS cell after joining the MBMS service.

14. A method for reselecting a cell for a Multimedia Broadcast/Multicast Service (MBMS) service in a mobile communication system which supports the MBMS service with different frequency allocations (FAs) in the same area, the method comprising the steps of:

periodically transmitting, by a radio network controller (RNC), identification information indicating whether a neighbor cell is available for an MBMS service, to a user equipment (UE) through a control message; and

performing, by the UE, cell reselection to an MBMS cell using the identification information received through the control message.

15. The method of claim 14, wherein the identification information includes a cell identifier (ID) of the MBMS cell, frequency information indicating an FA of the MBMS cell, cell information indicating a primary scrambling code for a primary common pilot channel (P-CPICH) of the MBMS cell, and an offset

for controlling priority for cell reselection.

16. The method of claim 14, wherein the identification information is separately transmitted for each MBMS service over an MBMS control channel (MCCH).

17. A method for performing cell reselection to a preferred frequency band by a user equipment (UE) in a mobile communication system which supports a Multimedia Broadcast/Multicast Service (MBMS) service with different frequency allocations (FAs) in the same area, the method comprising the steps of:

receiving, from a radio network controller, a message including an MBMS service identifier (ID), information on a preferred frequency for the MBMS service, and an MBMS offset for controlling cell reselection;

performing inter-frequency measurement using the information included in the message;

and performing cell reselection if a preferred frequency band for an MBMS cell is higher in reception power than a frequency band for a current cell.

18. The method of claim 17, wherein the UE receives a notification message including information transmitted before a start of an MBMS session, performs inter-frequency measurement based on the notification message, and performs cell reselection to the preferred frequency band if the preferred frequency band for an MBMS cell is higher in reception power than the frequency band for the current cell.

19. The method of claim 17, wherein the UE periodically receives a control message including information after a start of an MBMS session, performs inter-frequency measurement based on the control message, and performs cell reselection to the preferred frequency band if the preferred frequency band for an MBMS cell is higher in reception power than the frequency band of the current cell.

20. The method of claim 17, wherein when an MBMS session for the MBMS service is in progress and the UE has selected a new cell, the UE receives a periodically transmitted notification message and performs inter-frequency measurement based on the notification message.

21. The method of claim 20, wherein the UE performs cell reselection if it is determined from the notification message that a frequency band of the reselected cell corresponds to a preferred frequency band.

22. The method of claim 20, wherein the UE stays in the current cell and receives the MBMS service from the current cell, if it is determined from the notification message that a frequency band of the reselected cell does not correspond to a preferred frequency band.

23. A method for providing by a radio network controller (RNC) a Multimedia Broadcast/Multicast Service (MBMS) service to a user equipment (UE) located in a non-MBMS frequency allocation (FA) in a mobile communication system which supports the MBMS service with different FAs in the same geographical area, the method comprising the steps of:

transmitting, by the RNC, a system information block (SIB) including information on an MBMS FA to the UE; and

periodically transmitting a message including information on the MBMS FA to the UE.

24. The method of claim 23, wherein the information on the MBMS FA includes an MBMS service identifier (ID) for the MBMS service, frequency information of the MBMS FA, a cell ID of the FA, and an MBMS offset for controlling cell reselection.

25. A method for receiving a Multimedia Broadcast/Multicast Service (MBMS) service by a user equipment (UE) located in a non-MBMS frequency allocation (FA) in a mobile communication system which supports the MBMS service with different FAs in the same geographical, the method comprising the steps of:

receiving, from a radio network controller (RNC), a system information block (SIB) including information on an MBMS FA;

analyzing the information on the MBMS FA in the SIB; and

performing cell reselection to the MBMS FA based on the analysis result.

26. The method of claim 25, wherein the SIB further includes information on whether an FA where the UE is located is available for the MBMS service.

27. A method for receiving a Multimedia Broadcast/Multicast Service (MBMS) service by a user equipment (UE) located in a non-MBMS frequency allocation (FA) in a mobile communication system which includes at least one non-MBMS cell and supports the MBMS service with different FAs in the same area, the method comprising the steps of:

receiving, by the UE, information on an MBMS cell from a radio network controller (RNC);

requesting, by the UE, a particular MBMS service; analyzing the received information; and

reselecting a cell available for the particular MBMS service based on the analyzed information.

28. The method of claim 27, wherein the received information includes system information for a particular cell unavailable for the particular MBMS service, and information on a neighbor cell available for the MBMS service.

29. The method of claim 27, wherein the received information includes information indicating whether a cell where the UE is located is available for the MBMS service, frequency information used in a neighbor cell available for the MBMS service, a cell identifier (ID), cell information, and an offset.

30. The method of claim 27, wherein the received information is separately transmitted for each cell through a system information block (SIB).

31. The method of claim 27, wherein the received information is separately transmitted for each MBMS service through a control message periodically transmitted in association with the MBMS service.

32. The method of claim 27, wherein the received information includes both information indicating whether a cell where the UE is located is available for a particular MBMS service and information indicating whether a neighbor cell available for the MBMS service is available for the particular MBMS.

33. The method of claim 28, wherein the UE measures reception power of neighbor cells and selects a neighbor cell available for the requested

MBMS service based on the analysis result if there is at least one neighbor cell available for the particular MBMS service.

34. A method for providing a Multimedia Broadcast/Multicast Service (MBMS) service to a user equipment (UE) located in a cell unavailable for the MBMS service by a radio network controller (RNC) including at least one cell unavailable for the MBMS service and other cells providing the MBMS service with different frequencies in the same area in a mobile communication system providing the MBMS service, the method comprising the steps of:

transmitting, by the RNC, a system information block (SIB) for the MBMS service to the UE;

reselecting, by the UE, a cell available for a particular MBMS service upon receiving a request for the particular MBMS service; and

assigning radio resources for providing the particular MBMS service to the UE.

35. The method of claim 34, wherein the SIB includes system information for the cell unavailable for the particular MBMS service and information on a neighbor cell available for the MBMS service.

36. The method of claim 35, wherein information on the neighbor cell includes frequency information used in the neighbor cell, a cell identifier (ID), cell information, and an offset.

37. The method of claim 35, wherein the cell information includes information indicating whether the neighbor cell available for the MBMS service is available for the particular MBMS service.

38. The method of claim 35, wherein the cell information further includes information indicating whether a cell where the UE is located is available for the particular MBMS service.

39. The method of claim 37, wherein the information indicating whether the neighbor cell available for the MBMS service is transmitted through an MBMS enabled cell information field.

40. The method of claim 37, wherein the information indicating whether the neighbor cell available for the MBMS service is transmitted through

an MBMS offset field.

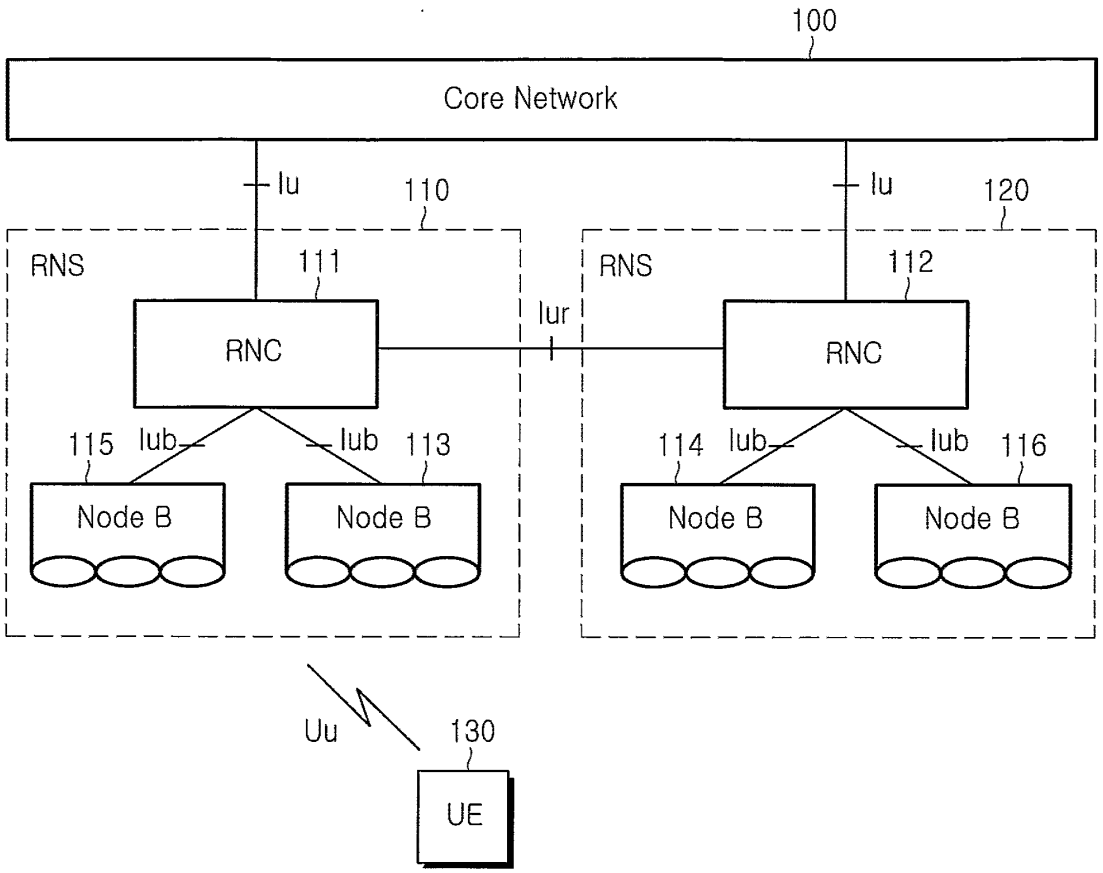

100
Core Network
Iu
110
Iu
120
RNS
111
RNS
112
Iur
RNC
RNC
115
Iub
Iub
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Iub
Iub
116
Node B
Node B
Node B
Node B
Uu
130
UE

FIG.1

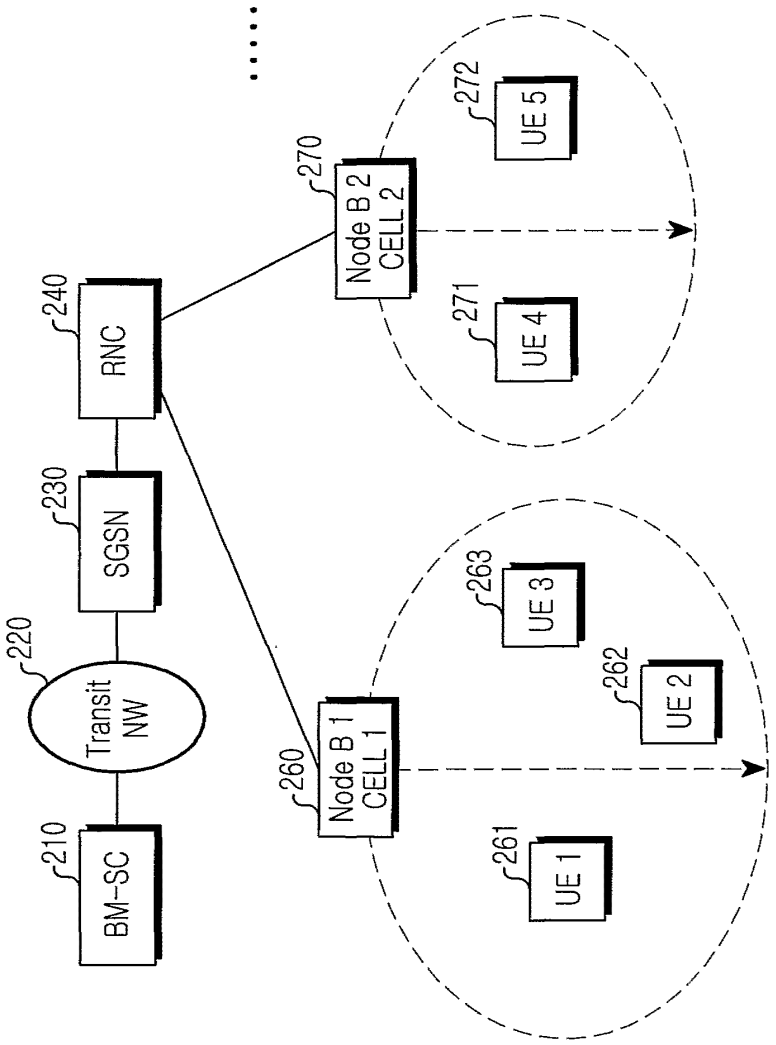

BM-SC
210
Transit NW
220
SGSN
230
RNC
240
Node B 1 CELL 1
260
Node B 2 CELL 2
270
UE 1
261
UE 2
262
UE 3
263
UE 4
271
UE 5
272

FIG.2

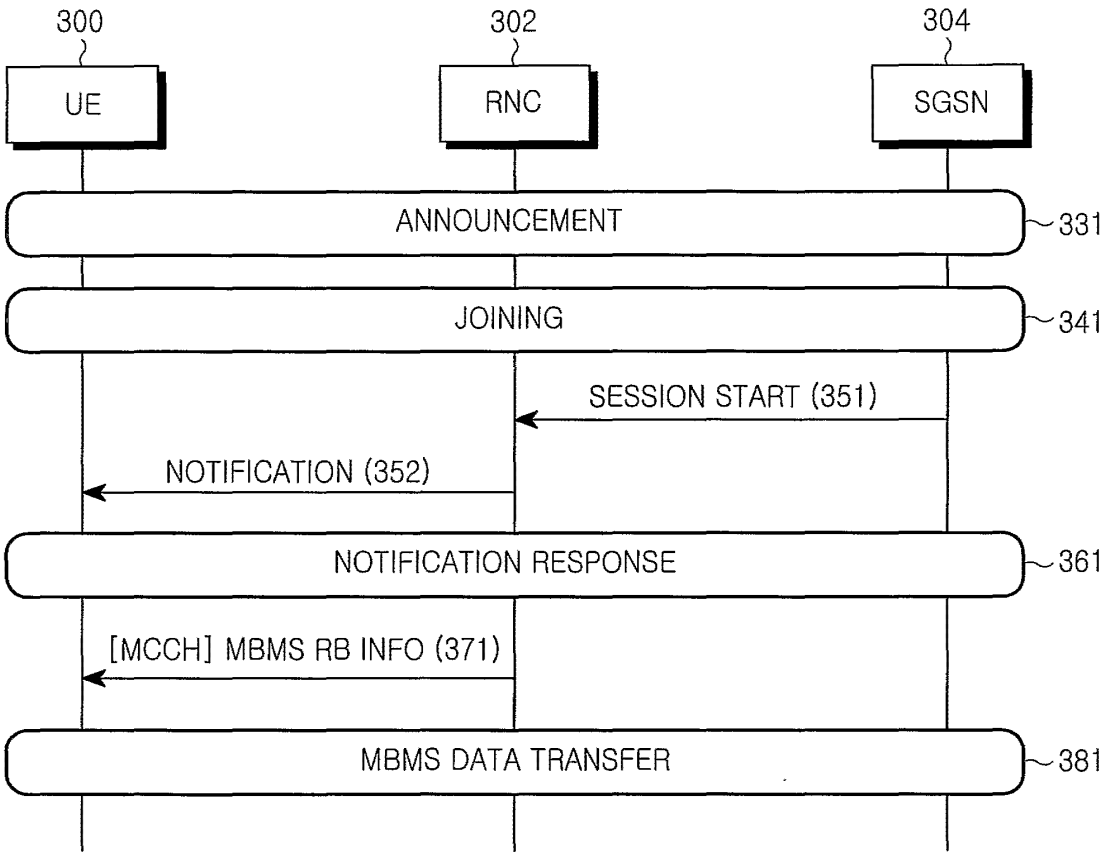

300
302
304
UE
RNC
SGSN
ANNOUNCEMENT
331
JOINING
341
SESSION START (351)
NOTIFICATION (352)
NOTIFICATION RESPONSE
361
[MCCH] MBMS RB INFO (371)
MBMS DATA TRANSFER
381

FIG.3

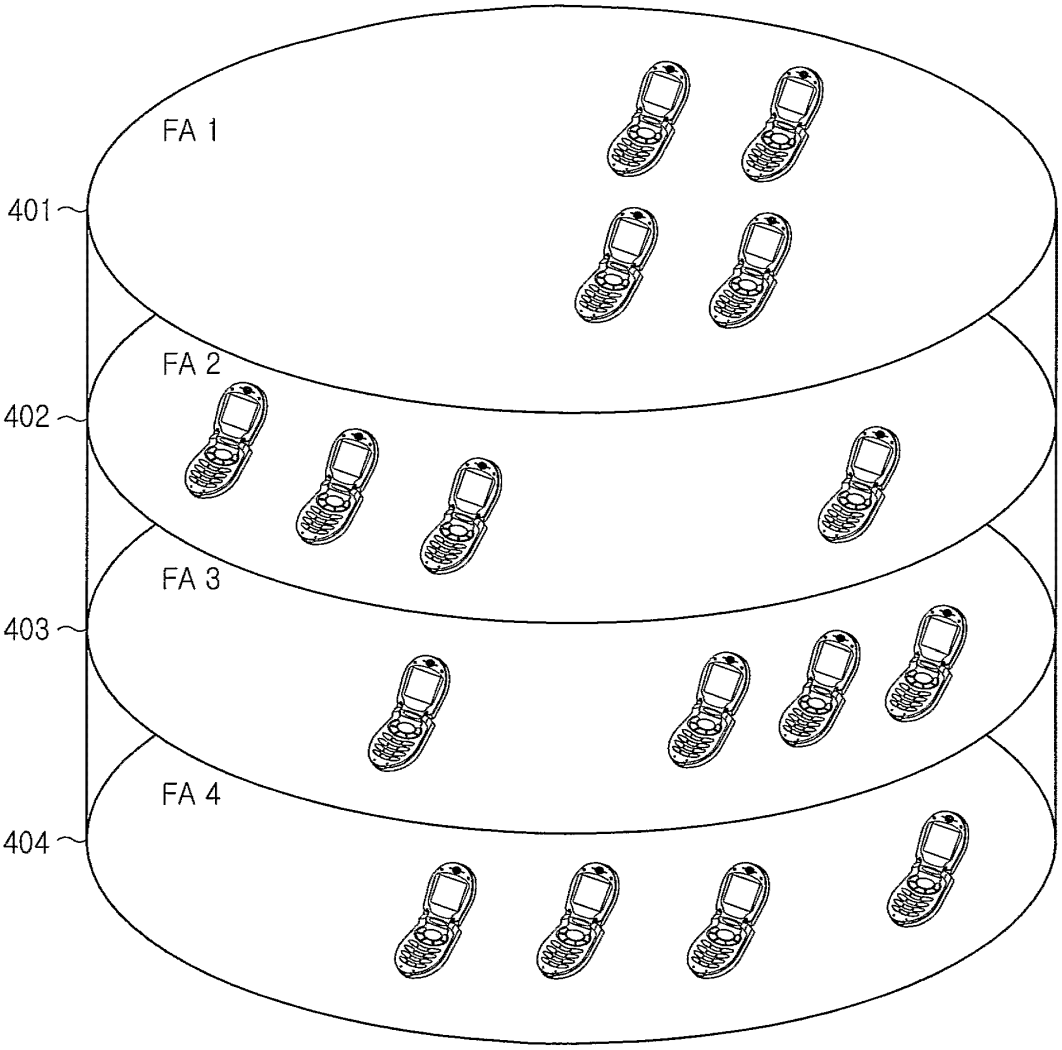


FIG.4

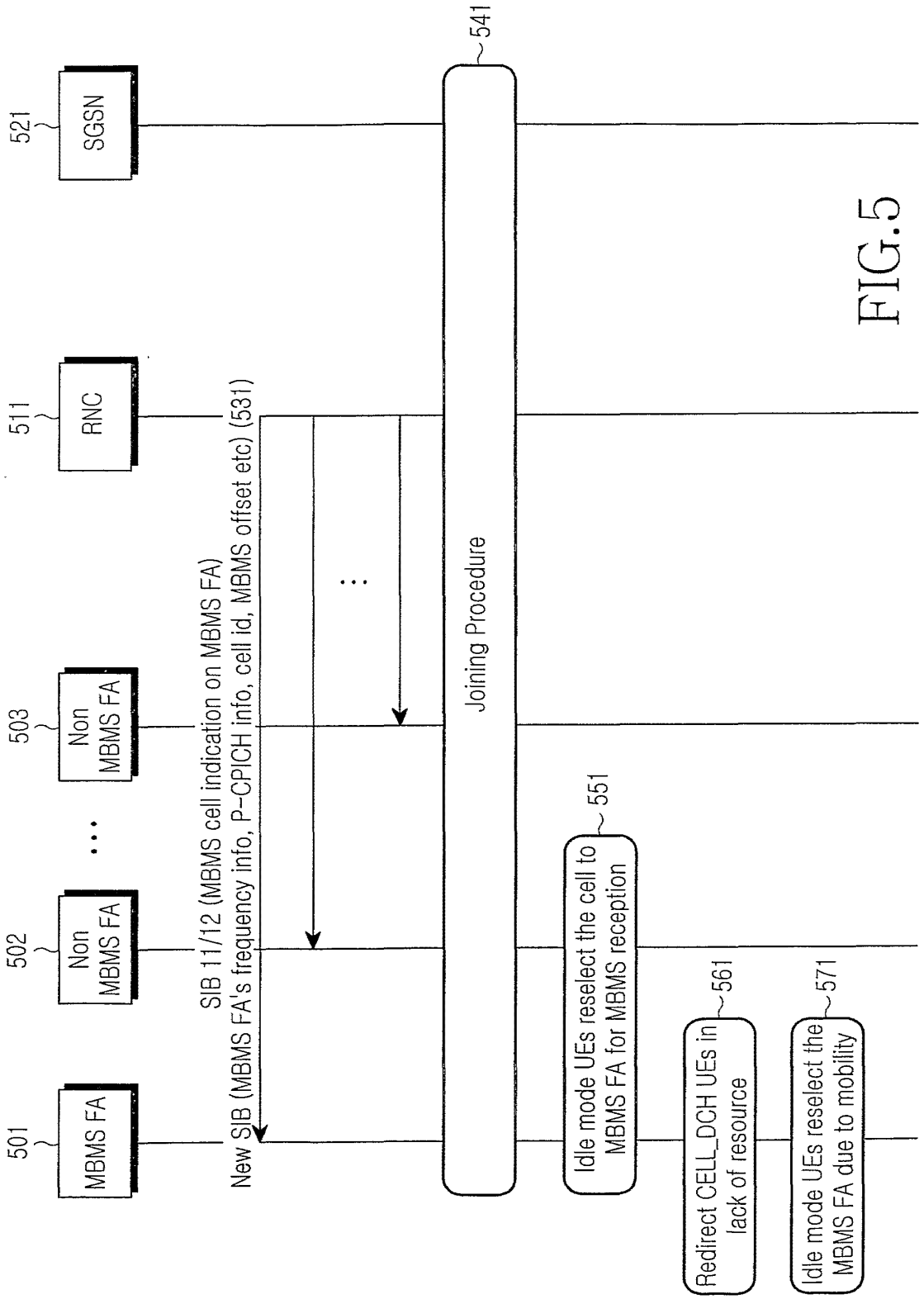

501
MBMS FA
502
Non MBMS FA
503
Non MBMS FA
511
RNC
521
SGSN
541
Joining Procedure
SIB 11/12 (MBMS cell indication on MBMS FA)
New SIB (MBMS FA's frequency info, P-CPICH info, cell id, MBMS offset etc) (531)
551
Idle mode UEs reselect the cell to MBMS FA for MBMS reception
561
Redirect CELL_DCH UEs in lack of resource
571
Idle mode UEs reselect the MBMS FA due to mobility

FIG.5

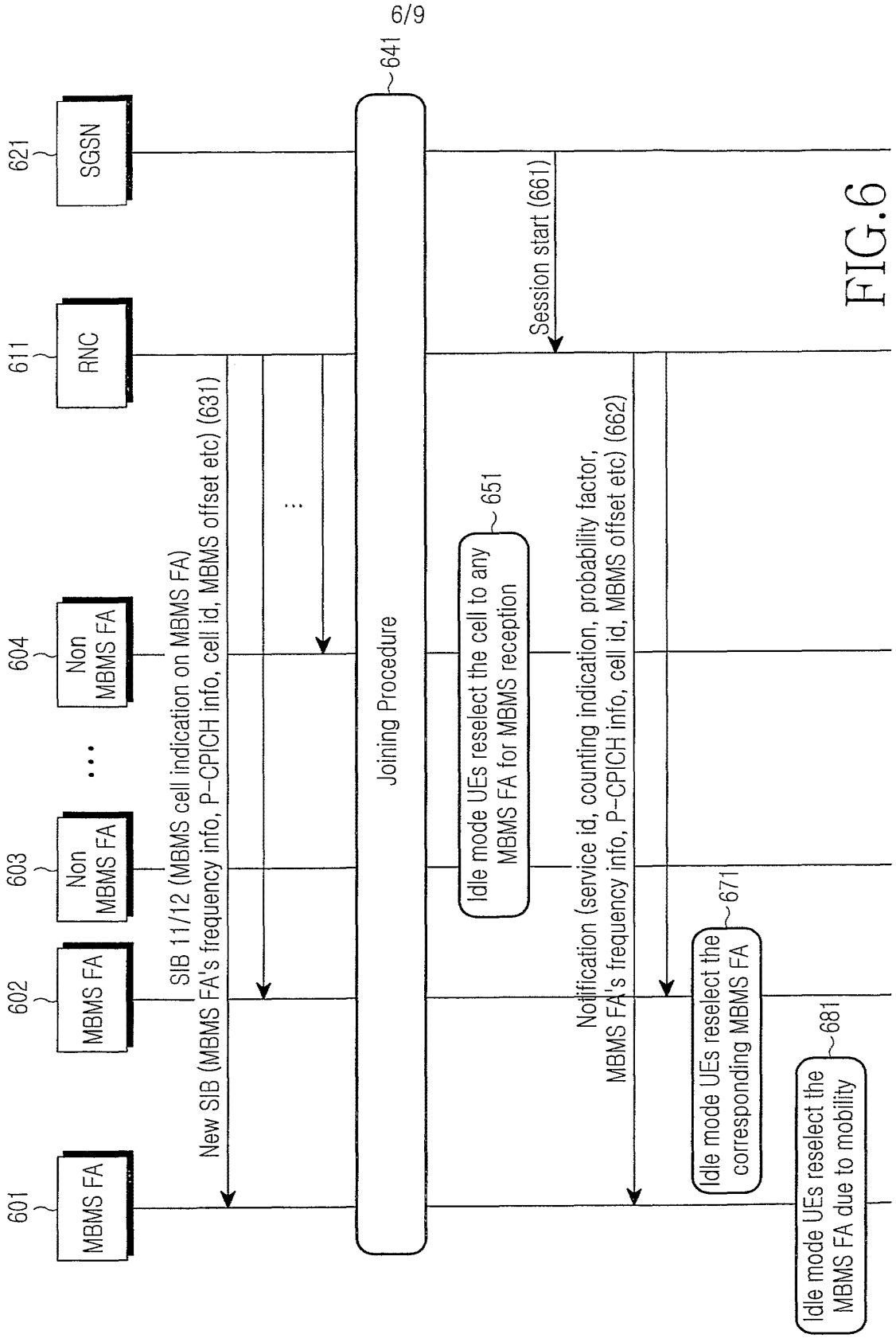

601
MBMS FA
602
MBMS FA
603
Non MBMS FA
604
Non MBMS FA
611
RNC
621
SGSN
641
Joining Procedure
SIB 11/12 (MBMS cell indication on MBMS FA)
New SIB (MBMS FA's frequency info, P-CPICH info, cell id, MBMS offset etc) (631)
Session start (661)
651
Idle mode UEs reselect the cell to any MBMS FA for MBMS reception
Notification (service id, counting indication, probability factor, MBMS FA's frequency info, P-CPICH info, cell id, MBMS offset etc) (662)
671
Idle mode UEs reselect the corresponding MBMS FA
681
Idle mode UEs reselect the MBMS FA due to mobility

FIG.6

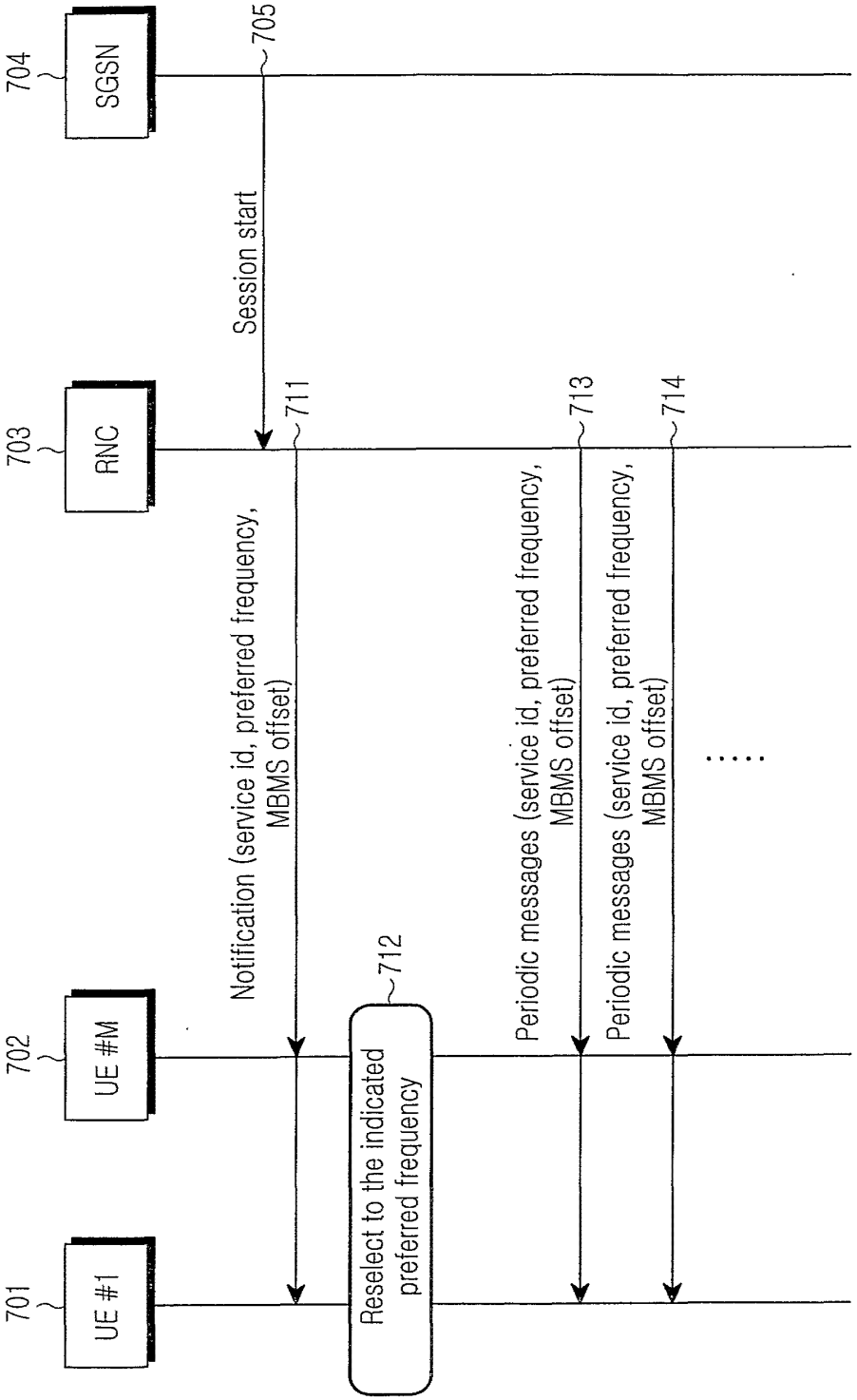

704
SGSN
705
Session start
703
RNC
711
713
714
Notification (service id, preferred frequency, MBMS offset)
Periodic messages (service id, preferred frequency, MBMS offset)
Periodic messages (service id, preferred frequency, MBMS offset)
712
Reselect to the indicated preferred frequency
702
UE #M
701
UE #1

FIG.7

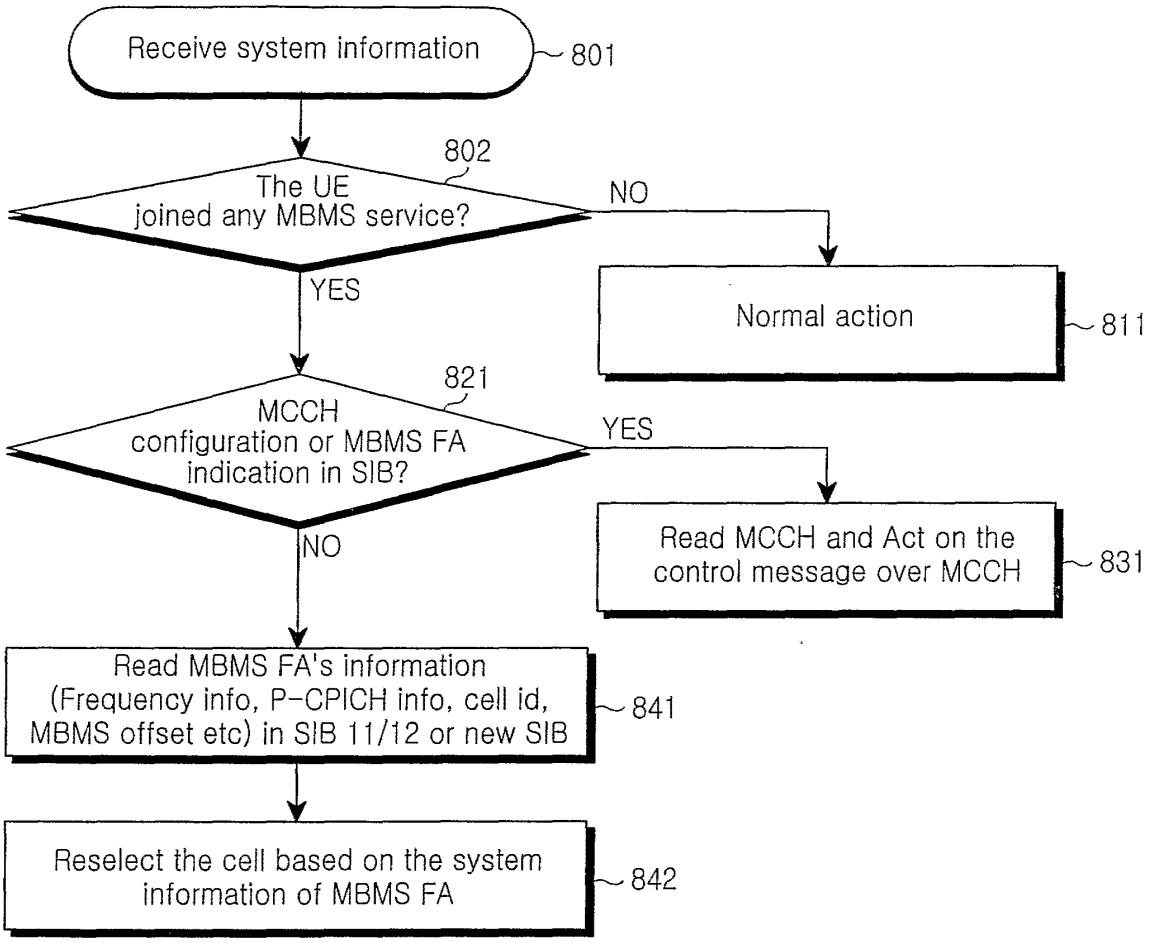

Receive system information
801
802
The UE joined any MBMS service?
NO
YES
Normal action
811
821
MCCH configuration or MBMS FA indication in SIB?
YES
NO
Read MCCH and Act on the control message over MCCH
831
Read MBMS FA's information (Frequency info, P-CPICH info, cell id, MBMS offset etc) in SIB 11/12 or new SIB
841
Reselect the cell based on the system information of MBMS FA
842

FIG.8

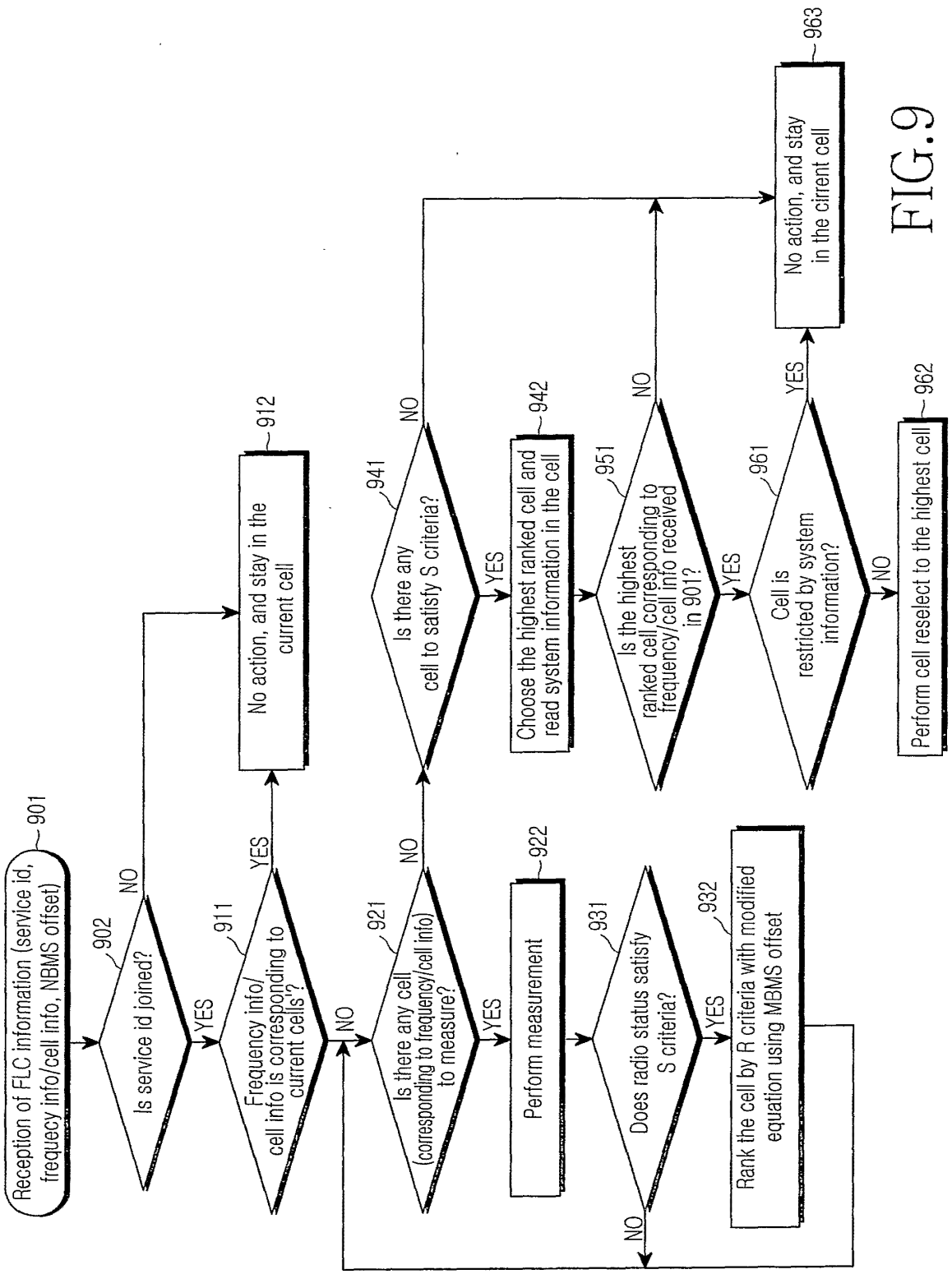

Reception of FLC information (service id, frequecy info/cell info, NBMS offset)
901
Is service id joined?
902
NO
YES
No action, and stay in the current cell
912
Frequency info/ cell info is corresponding to current cells?
911
YES
NO
Is there any cell (corresponding to frequency/cell info) to measure?
921
YES
NO
Perform measurement
922
Does radio status satisfy S criteria?
931
YES
NO
Rank the cell by R criteria with modified equation using MBMS offset
932
Is there any cell to satisfy S criteria?
941
YES
NO
Choose the highest ranked cell and read system information in the cell
942
Is the highest ranked cell corresponding to frequency/cell info received in 901?
951
YES
NO
Cell is restricted by system information?
961
YES
NO
Perform cell reselect to the highest cell
962
No action, and stay in the cirrent cell
963

FIG.9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/002109

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04B 7/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC7 H04B 7/26, H04Q 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
KOREAN PATENTS AND APPLICATIONS FOR INVENTIONS SINCE 1975
KOREAN UTILITY MODELS AND APPLICATIONS FOR UTILITY MODELS SINCE 1975

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)
KIPASS, DELPHION & Keywords : MBMS, intra-frequency, (cell reselection or handoff), system, information, block and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/0111166 A1 (OPUSWAVE NETWORK, INC.) 15 August 2002 * abstract, paragraphs [0029] - [0054] , figures 2 - 4 *	1 - 40
A	US 6393003 B1 (SAMSUNG ELECTRONICS CO., LTD.) 21 May 2002 * column 1 lines 51 - 64 , column 4 line 52 - column 5 line 48 , figures 2, 3 *	1 - 40
A	WO 01/43462 A2 (NOKIA MOBILE PHONES LTD.) 14 June 2001 * the whole document *	1 - 40
A	3GPP TS 25.304 V5.0.0 (2002-03) ;3rd Generation Partnership Project; Technical Specification Group Radio Access Network;UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode (Release 5) ; 4 May 2002 * retrieved at http://www.3gpp.org/ftp/Specs/html-info/25304.htm * * pages 18 -24 *	1 - 40
A	3GPP TS 25.331 V5.0.0 (2002-03) ;3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Radio Resource Control (RRC);Protocol Specification(Release 5) 19 March 2002 * retrieved at http://www.3gpp.org/ftp/Specs/html-info/25331.htm * * pages 38 - 61, 344 - 360 *	1 - 40

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 NOVEMBER 2004 (25.11.2004)	**26 NOVEMBER 2004 (26.11.2004)**

Name and mailing address of the ISA/KR	Authorized officer
Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	SHIN, Jun Ho Telephone No. 82-42-481-8129

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/002109

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, A	US 2004/0008646 A1 (SAMSUNG ELECTRONICS CO., LTD.) 15 January 2004 * the whole document *	1 - 40

Form PCT/ISA/210 (continuation of second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/KR2004/002109

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		WO 02082831 A3	30-05-2003
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		FR 2767617 B1	07-09-2001
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		KR 2003084516 A	01-11-2003
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		SE 0301237 A	28-10-2003
		SE 0301237 D0	28-04-2003

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FREQUENCY LAYER CONVERGENCE METHOD FOR MBMS

(57) Abstract: A method to control cell selection and/or re-selection in a communication system comprising a plurality of cells with which terminal devices may communicate, the method comprising the steps of: determining that a terminal device is to start a session for a certain service, the service using a reception frequency; based on that determination, changing at least one cell selection and/or re-selection parameter in respect of the terminal device with the effect that a subsequent cell selection and/or re-selection performed by the device would favour cells that use the reception frequency used in said service session over other cells.

WO 2005/101886 A2

Frequency Layer Convergence Method for MBMS

Field of the Invention

The present invention relates primarily to a method for providing a multimedia broadcast multicast service (MBMS). In an embodiment of the invention an MBMS is provided in a radio access network (RAN). However, it is envisaged that embodiments of the present invention may also be utilized in providing other types of service in a RAN. Specifically, the present invention may be implemented in a mobile telecommunications network.

Background of the Invention

A problem with implementing MBMS is that where there are cells on different frequency layers, with a distribution of MBMS subscribers across the different frequency layers, system capacity can be wasted if the same MBMS data stream is transmitted on the different frequency layers to UEs in the same geographical coverage area. Examples include overlapping cells, whether co-located or not. The term "co-location" in general is understood as cells on different frequencies have the same base station site i.e. the transmission of two or more carrier frequencies happens from the same base station site. However, in practice the network may have two or more carrier frequencies, which have different cell sizes and therefore at least not all cells are co-located although the coverage of these these different frequency layers are overlapping in a given geographical area. Hence, the problem does not only occur in co-located case but in all case and areas where the network has cell coverage on more than one frequency and therefore a network operator would like to provide MBMS service only on one of the carrier frequencies (or at least not on all carrier frequencies)

3GPP TS 25.346 v6.0.0 discusses general structural and functional aspects of providing MBMS in a RAN. Currently 25.346 v.6.0.0 defines frequency layer convergence as follows:

"Frequency Layer Convergence denotes the process where the UTRAN requests UEs to preferentially re-select to the frequency layer on which the MBMS service is intended to be transmitted. This layer preference could be done by an additional MBMS session related Layer Convergence Information (LCI) such as offset and target frequency. These kinds of information could be given to UEs at session start and during the whole session, and will be applied during the entire session. More than one offset may be required to support multiple frequencies, but it is assumed that the same LCI information will apply to all the services on the same frequencies."

R2-031716, 3GPP TSG RAN WG2 meeting #37 Budapest, Hungary, August 25th-29th 2003 proposes frequency layer convergence (FLC) for MBMS.

R2-032077, TSG RAN WG2 meeting #38 Sophia Antipolis, France, September 6th-10th 2003 discloses a UE layer convergence mechanism for MBMS.

R2-040086, TSG RAN WG2 meeting #38 Sophia Antipolis, France, September 6th-10th 2003 discusses different alternatives for layer convergence and possible MBMS frequency layer convergence procedures.

3GPP TS 25.346 v6.0.0 discusses general structural and functional aspects of providing MBMS in a RAN. Currently 25.346 v.6.0.0 defines frequency layer convergence as follows:

"Frequency Layer Convergence denotes the process where the UTRAN requests UEs to preferentially re-select to the frequency layer on which the MBMS service is intended to be transmitted. This layer preference could be done by an additional MBMS session related Layer Convergence Information (LCI) such as offset and target frequency. These kinds of information could be given to UEs at session start and during the whole session, and will be applied during the entire session. More than one offset may be required to support multiple frequencies, but it is assumed that the same LCI information will apply to all the services on the same frequencies."

The intention behind the FLC concept is to maximise the point-to-multipoint (p-t-m) connections for an MBMS session, from the radio network controller (RNC) point of view. This is because MBMS in point-to-point (p-t-p) would not present many

advantages over R99 DCH connections since the same radio resources are consumed. Thus, FLC reduces system capacity wastage in that where there is overlapping cell coverage on different frequency layers, with a distribution of MBMS subscribers across the different frequency layers, the MBMS subscribers are moved onto the same frequency layer thereby negating the need to transmit the same MBMS data stream on multiple different frequency layers to UEs in the same geographical coverage area.

The discussion in 25.346 v.6.0.0 and the proposals in documents R2-031716, R2-032077 and R3-040086 do not define the details required to implement a frequency layer convergence method for MBMS but instead discuss generally the requirements for frequency layer convergence.

It is currently not possible to converge a UE to a certain cell or frequency, which is different from the one that would be selected or reselected based on the normal cell reselection criteria in the following radio resource control (RRC) states: Idle, CELL_FACH, CELL_PCH. Furthermore, it is also not possible to keep the UE on a preferred MBMS frequency layer when the cell reselection criteria indicate a cell on another carrier frequency to be better and no there is no cell barring.

Summary of the Invention

It is an aim of the present invention to solve one or more of the above-identified problems.

Aspects of the invention are set out in the claims.

According to an embodiment of the present invention not all MBMS capable UEs should reselect to the MBMS layer. Rather, only the UEs that start an MBMS session will move to the MBMS layer. This avoids all MBMS UEs reselecting always to the same frequency and minimizes the migration trend of MBMS UEs towards the same cells. For example, this feature prevents migration of MBMS UEs towards bigger cells in the case where a macro layer is the preferred MBMS layer and a micro layer is the preferred normal HCS layer.

Preferably, the FLC feature is only applicable for MBMS capable UEs. However, it is envisaged that embodiments of the present invention may also be utilized in providing other types of service in a RAN.

Preferably, the FLC is active after notification. An MBMS notification indicator channel (MICH) may be provided in the cells. Furthermore, an MBMS point-to-point traffic channel (MCCH) may also be provided in the cells. The MCCH that is sent on cells that are not on the preferred MBMS frequency may not have all the data that is available in the MCCH sent on the preferred MBMS layer. But the MCCH that is sent in cells that are not on the preferred MBMS frequency contains the parameters needed for FLC. If the MCCH is not transmitted in cells together with MICH, then the FLC parameters should be (e.g.) broadcast in system information. This is less preferable.

Preferably, there is an explicit session stop to indicate disabling the FLC. The network is able to switch this feature ON/OFF, with the start/finish of the MBMS session. The UE uses the FLC related cell reselection parameters and criteria during the MBMS session only (The FLC is only available per MBMS session).

The changing step preferably comprises setting a parameter so as to encourage the terminal device to select or re-select a cell more promptly. This may be done by triggering immediate selection or reselection or by altering a threshold so as to make selection or reselection more likely.

Embodiments of the invention preferably provide a solution for frequency layer convergence for MBMS, which does not conflict with the existing cell reselection criteria and allows minimum changes to the cell reselection criteria. The invention introduces a solution for networks, with and without HCS (Hierarchical Cell Structure).

The network could send an FLC parameter upon notification.

Brief Description of the Drawings

Embodiments of the present invention will now be described by way of example with reference to the accompanying drawings in which:-

Figure 1 is a schematic diagram showing an embodiment of the present invention in a network having a hierarchical cell structure;

Figure 2 is a schematic diagram showing an embodiment of the present invention in a network not having a hierarchical cell structure where the serving cell is not on the MBMS layer;

Figure 3 is a schematic diagram showing an embodiment of the present invention in a network not having a hierarchical cell structure where the serving cell is on the MBMS layer;

Figure 4 is a flow diagram illustrating the steps in an embodiment of the method of the present invention;

Figure 5 shows a MICH frame;

Figure 6 shows a session start sequence; and

Figure 7 shows a session stop sequence.

Detailed Description of Embodiments of the Invention

Figure 1 is shows a schematic diagram of a portion of a network having a hierarchical cell structure. The network comprises a macro-cell 2 and a plurality of micro-cells 4. The macro-cell comprises the MBMS layer while the micro-cells comprise the non-MBMS layer. Associated with the cells is a HCS priority represented by the parameter HCS_PRIO. Accordingly, a value for HCS_PRIO is associated with the MBMS layer and a value for HCS_PRIO is associated with the non-MBMS layer

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Typically in a network using HCS, macro-cells have lower priority than micro-cells. That is, HCS_PRIO is different for each layer, and in Figure 1 HCS_PRIO is equal to 3 in the micro-cells and is equal to 2 in the macro-cell. Since the macro layer is the MBMS layer a change of priority is required to reselect onto the MBMS layer for an MBMS session. That is, for networks using HCS, the HCS priority is modified by changing HCS_PRIO.

Hence, if a network uses HCS and HCS priorities are not aligned with the MBMS priorities, HCS_PRIO is changed for the MBMS layer upon notification. This could be provided by means of frequency identification and an offset value to the parameter HCS_PRIO or an actual replacement value for HCS_PRIO. The FLC parameters may be sent e.g. in the session control start message on MCCH or via SIB (System Information Block types).

In Figure 1 HCS_PRIO of the cell on the MBMS layer is changed from 2 to 4 so as to have a higher HCS priority (HCS_PRIO) than the non-MBMS layer (for which HCS_PRIO is set at 3) for UEs that are notified to use the FLC. A change of priorities occurs after the notification. For other UEs HCS_PRIO remains unchanged. In this example the HCS_PRIO is changed from 2 to 4, which means that the MBMS layer has higher priority for UEs that are notified to use the FLC. For other UEs HCS_PRIO remains at 2. In the case where the HCS priority and MBMS priority are the same in the network no changes are required to the HCS priority. In this case the network may either use FLC or decide to keep the normal cell reselection criteria for UEs that are notified about the start of a MBMS session.

When the MBMS session is finished, the priorities are changed back to their original values and in the example shown in Figure 1 the UE would reselect back to the micro-cell with a HCS_PRIO of 3.

The high mobility rules of the normal HCS priorities may not be valid for MBMS due to different prioritization. In this case the UE should not use the existing HCS high mobility triggers and prioritization of lower HCS priority layers when high mobility would be triggered based on the normal HCS high mobility triggers defined in 25.346 v.6.0.0. This can be obtained either by explicitly defining in the specification that when the FLC is used, high mobility triggers and rules criteria should not be used or

by a special signaling element that indicates whether high mobility triggers and criteria should be used in the FLC case as well.

The re-selection to the MBMS layer may either occur when the UE has evaluated the H criterion of a cell in the MBMS layer to be higher than 0 (H is defined in TS25.304) or immediately after the notification. In the case of the initial cell reselection initiated by the FLC, the UE may disregard the penalty time and TEMP_OFFSET in order to allow faster frequency layer convergence. In the case where the UE evaluates H>0, this would ensure a minimum quality for a cell in the MBMS layer before convergence occurs. In cell reselections, when the FLC is active, the UE selects a cell with the highest R value (the R criterion is defined in TS25.304) on the preferred MBMS layer as long the H criterion (H>0) is met for the MBMS layer. The cell selection criterion S in 25.304 has to be met for a cell that the UE selects/reselects based on the FLC criteria in order to ensure that the UE is camped on a suitable cell. In case of the initial cell reselection after the FLC has been activated the UE may choose a cell reselection initiated by the FLC the UE may disregard the penalty time and TEMP_OFFSET in order to allow faster on the preferred MBMS frequency layer convergence. Furthermore, in the first cell reselection after the FLC has been activated the UE may choose a MBMS layer cell that fulfils S and H criterion but it does not necessarily have the highest R value. In the following cell reselection the UE should select a cell, which has the highest R value and fulfill the S and H criterion. The immediate FLC would provide a shorter convergence time.

Figures 2 and 3 show schematic diagrams of a portion of a network not having a hierarchical cell structure. If a network does not use HCS, the offset used in the R criterion is changed in order to control cell selection for MBMS. The R criterion is defined in TS25.304. That is, Q_{offset} in the R criterion is changed. In Figure 2, the serving cell is not on the MBMS layer. In Figure 3, the serving cell is on the MBMS layer.

The change of offset value for the cells of the MBMS layer could either be done by signaling an additional Qflcoffset t, which is valid for the cells on the MBMS carrier frequency. In case of several MBMS layers Qflcoffset should be signaled for each MBMS frequency. This offset(s) would be provided upon notification. The FLC parameters may be sent e.g. in the session control start message on MCCH or via SIB

(System Information Block types). Qflcoffset and can be done in 2 ways as discussed below

R_n for all the neighbour cells on the desired MBMS layer would then be calculated as follows:

Serving cell $R_s = Q_{meas,s} + Qhyst_s$

Neighbour cells $R_n = Q_{meas,n} - Qoffset_{s,n} + (F)^* Qflcoffset - TO_n * (1 - L_n)$

Where:

F = 1 if the serving cell is not on the preferred MBMS frequency but neighbour cell n is on the MBMS preferred frequency

F = 0 if neither the serving cell nor neighbour cell n are on the MBMS preferred frequency

F = -1 if the serving cell is on the preferred MBMS frequency but neighbour cell n is not on the MBMS preferred frequency

F = 0 if the serving cell and neighbour cell n are on the MBMS preferred frequency

Another method would be to signal a new offset value that would then replace the $Qoffset_{s,n}$ values of all the neighbour cells on the desired MBMS layer.

The UE would then reselect the cell, that has the highest R value. (The R criterion and parameters are defined in TS25.304). In the case of the initial cell reselection initiated by the FLC, the UE may disregard the penalty time and TEMP_OFFSET in order to allow faster frequency layer convergence. The cell selection criterion S in 25.304 has to be met for a cell that the UE selects/reselects based on the FLC criteria in order to ensure that the UE is camped on a suitable cell. In the first cell reselection after the FLC has been activated the UE may choose a MBMS layer cell on the preferred MBMS frequency layer that fulfils S but it does not necessarily have the highest R value. In the following cell reselection the UE should select a cell, which has the highest R value and fulfill the S and H criterion.

The UE would then reselect the cell with the highest R value. (The R criterion and parameters are defined in TS25.304). In the case of the initial cell reselection initiated

by the FLC, the UE may disregard the penalty time and TEMP_OFFSET in order to allow faster frequency layer convergence.

Thus, the FLC could occur immediately after the notification and after that the UE would follow the new FLC parameters and corresponding cell reselection criteria until the MBMS session ends. After this initial immediate reselection of MBMS layer, the UE would follow the normal cell reselection criteria with the modified offset value(s) for the MBMS layer(s).

Alternatively, the new MBMS cell may have to be better ranked than the serving cell during a time interval $T_{reselection}$ before cell reselection occurs. This would cause additional delay to cell reselection but it is reasonable if the value of $T_{reselection}$ is not high. The parameter range of $T_{reselection}$ may be set from 0 to 31 seconds with a step of 1 second. Alternatively The cell selection criterion S in 25.304 has to be met for a cell that the UE selects/reselects based on the FLC criteria in order to ensure that the UE is camped on a suitable cell.

When the MBMS session is finished, the Q_{offset} values would be changed back to normal.

The FLC parameters and cell reselection rules are valid during the MBMS session. When the MBMS session ends the UE starts using normal cell reselection parameters and criteria again (i.e. the HCS_PRIO is changed to the normal values given in the system information for normal cell reselection and the Qflcoffset is no longer used in cell reselections).

The above described methods are implemented as follows.

The UTRAN (RNC) sends parameters related to the FLC when it notifies the UE that the MBMS session will start. This may be done e.g. in the session control start message on MCCH or via SIB (System Information Block types).

When the FLC is used in the network, the UE has to indicated a session stop so that the UE can start using normal cell reselection parameters and criteria again.

The UE reads the FLC parameters when it has been notified that the MBMS session starts and start using the FLC cell reselection parameters in cell reselection (in order to make frequency layer convergence possible).

When the MBMS session ends the UE reverts back to the normal cell reselection rules.

This invention provides a working FLC method (cell reselection criteria) for MBMS in a network with and without HCS. The method is backwards compatible – i.e. can be used with all R99 features, including HCS. R99 re-selection rules remain as they are.

Advantages of the HCS case are:

- Simple solution. It works by merely assuming different values of HCS_PRIO for a certain frequency.
- If re-selection to the MBMS layer only occurs when H>0, we ensure t a minimum quality before convergence occurs.

Advantages of the non-HCS case are:

- Simple solution. It works by merely assuming different Qoffset value for a certain frequency.

Other embodiments of the present invention are also envisaged. For example, the present invention may also be utilized in providing other types of service in a RAN.

The system is preferably a 3G / UMTS system, or a derivative thereof, but the present invention could be used in other systems.

There follows a further description of an illustrative example of the invention.

1. Introduction

The Frequency Layer Convergence (FLC) concept was included to [4] in RAN2#40 introduced based on revised text from [3]. The intention behind the FLC concept is to maximise the p-t-m connections for an MBMS session, from the RNC point of view. This is because MBMS in p-t-p would not present many advantages over the R99 DCH connection since the same radio resources are consumed. It is currently not possible to converge a UE to a certain cell or frequency in the following RRC states: Idle, CELL_FACH, CELL_PCH. Even though included in the [4], The FLC description is still at a general level, and requires further refinement before stage-3 work can be started. In this contribution, we present a Nokia view on the requirements and assumptions related to FLC concept. Based on those, we identify the impact of FLC to some MBMS procedures/features and propose the changes to be made to various parts of [4] to explicitly describe this impact as well as the underlying assumptions.

2. Discussion

2.1. FLC assumptions and Requirements

In documents R2-031716, R2-032077 and R2-040086 the FLC concept is discussed. However, the text describing FLC in [4] does not capture all the underlying assumptions. According our view, at least the following assumptions are valid:

1. Not all MBMS capable UEs should reselect to the MBMS layer.
Only the UEs that have activated the MBMS user service for which a session is starting shall have moved to the MBMS layer. This will avoid all MBMS UEs that have activated other MBMS service reselecting always to the same frequency when any MBMS service is transmitted and minimise the migration trend of MBMS UEs towards bigger cells although normal cell reselection parameters would prioritise smaller cells e.g. on micro layer.

2. The FLC shall only be active after the reception of notification.
(This implies that MICH and MCCH are present at all cells to deliver session start

signalling). It is not stated clearly in [4] whether the UE should move when joining the session or when it is notified. Nokia's preference the latter one since it allows the FLC to happen only when it is needed i.e. when the session starts. This is important since cell re-selection based on the FLC is not typically indicating the best cell to camp on based on the normal cell reselection rules that are in use in the network. MICH and MCCH in each cell, counting at target frequency. There needs to be a delay to allow re-selection.

3. There shall be an explicit session stop to indicate disabling the FLC.
Since FLC will typically present a less optimum cell re-selection, the time the UE spends actively using this feature should be minimised.

4. FLC-based cell re-selection should only occur on the areas where the preferred MBMS frequency layer can provide acceptable quality.
Required limitations: FLC can only occur in cells which overlap in coverage and the adjacent cells must be at the same frequency. It has recently been discussed in RAN2 that the FLC should only occur in case of co-located cells. We have made some further analyses on how to ensure smooth initial frequency layer convergence and to maintain the UE on the preferred MBMS layer as long as session is active and the preferred MBMS frequency layer can provide acceptable quality (i.e. at least the S criterion is met). We found out that it is rather easy to define what the co-location requirement mean in case of initial frequency layer convergence but it becomes a bit more complicated when the UE starts making cell re-selections within the MBMS layer. All cells on the MBMS layer could potentially be co-located with a cell on another frequency, potentially the one from where the initial FLC was made. It may be possible to define acceptable FLC cell re-selection rules that fulfil the requirements set by this document.
There is preferably no attempt to converge UEs towards a specific cell, because this would cause high interference on neighbouring cells. Instead general FLC layer rules, which are valid for all neighbour cells on the MBMS layer, should be defined.

6. FLC shall be backwards compatible – i.e. allow inter-working with the existing cell reselection criteria

7. FLC shall be available for networks with and without HCS.

8. It is assumed the MBMS layer also provides R99/4/5 services independently of MBMS services – i.e. R99/4/5 UEs may also camp on the MBMS layer cells.

2.2. Impact on other MBMS procedures/features

Reasoning:

1. FLC is only available during MBMS session. (The consequence of 2 and 3 is that)
2. FLC needs to use a cell reselection based method. This means that the UE will select the best cell, based on a set of modified rules given by the network. The network is able to switch this feature ON/OFF, with the start/finish of the MBMS session.
3. Session start procedure needs to be enhanced to take FLC into account.
4. Session stop procedure needs to be used, if FLC is used.
5. MICH and MCCH needs to be present also in all cells within the MBMS service geographical area, even if there is no MTCH.

4. Proposal

It is proposed that the following changes should be agreed to be included in the TS. Once there is an agreement, CR can be made, or another action can be taken.

>>>>>>>>>>>Start of the modification #1<<<<<<<<<<

6.3. MBMS Notification Indicator Channel

MBMS notification utilizes a new MBMS specific PICH called MBMS Notification Indicator Channel (MICH) in cell. MICH frame is presented in the following figure. The exact coding is defined in Stage-3 physical layer specifications. When FLC is

used, MICH channel can be present in a cell independently of the presence of MTCH channels.

[Figure 5]

>>>>>>>>>>>End of the modification #1<<<<<<<<<

>>>>>>>>>>>Start of the modification #2<<<<<<<<<

8.1.1 Session start

Upon receiving a session start indication from CN, UTRAN initiates the session start sequence to allocate radio resources to UEs for receiving the MBMS content. As part of this sequence, UTRAN may apply the counting procedure (counting the number of idle mode UEs) to decide whether to use the p-t-m or p-t-p transfer mode. The FLC may also be activated during session start sequence, which may cause cell re-selection during the session start sequence. In this case, cell re-selection shall take place after MCCH is read.

The following figure shows an example of a possible session start sequence.

[Figure 6]

In general, the session start sequence involves the following steps:

- In case UTRAN applies counting to determine the most optimal transfer mode, it may first apply conventional paging to move UEs in URA_PCH to CELL_PCH state. Next, the following steps are performed:
    - UTRAN sets the correct MBMS Notification Indicator (NI) and sends the MBMS ACCESS INFORMATIONincluding service ID, and access probability on MCCH.
    - Upon DRX wakeup, UEs in idle mode as well as UEs in CELL_PCH, URA_PCH and CELL _FACH not receiving an MBMS service provided in p-t-m transfer mode evaluate the MBMS NI and if set, read MCCH at the pre- defined time(s). Upon receiving the MBMS ACCESS INFORMATION including access probability, UEs in idle mode for which the probability check passes, initiate RRC connection establishment to

move to PMM CONNECTED. RRC Connected mode UEs ignore the MBMS ACCESS INFORMATION. UTRAN counts the UEs interested in the MBMS service using UE linking from CN

- In case a pre- defined threshold is reached, UTRAN applies the p-t-m RB establishment procedure specified below. Otherwise, UTRAN may repeat the MBMS ACCESS INFORMATIONa number of times, using different probability values. If the threshold is not reached, UTRAN applies the p-t-p RB establishment procedure

NOTE: The NIs are evaluated by UEs in CELL_PCH, URA_PCH and CELL_FACH that are not receiving an MBMS service that is provided using p-t-m transfer mode. In this section these UEs are referred to as 'NI-detecting connected mode UEs'. The UEs in CELL_PCH, URA_PCH, CELL_FACH and CELL_DCH that are receiving an MBMS service that is provided using p-t-m transfer mode receive the Secondary Notification Indicator (SNI) instead. The latter UEs are referred to as 'SNI detecting connected mode UEs'.

- In case UTRAN selects the p-t-m RB establishment procedure:
  - UTRAN configures MTCH and updates MCCH (MBMS SERVICE INFORMATION and MBMS RADIO BEARER INFORMATION) by including the service ID and p-t-m RB information for the concerned MBMS service
  - In case p-t-m RB establishment is not preceded by counting, UTRAN sets the correct MBMS Notification Indicator (NI). Regardless of counting, UTRAN also provides the Secondary Notification Indicator.
  - UTRAN sends the MBMS dedicated notification message including the service ID and cause= session start on DCCH to inform UEs in CELL_DCH that are not receiving an MBMS service provided using p-t-m transfer mode
  - In case p-t-m RB establishment is preceded by counting, UEs in idle mode as well as NI- detecting connected mode UEs read MCCH at the pre-defined time(s) to acquire the MBMS SERVICE INFORMATION and MBMS RADIO BEARER INFORMATION

- In case p-t-m RB establishment is not preceded by counting, Upon DRX wakeup, UEs in idle mode as well as NI- detecting connected mode UEs evaluate the MBMS NI and if set, read MCCH at the pre- defined time(s)to acquire the MBMS SERVICE INFORMATION and MBMS RADIO BEARER INFORMATION
- Upon detecting the MBMS SNI, SNI- detecting connected mode UEs read MCCH at the pre- defined time(s) to acquire the MBMS SERVICE INFORMATION and MBMS RADIO BEARER INFORMATION. UEs that are incapable of receiving the MTCH for the session that is started in parallel to the existing activity notify the user. This enables the user to choose between the ongoing activity and the new MBMS service
- Upon receiving MBMS dedicated notification with cause= session start, UEs in CELL_DCH that are incapable of receiving the MCCH and the corresponding MTCH in parallel to the existing activity notify the user. This enables the user to choose between the ongoing activity and the new MBMS service. If the user decides to receive the new MBMS service, the UE shall read MCCH at the pre- defined time(s) to acquire the MBMS SERVICE INFORMATION and MBMS RADIO BEARER INFORMATION.
- Upon receiving the MBMS SERVICE INFORMATION and the MBMS RB INFORMATION including the p-t-m RB information for the concerned MBMS service, the UE starts receiving the p-t-m radio bearers

- In case UTRAN selects the p-t-p RB establishment procedure:
  - UTRAN applies conventional paging to trigger UEs in CELL_PCH to perform cell update. Furthermore, UTRAN establishes the p-t-p RB by means of appropriate RRC procedures eg. the RB setup procedure
  - UEs establish the p-t-p radio bearers by means of the RRC procedure selected by UTRAN eg. the RB setup procedure
  - UTRAN updates MCCH (MBMS SERVICE INFO) to inform UEs joining or entering the cell at a later point in time.

>>>>>>>>>>>End of the modification #2<<<<<<<<<

>>>>>>>>>>>Start of the modification #3<<<<<<<<<

8.1.4 Session stop

UTRAN may apply the session stop procedure to inform UEs that the end of MTCH transmission concerns the end of a session rather than just an idle period. The purpose of the procedure is to reduce the UE power consumption and to allow the UE to disable the frequency layer convergence functionalities when there are no ongoing MBMS sessions requiring the use of FLC. When FLC is applied UTRAN shall apply session stop procedure.

The following figure shows an example of a possible session stop sequence.

[Figure 7]

In case UTRAN provides the service p-t-m, the session stop sequence involves the following steps:

- UTRAN sets the correct MBMS NI and provides the SNI
- Upon DRX wakeup, UEs in idle mode as well as NI detecting connected mode UEsevaluate the MBMS NI and if set, read MCCH at the pre- defined time(s) to acquire the required MCCH information. Upon receiving this information the UE stops receiving the MTCH
- Upon detecting the MBMS SNI, SNI- detecting connected mode UEs read MCCH at the pre- defined time(s) to acquire the required MCCH information. Upon receiving this information the UE stops receiving the MTCH

In case UTRAN provides the service p-t-p, the session stop sequence involves the following steps:

- UTRAN releases the p-t-p radio bearers and updates MCCH (MBMS SERVICE INFO) to inform UEs joining or entering the cell at a later point in time.

>>>>>>>>>>>End of the modification #3<<<<<<<<<

>>>>>>>>>>>Start of the modification #4<<<<<<<<<

11.2 Frequency layer Convergence

Frequency Layer Convergence denotes the process where the UTRAN requests UEs to preferentially re-select to the frequency layer on which the MBMS service is

intended to be transmitted. This layer preference could be done by an additional MBMS session related Layer Convergence Information (LCI) such as offset and target frequency. These kinds of information could be given to UEs at session start and during the whole session, and will be applied during the entire session. More than one offset may be required to support multiple frequencies, but it is assumed that the same LCI information will apply to all the services on the same frequencies.
The details of the mechanism are defined in state 3, but the mechanism should fulfil the following requirements:

- Not all MBMS capable UEs should reselect to the MBMS layer.
- The FLC shall only be active after the reception of notification.
- There shall be an explicit session stop to indicate disabling the FLC.
- FLC -based cell re-selection should only occur on the areas where the preferred MBMS frequency layer can provide acceptable quality
- FLC shall be backwards compatible – i.e. allow inter-working with the existing cell reselection criteria
- FLC shall be available for networks with and without HCS.
- It is assumed the MBMS layer also provides R99/4/5 services independently of MBMS services – i.e. R99/4/5 UEs may also camp on the MBMS layer cells.

>>>>>>>>>>>End of the modification #4<<<<<<<<<

References

[1] R2-031716

[2] R2-032077

[3] R3-040086

[4] 25.346 v.6.0.0

The applicant hereby discloses in isolation each individual feature described herein and any combination of two or more such features, to the extent that such features or combinations are capable of being carried out based on the present specification as a whole in the light of the common general knowledge of a person skilled in the art, irrespective of whether such features or combinations of features solve any problems disclosed herein, and without limitation to the scope of the claims. The applicant indicates that aspects of the present invention may consist of any such individual feature or combination of features. In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the invention.

Claims:

1. A method to control cell selection and/or re-selection in a communication system comprising a plurality of cells with which terminal devices may communicate, the method comprising the steps of:

determining that a terminal device is to start a session for a certain service, the service using a reception frequency;

based on that determination, changing at least one cell selection and/or re-selection parameter in respect of the terminal device with the effect that a subsequent cell selection and/or re-selection performed by the device would favour cells that use the reception frequency used in said service session over other cells.

2. A method as claimed in claim 1, wherein the service is a multicasting service.

3. A method as claimed in claim 1 or 2, wherein the parameter is a parameter that the terminal device is capable of using to prioritise which of the cells of the system it should select and/or reselect.

4. A method as claimed in claim 3, wherein the parameter is a cell selection parameter.

5. A method as claimed in claim 3, wherein the parameter is the HCS_PRIO parameter.

6. A method as claimed in any of claims 1 to 3, wherein the parameter is the R criterion or an offset thereto.

7. A method as claimed in claim 1 or 2, comprising the step of identifying whether the cells are hierarchical and based on that determination selecting which of a plurality of cell selection and/or reselection parameters is to be changed in the said changing step.

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8. A method as claimed in any preceding claim, wherein the step of changing the parameter comprises sending from the system to the terminal device data identifying a new value for the parameter.

9. A method as claimed in claim 8, wherein the data is sent by means of a session control start message or my means of a system information data message.

10. A method as claimed in any preceding claim, comprising the steps of starting the service session, and wherein the said determining step is performed in response to the starting of the service session.

11. A method as claimed in any preceding claim, wherein the changing step further comprises setting a parameter that reduces the responsiveness of the terminal device to high mobility triggers.

12. A method as claimed in any preceding claim, wherein the changing step further comprises setting a parameter so as to encourage the terminal device to select or re-select a cell more promptly.

13. A method to control cell selection/re-selection in a system where multicasting is used to deliver information to several terminal devices, the method comprising the steps of: determining which terminal devices are to start a multicast session; based on the determination, changing at least one cell selection/re-selection parameter for the terminals so that the cell selection/re-selection favour cells which use the reception frequency used in the multicasting session compared to other cells.

14. A method to control cell selection and/or re-selection in a communication system comprising a plurality of cells with which terminal devices may communicate, the method comprising the steps of:

determining that a session for a certain service is to start, the service using a reception frequency;

based on that determination, changing at least one cell selection and/or re-selection parameter in respect of one or more of the terminal devices with the effect that a subsequently cell selection and/or re-selection performed by those devices

would favour cells that use the reception frequency used in said service session over other cells.

15. A method to control cell selection and/or re-selection in a communication system comprising a plurality of cells with which terminal devices may communicate, the method comprising the steps of:

transmitting to a plurality of the terminal devices a message indicating a value for a cell selection and/or re-selection parameter that, if adopted by a terminal device would cause a subsequent cell selection and/or re-selection performed by that device to favour cells on which a service session is available over other cells;

one or more of the terminal devices adopting the value indicated in the message for the parameter.

16. A method as claimed in claim 15, comprising the steps of:

for each of the terminal devices, determining whether reception of the service session is desired;

and wherein that terminal device adopts the value indicated in the message for the parameter only if it is determined that reception of the service is desired.

17. A method as claimed in claim 16, wherein the step of determining is performed by the respective terminal device and the message is broadcasted or multicasted to a plurality of terminals.

18. A method as claimed in claim 16, wherein the step of determining is performed by the network and the message is transmitted only to those terminals for which it is determined that reception of the service is desired.

19. A method as claimed in any of claims 15 to 18, comprising transmitting to a plurality of the terminal devices a second message indicating a value for a second parameter that, if adopted by a terminal device would inhibit the terminal device from subsequently selecting a different cell from the one with which it is currently operating; and

one or more of the terminal devices adopting the value indicated in the message for the second parameter.

20. A method as claimed in claim 19, comprising the steps of:

for each of the terminal devices, determining whether reception of the service session is desired;

and wherein that terminal device adopts the value indicated in the second message for the second parameter only if it is determined that reception of the service is desired.

21. A method as claimed in claim 20, wherein that step of determining is performed by the respective terminal device and the message is broadcasted or multicasted to a plurality of terminals.

22. A method as claimed in claim 20, wherein that step of determining is performed by the network and the message is transmitted only to those terminals for which it is determined that reception of the service is desired.

23. A network device, having- means for receiving a notification whether a certain service session has started or not- based on said notification changing at least one cell selection/re-selection parameter for the terminals so that the cell selection/re-selection favour cells which use the reception frequency used in said service session compared to other cells.

24. A network device arranged to perform the determining and changing steps of any of claims 1 to 22.

25. A network device as claimed in claim 23 or 24, wherein the device is an RNC.

26. A terminal device, having- means for receiving a notification whether a certain service session has started or not- based on said notification changing at least one cell selection/re-selection parameter for the terminals so that the cell selection/re-selection favour cells which use the reception frequency used in said service session compared to other cells.

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27. A terminal device arranged to perform the determining and changing steps of any of claims 1 to 22.

28. A terminal device as claimed in claim 26 or 27, wherein the device is a UE.

29. A method or a network device or a terminal device substantially as herein described with reference to the accompanying drawings.

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FIG. 1

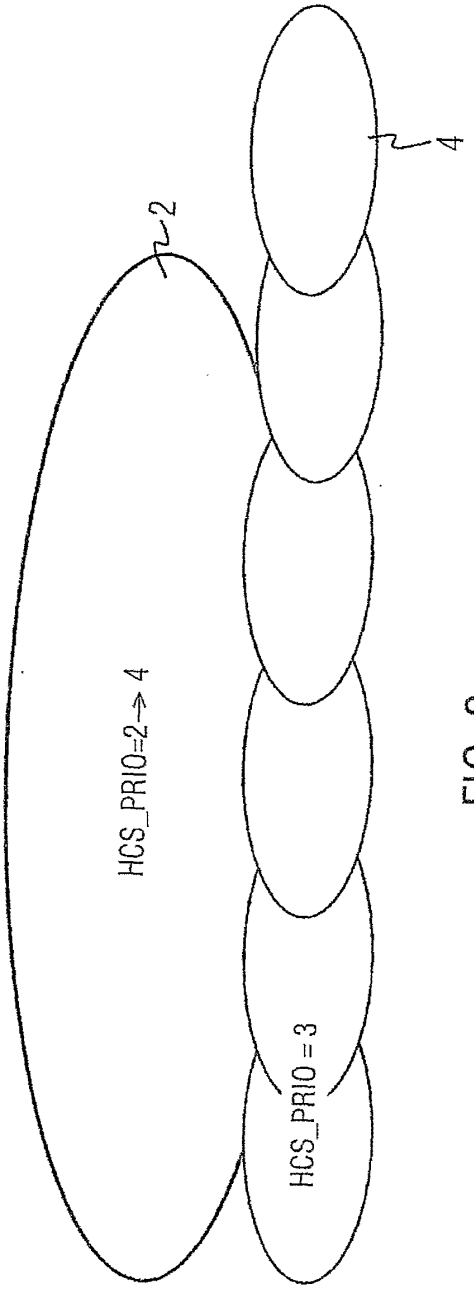

HCS_PRIO=2⇒4
HCS_PRIO = 3
2
4

FIG. 2

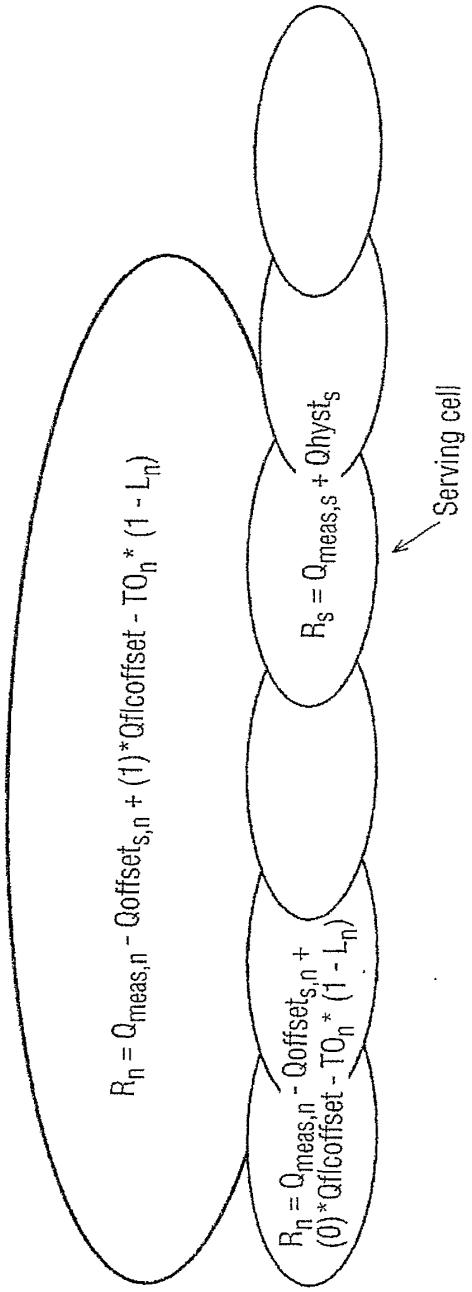

$R_n = Q_{meas,n} - Qoffset_{s,n} + (1)*Qflcoffset - TO_n * (1 - L_n)$
$R_s = Q_{meas,s} + Qhyst_s$
Serving cell
$R_n = Q_{meas,n} - Qoffset_{s,n} + (0)*Qflcoffset - TO_n * (1 - L_n)$

FIG. 3

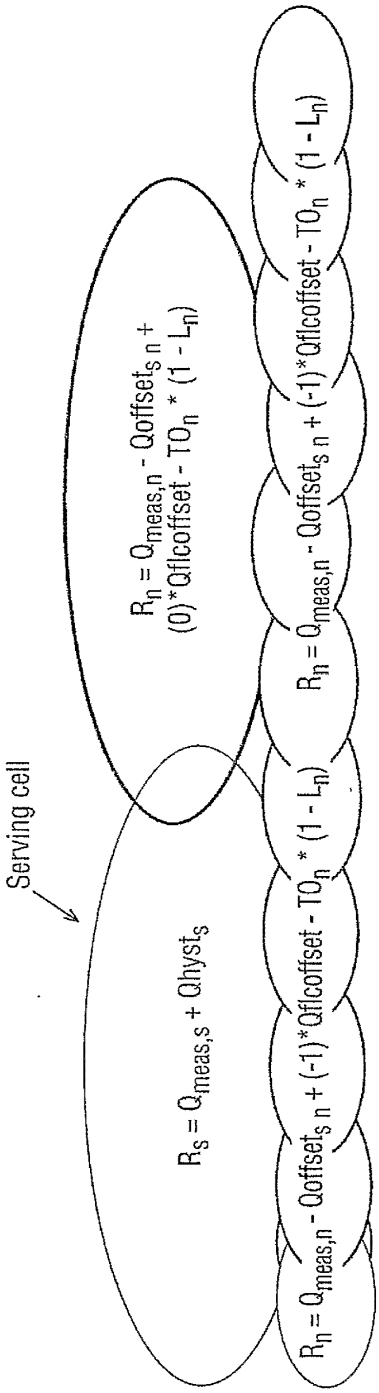

Serving cell
$R_s = Q_{meas,s} + Qhyst_s$
$R_n = Q_{meas,n} - Qoffset_{s\,n} + (0)*Qfloffset - TO_n * (1 - L_n)$
$R_n = Q_{meas,n} - Qoffset_{s\,n} + (-1)*Qfloffset - TO_n * (1 - L_n)$
$R_n = Q_{meas,n} - Qoffset_{s\,n} + (-1)*Qfloffset - TO_n * (1 - L_n)$
$R_n = Q_{meas,n} - Qoffset_{s\,n} + (-1)*Qfloffset - TO_n * (1 - L_n)$

FIG. 4

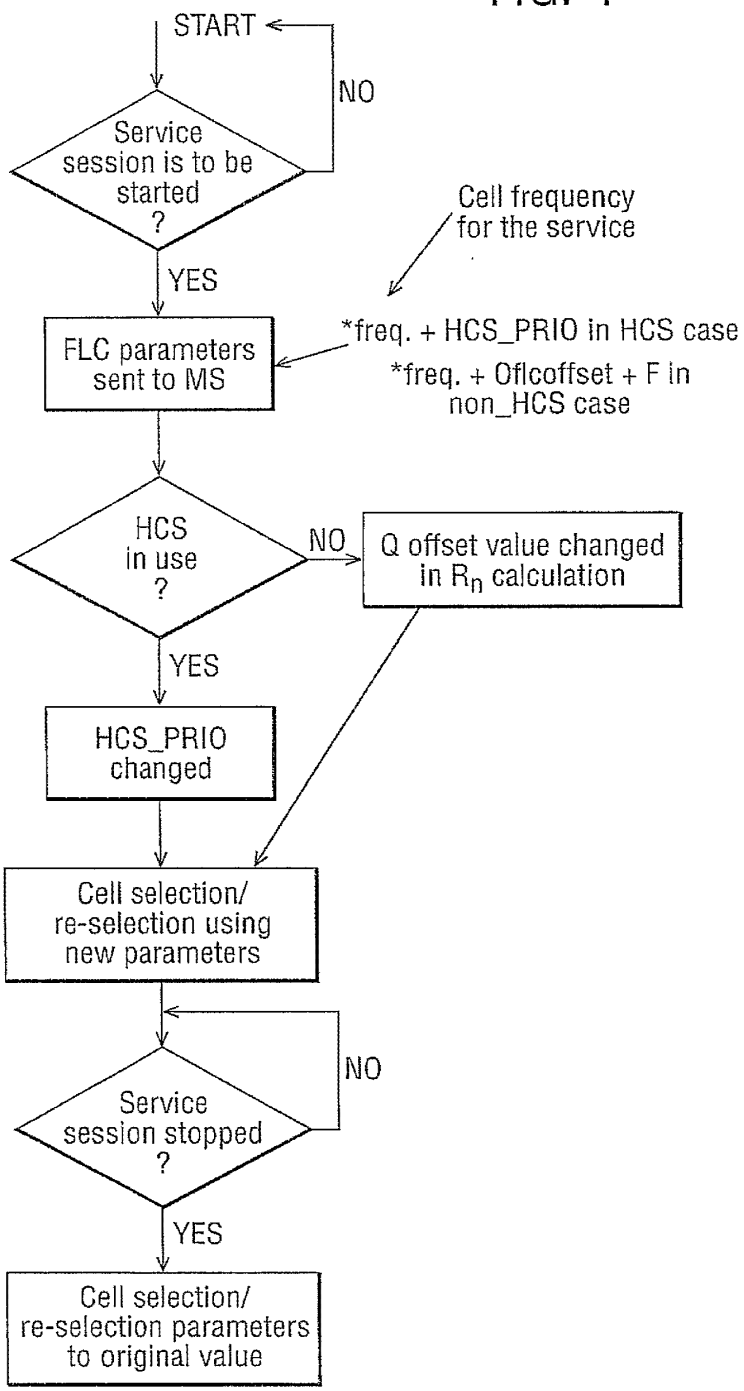
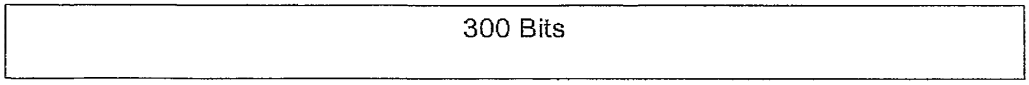
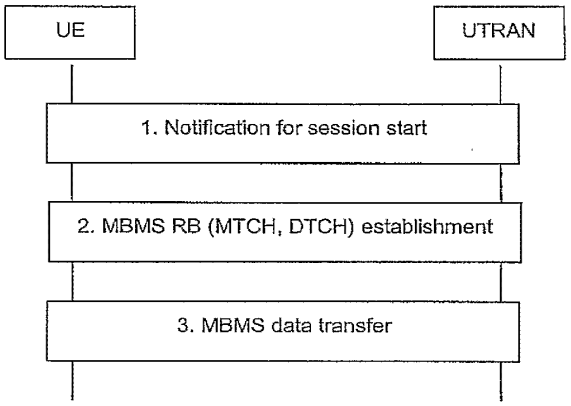

START
NO
Service session is to be started ?
YES
Cell frequency for the service
*freq. + HCS_PRIO in HCS case
*freq. + Oflcoffset + F in non_HCS case
FLC parameters sent to MS
HCS in use ?
NO
Q offset value changed in R_n calculation
YES
HCS_PRIO changed
Cell selection/ re-selection using new parameters
NO
Service session stopped ?
YES
Cell selection/ re-selection parameters to original value

Figure 5 4/4



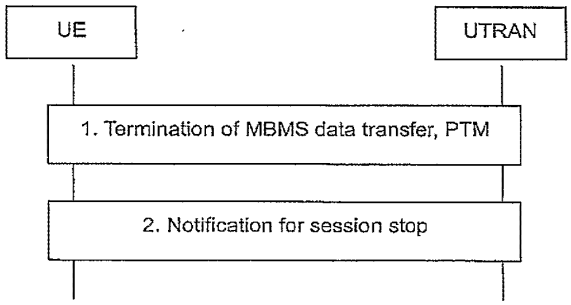
MICH frame used in MBMS notification

Figure 6



Session start

Figure 7



Session stop

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: January 12, 2015
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment (via EFS)
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

Further to Applicants' Duty of Disclosure pursuant to 37 C.F.R. §1.56, Applicants wish to bring to the Examiner's attention the material cited on the enclosed Information Disclosure Statement Form.

This Application is a continuation of U.S. Patent Application No. 12/238,910, filed September 26, 2008, which issued July 8, 2014 as U.S. Patent No. 8,774,104, which claims the benefit of Provisional Application No. 61/083,409, which was filed on July 24, 2008, Provisional Application No. 61/074,288, which was filed on June 20,

2008, Provisional Application No. 61/038,576, which was filed on March 21, 2008, Provisional Application No. 61/025,441, which was filed on February 1, 2008, Provisional Application No. 61/018,999, which was filed on January 4, 2008, Provisional Application No. 60/982,528, which was filed on October 25, 2007, and Provisional Application No. 60/975,985, which was filed on September 28, 2007.

Applicant would like to bring the following Applications to the Examiner's attention: U.S. Patent Application No. 14/319,975, filed on June 30, 2014; U.S. Patent Application No. 12/256,964, filed on October 23, 2008; U.S. Patent Application No. 12/346,631, filed on December 30, 2008, which issued on December 4, 2012 as U.S. Patent No. 8,325,684; U.S. Patent Application No. 13/665,734, filed on October 31, 2012; and Provisional Application No. 61/018,567, which was filed on January 2, 2008.

Pursuant to 37 C.F.R. §1.98(d) copies of documents cited in the parent application are not enclosed, but copies will be provided upon request. Documents that were not cited in the parent application are indicated by an asterisk (*) on the enclosed Information Disclosure Statement Form. Copies of the cited references are enclosed. Pursuant to 37 C.F.R. §1.98(a)(2)(ii), copies of the cited U.S. publications and/or patent documents have not been included.

It is respectfully requested that the Examiner consider these documents and return an initialed copy of the Information Disclosure Statement Form indicating consideration of the cited materials.

Respectfully submitted,

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

3624 7590 02/06/2015

VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER	
YUEN, KAN	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
02/06/2015	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eoffice@volpe-koenig.com

Office Action Summary	Application No. 14/319,608	Applicant(s) PELLETIER ET AL.	
	Examiner KAN YUEN	Art Unit 2464	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/30/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *6/30/2014* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled

out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over U.S. Patent No. 8,774,104. Although the claims at issue are not identical, they are not patentably distinct from each other.

Instant Application	Patent No.: 8,774,104
Claim 1. A method for communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising: determining, by the WTRU, that a E-DCH buffer is empty; on a condition that the E-DCH buffer is empty, triggering a transmission to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;	**Claim 1**. A method for completing an enhanced dedicated channel (E-DCH) transmission in a cell forward access channel (CELL_FACH) state by a wireless transmit/receive unit (WTRU), the method comprising: determining that a buffer is empty; on a condition that the buffer is empty, triggering a transmission by the WTRU of scheduling information (SI) with a total enhanced dedicated channel (E-DCH) buffer status (TEBS) equal to zero; determining a last hybrid automatic repeat

determining if a hybrid automatic repeat request (HARQ) buffer is empty; and on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and the HARQ buffer is empty, releasing an E-DCH resource.	request (HARQ) data transmission; and on a condition that the buffer is empty and the last HARQ data transmission has been determined, releasing an E-DCH resource.

Regarding claim 1, although the patent applicant's claimed features have minor variations compared to the present disclosed invention, however the patent application is an obvious variant to the disclosed invention. Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to perform the method as disclosed in claim 1 of the disclosed invention.

Claims 6, 11 and 16 are rejected similarly to claim 1.

Claim 2. The method as in claim 1, wherein an inactivity timer is started when the E-DCH buffer is empty.	**Claim 2**. The method as in claim 1, wherein an inactivity timer is started when the buffer is empty.

Regarding claim 2, although the patent applicant's claimed features have minor variations compared to the present disclosed invention, however the patent application is an obvious variant to the disclosed invention. Thus, it would have been obvious to a

person of ordinary skill in the art at the time of the invention to perform the method as disclosed in claim 1 of the disclosed invention.

Claims 8, 13, 17 are rejected similarly to claim 2.

Claim 3. The method as in claim 2, wherein the transmission of the SI is triggered when the inactivity timer expires.	**Claim 3.** The method as in claim 2, wherein the transmission of the SI is triggered when the inactivity timer expires.

Regarding claim 3, although the patent applicant's claimed features have minor variations compared to the present disclosed invention, however the patent application is an obvious variant to the disclosed invention. Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to perform the method as disclosed in claim 1 of the disclosed invention.

Claims 9, 14, 18 are rejected similarly to claim 3.

Claim 4. The method as in claim 1, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.	**Claim 4**. The method as in claim 1, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

Regarding claim 4, although the patent applicant's claimed features have minor variations compared to the present disclosed invention, however the patent application

is an obvious variant to the disclosed invention. Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to perform the method as disclosed in claim 1 of the disclosed invention.

Claims 10, 15, 19 are rejected similarly to claim 4.

Claim 5. The method as in claim 1, further comprising completing the transmission in case of cell reselection or radio link failure.	**Claim 5**. The method as in claim 1, further comprising completing the E-DCH transmission in case of cell reselection or radio link failure.

Regarding claim 5, although the patent applicant's claimed features have minor variations compared to the present disclosed invention, however the patent application is an obvious variant to the disclosed invention. Thus, it would have been obvious to a person of ordinary skill in the art at the time of the invention to perform the method as disclosed in claim 1 of the disclosed invention.

Claims 7, 12, 20 are rejected similarly to claim 5.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al. (Pub No.: 2005/0249163) and Usuda et al. (Pub No.: 2007/0047445) are show systems which considered pertinent to the claim invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAN YUEN whose telephone number is (571)270-1413. The examiner can normally be reached on Monday-Friday 11:00a.m-6:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KAN YUEN/
Primary Examiner, Art Unit 2464

Notice of References Cited	Application/Control No. 14/319,608	Applicant(s)/Patent Under Reexamination PELLETIER ET AL.	
	Examiner KAN YUEN	Art Unit 2464	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2005/0249163 A1	11-2005	Kim et al.	370/335
*	B	US-2007/0047445 A1	03-2007	Usuda et al.	370/236
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/02/2015								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	Art Unit
	KAN YUEN	2464

CPC- SEARCHED		
Symbol	Date	Examiner
h04w76/046,062,068	2/2/2015	KY

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
370	328,329,338,341,348	2/2/2015	KY
455	450,464	2/2/2015	KY
709	226,229	2/2/2015	KY

SEARCH NOTES		
Search Notes	Date	Examiner
EAST SEARCH; MANUAL SEARCH 370/329	2/2/2015	KY

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L6	2101	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:10
L7	529353	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:11
L8	200	6 7	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:12
L9	118	(harq or (hybrid near2 automatic$4 near2 repeat$4)) 8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:12
L10	118	(harq or (hybrid near2 automatic$4 near2 repeat$4)) 8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:18
L11	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" | "20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:22

		"20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" | "7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.				
L12	3	10 11	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:22
S1	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 13:48
S2	521539	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:07
S3	529353	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:08
S4	3065	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:16
S5	314	(harq or (hybrid near2 automatic$4 near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:17
S6	30	S3 S4 S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:17
S7	1074	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	AND	ON	2015/02/02 14:18

			DERWENT; IBM_TDB			
S8	1074	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:19
S9	24	S6 S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:20
S10	24	S6 S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:20
S23	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/02/02 16:24
S24	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/02/02 16:24
S25	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 16:32
S26	1182	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S27	5087	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S28	68	S26 S27	US-PGPUB; USPAT; USOCR;	AND	ON	2015/02/02 17:35

			FPRS; EPO; DERWENT; IBM_TDB			
S29	529355	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:36
S30	16	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:37
S31	16	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:37

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S11	2262	(buffer$4 near4 empt$4).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:30
S12	12151	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:30
S13	3288	(harq).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:31
S14	15	S11 S12 S13	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:31
S15	613	(e-dch).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:31
S16	7	S14 S15	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:32
S17	24	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:32
S18	4	S16 S17	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:32
S21	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:34
S22	3	S18 S21	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:34

2/2/2015 7:33:47 PM
C:\Users\kyuen\Documents\EAST\Workspaces\14319608.wsp

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 5147

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/319,608	06/30/2014	370	2464	SIG-2-1853US03

APPLICANTS

Signal Trust for Wireless Innovation, Wilmington, DE, Assignee (with 37 CFR 1.172 Interest);

INVENTORS

Benoit Pelletier, Roxboro, CANADA;
Diana Pani, Montreal, CANADA;
Rocco DiGirolamo, Laval, CANADA;
Christopher R. Cave, Dollard-des-Ormeaux, CANADA;
Vincent Roy, Longueuil, CANADA;
Paul Marinier, Brossard, CANADA;
Eldad M. Zeira, Huntington, NY;

**** CONTINUING DATA **************************

This application is a CON of 12/238,910 09/26/2008 PAT 8774104
which claims benefit of 60/975,985 09/28/2007
and claims benefit of 60/982,528 10/25/2007
and claims benefit of 61/018,999 01/04/2008
and claims benefit of 61/025,441 02/01/2008
and claims benefit of 61/038,576 03/21/2008
and claims benefit of 61/074,288 06/20/2008
and claims benefit of 61/083,409 07/24/2008

**** FOREIGN APPLICATIONS **************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

07/08/2014

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /KAN YUEN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CANADA	9	20	4

ADDRESS

VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103
UNITED STATES

TITLE

METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

FILING FEE RECEIVED	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time)

BIB (Rev. 05/07).

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/319,608
	Filing Date	2014-06-30
	First Named Inventor	Pelletier et al.
	Art Unit	2464
	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,167,248	12/2000	Hamalainen et al.			
		6,246,692	06/2001	Dai et al.			
		6,721,566	04/2004	Longoni et al.			
		6,721,566	04/2004	Longoni et al.			
		6,845,238	01/2005	Muller[1]			
		7,079,489	07/2006	Massie et al.			
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6 Corresponds to JP 2009-147920
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	Art Unit	2464
	Examiner Name	Kan Yuen
	Attorney Docket Number	SIG-2-1853US03

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
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	Attorney Docket Number	SIG-2-1853US03

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	Attorney Docket Number	SIG-2-1853US03

EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Enhanced Uplink; Overall Description; Stage 2 (Release7)", 3GPP TS 25.319, V7.2.0, (March 2007).
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		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Physical channels and mapping of transport channels onto physical channels (FDD) (Release 7)," 3GPP TS 25.211 V7.6.0 (May 2008).

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		THIRD GENERATION PARTNERSHIP PROJECT; "Technical Specification Group Radio Access Network; UTRAN Iub/Iur interface user plane protocol for DCH data streams (Release 5)," 3GPP TS 25.427 V5.5.0 (June 2005).
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In re Application of: Benoit Pelletier et al.

Application No.: 14/319,608

Filed: June 30, 2014

For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

The owner*, Signal Trust for Wireless Innovation, of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 8,774,104 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
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is found invalid by a court of competent jurisdiction;
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has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40,656

/Abhik A. Huq/ — Signature
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215-568-6400 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal	
Application Number:	14319608
Filing Date:	30-Jun-2014
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Filer:	Abhik A. Huq/Sandy Yi
Attorney Docket Number:	SIG-2-1853US03
Filed as Large Entity	
Filing Fees for **Utility under 35 USC 111(a)**	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Statutory or Terminal Disclaimer	1814	1	160	160
		Total in USD ($)		**160**

Electronic Acknowledgement Receipt	
EFS ID:	21953561
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	02-APR-2015
Filing Date:	30-JUN-2014
Time Stamp:	16:02:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$160
RAM confirmation Number	2608
Deposit Account	220493
Authorized User	HUQ, ABHIK A.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20150402_SIG_2_1853US03_Reply.pdf	78082 6d0e9ee19fcbe5664479e0666305c62635747e1c	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	7

Warnings:					
Information:					
2	Terminal Disclaimer Filed	SIg_2_1853US03_Terminal_Disclaimer.PDF	374035 1464aa593bffd64771ef28610f47ce2dff7eb464	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30809 bb7e2b7ae65303b995deaf599912075446ce818e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	482926		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: April 2, 2015
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

RESPONSE PURSUANT TO 37 C.F.R. §1.111

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This Response and Terminal Disclaimer is being timely filed in response to the Non-Final Office Action dated February 6, 2015.

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Original) A method for communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining, by the WTRU, that a E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, triggering a transmission to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determining if a hybrid automatic repeat request (HARQ) buffer is empty; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and the HARQ buffer is empty, releasing an E-DCH resource.

2. (Original) The method as in claim 1, wherein an inactivity timer is started when the E-DCH buffer is empty.

3. (Original) The method as in claim 2, wherein the transmission of the SI is triggered when the inactivity timer expires.

4. (Original) The method as in claim 1, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. (Original) The method as in claim 1, further comprising completing the transmission in case of cell reselection or radio link failure.

6. (Original) A wireless transmit/receive unit (WTRU) capable of communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor is configured to:

determine that the E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the Node B of scheduling information (SI) including a E-DCH buffer status (TEBS) equal to zero;

determine if the HARQ buffer is empty; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and the HARQ buffer is empty, release the E-DCH resource.

7. (Original) The WTRU as in claim 6, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

8. (Original) The WTRU as in claim 6, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

9. (Original) The WTRU as in claim 8, wherein the transmission of the SI is triggered when the inactivity timer expires.

10. (Original) The WTRU as in claim 6, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. (Original) A wireless transmit/receive unit (WTRU) capable of communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor is configured to:

determine that an E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determine if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and that a last HARQ data transmission has been made, release the E-DCH resource.

12. (Original) The WTRU as in claim 11, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

13. (Original) The WTRU as in claim 11, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

14. (Original) The WTRU as in claim 13, wherein the transmission of the SI is triggered when the inactivity timer expires.

15. The WTRU as in claim 11, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. A method for communicating with a Node B base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty by the WTRU;

on a condition that the E-DCH buffer is empty, triggering a transmission to the Node B of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determining if a last hybrid automatic repeat request (HARQ) buffer is empty; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last HARQ buffer is empty, releasing an E-DCH resource.

17. The method as in claim 16, wherein an inactivity timer is started when the E-DCH buffer is empty.

18. The method as in claim 17, wherein the transmission of the SI is triggered when the inactivity timer expires.

19. The method as in claim 16, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. The method as in claim 16, further comprising completing the transmission in case of cell reselection or radio link failure.

REMARKS

After the foregoing Amendment, claims 1-20 are currently pending in this application. No claims have been amended and no new matter has been added.

Double Patenting Rejection

Claims 1-20 are rejected under the judicially created doctrine of nonstatutory double patenting as being unpatentable over U.S. Patent No. 8,774,104. A Terminal Disclaimer is submitted herewith to overcome the nonstatutory double patenting rejection. Accordingly, withdrawal of the nonstatutory double patenting rejection is respectfully requested.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicant respectfully submits that the present application, including claims 1-20, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Signal Trust for Wireless Innovation

By /Abhik A. Huq/
Abhik A. Huq
Registration No. 40,656

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Facsimile: (215) 568-6499

AAH/say

Enclosure – Terminal Disclaimer

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/319,608	Filing Date 06/30/2014	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/02/2015	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $80 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/DAWN BREWER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	14/319,608	PELLETIER ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 04/02/15	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

Angie Walker

U.S. Patent and Trademark Office

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NOTICE OF ALLOWANCE AND FEE(S) DUE

3624 7590 06/22/2015

VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER
YUEN, KAN

ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 06/22/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

TITLE OF INVENTION: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	09/22/2015

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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3624 7590 06/22/2015
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

TITLE OF INVENTION: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	09/22/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
YUEN, KAN	2464	370-329000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

3624 7590 06/22/2015

VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER	
YUEN, KAN	

ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 06/22/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice Requiring Inventor's Oath or Declaration	Application No. 14/319,608	Applicant(s) Benoit Pelletier	
	Examiner YUEN, KAN	Art Unit 2464	

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) MUST be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Benoit Pelletier**, **Diana Pani**, **Rocco DiGirolamo**, **Christopher R. Cave**, **Vincent Roy** , **Paul Marinier**, and **Eldad M. Zeira**.
  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/319,608	Applicant(s) PELLETIER ET AL.	
	Examiner KAN YUEN	Art Unit 2464	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *4/2/2015*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-20*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/KAN YUEN/
Primary Examiner, Art Unit 2464

Allowable Subject Matter

1. Claims 1-20 are allowed. The prior art of record fails to disclose the features for determining if a hybrid automatic repeat request (HARQ) buffer is empty; and on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and the HARQ buffer is empty, releasing an E- DCH resource, as recited in claim 1 and similarly as recited in 6, 11 and 16.

Terminal Disclaimer

2. The terminal disclaimer filed on 4/2/2015 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent No. 8,774,104 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAN YUEN whose telephone number is (571)270-1413. The examiner can normally be reached on Monday-Friday 11:00a.m-6:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KAN YUEN/
Primary Examiner, Art Unit 2464

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	Art Unit
	KAN YUEN	2464

CPC- SEARCHED		
Symbol	Date	Examiner
h04w76/046,062,068	6/11/2015	KY

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
370	328,329,338,341,348	6/11/2015	KY
455	450,464	6/11/2015	KY
709	226,229	6/11/2015	KY

SEARCH NOTES		
Search Notes	Date	Examiner
EAST SEARCH; MANUAL SEARCH 370/329	6/11/2015	KY

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	INTERFERENCE SEARCH PRINTOUT (SEE SEARCH PRINTOUT)	6/11/2015	KY

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

CPC						
Symbol					**Type**	**Version**
H04W		74	/	0833	F	2013-01-01
H04W		72	/	12	A	2013-01-01
H04W		76	/	046	I	2013-01-01
H04W		76	/	068	I	2013-01-01
H04W		28	/	04	I	2013-01-01
H04L		5	/	0053	I	2013-01-01
H04W		72	/	0406	I	2013-01-01
H04W		72	/	04	I	2013-01-01
			/			
			/			
			/			
			/			
			/			
			/			
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CPC Combination Sets						
Symbol				**Type**	**Set**	**Ranking**	**Version**
			/				
			/				

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/KAN YUEN/ Primary Examiner.Art Unit 2464	06/11/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

U.S. Patent and Trademark Office — Part of Paper No. 20150611

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
370	328	H	0	4	W	4 / 00 (2009.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
370	338				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/KAN YUEN/ Primary Examiner.Art Unit 2464	06/11/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
3	3	19	19												
4	4	20	20												
5	5														
6	6														
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8	8														
9	9														
10	10														
11	11														
12	12														
13	13														
14	14														
15	15														
16	16														

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/KAN YUEN/ Primary Examiner.Art Unit 2464 (Primary Examiner)	06/11/2015 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 6

U.S. Patent and Trademark Office

Part of Paper No. 20150611

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/11 15:48
L2	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/06/11 15:48
S1	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 13:48
S2	521539	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:07
S3	529353	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:08
S4	3065	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:16
S5	314	(harq or (hybrid near2 automatic$4 near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:17
S6	30	S3 S4 S5	US-PGPUB;	AND	ON	2015/02/02

			USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB			14:17
S7	1074	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:18
S8	1074	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:19
S9	24	S6 S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:20
S10	24	S6 S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:20
S23	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/02/02 16:24
S24	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/02/02 16:24
S25	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 16:32
S26	1182	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT	AND	ON	2015/02/02 17:35

			IBM_TDB			
S27	5087	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S28	68	S26 S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S29	529355	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:36
S30	16	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:37
S31	16	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:37
S32	2101	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:10
S33	529353	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:11
S34	200	S32 S33	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:12
S35	118	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S34	US-PGPUB; USPAT; USOCR; FPRS;	AND	ON	2015/02/02 19:12

			EPO; DERWENT; IBM_TDB			
S36	118	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:18
S37	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" | "20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" | "20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" | "7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:22
S38	3	S36 S37	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:22
S39	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:22
S40	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/06/09 15:34
S41	48	(edch or e-dch or dch) near5 (stor$3 or buffer$4 or queu$4) with (zero or empty or "0") same ("SI" or (schedul$4 near2 information))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:40
S42	2883	(harq or (hybrid near2 automatic$4	US-PGPUB;	AND	ON	2015/06/09

		near2 request$4)) with (zero or empty or "0")	USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB			15:40
S43	18	S41 S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S44	1061	(releas$4 or cancel$6 or tear$4 or teardown or tear-down or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S45	17	S43 S44	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S46	17	S43 S44	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S47	2	S46 S39	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:42
S48	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S49	535753	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S50	543761	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT	AND	ON	2015/06/09 15:43

			IBM_TDB			
S51	3177	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S52	344	(harq or (hybrid near2 automatic$4 near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S53	33	S50 S51 S52	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S54	1139	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S55	1139	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S56	25	S53 S55	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S57	25	S53 S55	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S58	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/06/09 15:43
S59	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2015/06/09 15:43

			EPO; DERWENT; IBM_TDB			
S60	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S61	1249	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S62	5696	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S63	77	S61 S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S64	543763	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S65	16	S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S66	16	S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S67	2203	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S68	543761	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or	US-PGPUB; USPAT;	AND	ON	2015/06/09 15:43

		memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	USOCR; FPRS; EPO; DERWENT; IBM_TDB			
S69	212	S67 S68	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S70	127	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S69	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S71	127	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S69	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S72	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" | "20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" | "20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" | "7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S73	3	S71 S72	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S11	2262	(buffer$4 near4	US-PGPUB; USPAT;	AND	ON	2015/02/02

		empt$4).clm.	UPAD			14:30
S12	12151	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:30
S13	3288	(harq).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:31
S14	15	S11 S12 S13	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:31
S15	613	(e-dch).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:31
S16	7	S14 S15	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:32
S17	24	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:32
S18	4	S16 S17	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:32
S21	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:34
S22	3	S18 S21	US-PGPUB; USPAT; UPAD	AND	ON	2015/02/02 14:34
S74	2323	(buffer$4 near4 empt$4).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S75	12750	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S76	3613	(harq).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S77	16	S74 S75 S76	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S78	647	(e-dch).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S79	7	S77 S78	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S80	28	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S81	4	S79 S80	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S82	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S83	3	S81 S82	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:43
S84	1	(e-dch near2 buffer near2 empty).clm.	US-PGPUB; USPAT; UPAD	AND	ON	2015/06/09 15:50

6/11/2015 3:56:57 PM
C:\Users\kyuen\Documents\EAST\Workspaces\14319608.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/11/2015								
1	1	=								
2	2	=								
3	3	=								
4	4	=								
5	5	=								
6	6	=								
7	7	=								
8	8	=								
9	9	=								
10	10	=								
11	11	=								
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13	13	=								
14	14	=								
15	15	=								
16	16	=								
17	17	=								
18	18	=								
19	19	=								
20	20	=								

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the PATENT APPLICATION of:			
	Pelletier et al.		
Application No.:	14/319,608		
Confirmation No.:	5147	Our File:	SIG-2-1853US03
Filed:	June 30, 2014	Date:	July 24, 2015
For:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL		
Group:	2464		
Examiner:	Kan Yuen		

COMMUNICATION IN RESPONSE TO THE INFORMATIONAL NOTICE TO APPLICANT

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Informational Notice to Applicant mailed from the Office on July 10, 2014, the following are enclosed:

1. A copy of the Informational Notice to Applicant; and
2. Seven Declarations:

   Benoit Pelletier;

   Diana Pani;

Rocco DiGirolamo;
Christopher R. Cave;
Vincent Roy;
Paul Marinier; and
Eldad M. Zeira.

The surcharge for late filing of the declaration – large entity (Fee Code 1051) was paid on June 30, 2014. Therefore, no fees are due. However, the Commissioner is hereby authorized to charge any additional fees due or credit any overpayment to Deposit Account No. 22-0493.

Respectfully submitted,

Signal Trust for Wireless Innovation

By /Abhik A. Huq/
Abhik A. Huq
Registration No. 40,656

Volpe and Koenig, P.C.
United Plaza
30 South 17th Street
Philadelphia, PA 19103
Telephone: (215) 568-6400
Facsimile: (215) 568-6499

AAH/say

Enclosures - 7 Declarations

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03

CONFIRMATION NO. 5147

3624
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

NOTICE

OC00000069459691

Date Mailed: 07/10/2014

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Benoit Pelletier
  Diana Pani
  Rocco DiGirolamo
  Christopher R. Cave
  Vincent Roy
  Paul Marinier
  Eldad M. Zeira

PTO/AIA/01 (08-12)
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 14/319,608 filed on June 30, 2014.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Benoit Pelletier Date (Optional): 2014-06-30

Signature: [signature]

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Diana Pani Date (Optional): 07/22/2015

Signature: Diana Pani

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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☐ The attached application, or

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filed on June 30, 2014.

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I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Rocco DiGirolamo Date (Optional) :

Signature: Rocco A DiGirolamo

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 14/319,608

filed on June 30, 2014.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Christopher R. Cave Date (Optional): JUNE 26, 2015

Signature:

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Inventor: Vincent Roy Date (Optional): April 14, 2015

Signature: _____

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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LEGAL NAME OF INVENTOR

Inventor: Paul Marinier Date (Optional): April 8, 2015

Signature: Paul Marinier

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LEGAL NAME OF INVENTOR

Inventor: Eldad M. Zeira Date (Optional): 4/7/15

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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Electronic Acknowledgement Receipt	
EFS ID:	23006042
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	24-JUL-2015
Filing Date:	30-JUN-2014
Time Stamp:	15:50:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	20150724_SIG_2_1853US03_Response_to_Informational_Notice.pdf	63582 a87b40f09eee8b004b69615e910c8839d0e43550	no	2
Warnings:					
Information:					

2	Miscellaneous Incoming Letter	20140710_SIG_2_1853US03_Informational_Notice.PDF	749100 eb4d651aecd8c8c3fefceac28c4684beb40450ae	no	1
Warnings:					
Information:					
3	Oath or Declaration filed	SIG_2_1853US03_Declaration_executed_Pelletier.PDF	2346191 9c81f872e63c988a77f8cf8244a1f3e26a66dda2	no	1
Warnings:					
Information:					
4	Oath or Declaration filed	SIG_2_1853US03_executed_Declaration_Pani.PDF	5129043 33946453 70cf43d16a8b73a07f643677d71bbe41	no	2
Warnings:					
Information:					
5	Oath or Declaration filed	SIG_2_1853US03_executed_Declaration_DiGirolamo.PDF	107191 13e9e9addf168e6ea66038c5f2d42fcca35c7b73	no	1
Warnings:					
Information:					
6	Oath or Declaration filed	SIG_2_1853US03_executed_Declaration_Cave.PDF	2286412 b02318dbb3aff7595157685c0b442ab0820156f2	no	1
Warnings:					
Information:					
7	Oath or Declaration filed	SIG_2_1853US03_Declaration_executed_Roy.PDF	4370402 75219fc2f0cef5c2e71fde87a07a5e48343e4247	no	2
Warnings:					
Information:					
8	Oath or Declaration filed	SIG_2_1853US03_Declaration_executed_Marinier.PDF	2265673 b751521153bc417300d82e72e1fc068c980a4322	no	1
Warnings:					
Information:					
9	Oath or Declaration filed	Slg_2_1853US03_Zeira_Declaration_executed.PDF	120357 8b2668ab87a322d68757804c4623ec94eb222bf4	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	17437951	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-14)
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14319608	Filing Date	2014-06-30	Docket Number (if applicable)	SIG-2-1853US03	Art Unit	2464
First Named Inventor	Benoit Pelletier			Examiner Name	Kan Yuen		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C. 371, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV.

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 220493

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-14)
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Signature of Registered U.S. Patent Practitioner			
Signature	/Abhik A. Huq/	Date (YYYY-MM-DD)	2015-09-01
Name	Abhik A. Huq	Registration Number	40656

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: September 1, 2015
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

PRELIMINARY AMENDMENT

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

This Preliminary Amendment is being filed with a Request for Continued Examination in response to the Notice of Allowance dated June 22, 2015.

Please amend the application without prejudice or disclaimer as follows:

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently Amended) A method for communicating with a ~~Node B~~ base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining, by ~~the~~ a wireless transmit/receive unit (WTRU), that a E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, triggering a transmission to the base station ~~Node B~~ of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determining by the WTRU if a hybrid automatic repeat request (HARQ) buffer is empty; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and the HARQ buffer is empty, releasing, by the WTRU, an E-DCH resource.

2. (Original) The method as in claim 1, wherein an inactivity timer is started when the E-DCH buffer is empty.

3. (Original) The method as in claim 2, wherein the transmission of the SI is triggered when the inactivity timer expires.

4. (Original) The method as in claim 1, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. (Original) The method as in claim 1, further comprising completing the transmission in case of cell reselection or radio link failure.

6. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a ~~Node B~~ base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor is configured to:

determine that the E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station ~~Node B~~ of scheduling information (SI) including a E-DCH buffer status (TEBS) equal to zero;

determine if the HARQ buffer is empty; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and the HARQ buffer is empty, release the E-DCH resource.

7. (Original) The WTRU as in claim 6, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

8. (Original) The WTRU as in claim 6, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

9. (Original) The WTRU as in claim 8, wherein the transmission of the SI is triggered when the inactivity timer expires.

10. (Original) The WTRU as in claim 6, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a ~~Node B~~ base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor is configured to:

determine that an E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station ~~Node B~~ of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determine if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and that a last HARQ data transmission has been made, release the E-DCH resource.

12. (Original) The WTRU as in claim 11, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

13. (Original) The WTRU as in claim 11, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

14. (Original) The WTRU as in claim 13, wherein the transmission of the SI is triggered when the inactivity timer expires.

15. (Original) The WTRU as in claim 11, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. (Currently Amended) A method for communicating with a ~~Node B~~ base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty by ~~the~~ a wireless transmit/receive unit (WTRU);

on a condition that the E-DCH buffer is empty, triggering a transmission to the base station ~~Node B~~ of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

determining by the WTRU if a last hybrid automatic repeat request (HARQ) buffer is empty; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last HARQ buffer is empty, releasing, by the WTRU, an E-DCH resource.

17. (Original) The method as in claim 16, wherein an inactivity timer is started when the E-DCH buffer is empty.

18. (Original) The method as in claim 17, wherein the transmission of the SI is triggered when the inactivity timer expires.

19. (Original) The method as in claim 16, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. (Original) The method as in claim 16, further comprising completing the transmission in case of cell reselection or radio link failure.

21. (New) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining, by a wireless transmit/receive unit (WTRU), that a E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty, releasing, by the WTRU, an E-DCH resource.

22. (New) The method as in claim 21, wherein an inactivity timer is started when the E-DCH buffer is empty.

23. (New) The method as in claim 22, wherein the transmission of the SI is triggered when the inactivity timer expires.

24. (New) The method as in claim 21, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

25. (New) The method as in claim 21, further comprising completing the transmission in case of cell reselection or radio link failure.

26. (New) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor is configured to:

determine that the E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a E-DCH buffer status (TEBS) equal to zero; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and the HARQ buffer is empty, release the E-DCH resource.

27. (New) The WTRU as in claim 26, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

28. (New) The WTRU as in claim 26, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

29. (New) The WTRU as in claim 28, wherein the transmission of the SI is triggered when the inactivity timer expires.

30. (New) The WTRU as in claim 26, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

31. (New) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor is configured to:

determine that an E-DCH buffer is empty;

on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and that a last hybrid automatic repeat request (HARQ) data transmission has been made, release the E-DCH resource.

32. (New) The WTRU as in claim 31, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

33. (New) The WTRU as in claim 31, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

34. (New) The WTRU as in claim 33, wherein the transmission of the SI is triggered when the inactivity timer expires.

35. (New) The WTRU as in claim 31, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

36. (New) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty by a wireless transmit/receive unit (WTRU);

on a condition that the E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty, releasing, by the WTRU, an E-DCH resource.

37. (New) The method as in claim 36, wherein an inactivity timer is started when the E-DCH buffer is empty.

38. (New) The method as in claim 37, wherein the transmission of the SI is triggered when the inactivity timer expires.

39. (New) The method as in claim 36, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

40. (New) The method as in claim 36, further comprising completing the transmission in case of cell reselection or radio link failure.

41. (New) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

triggering, on a condition that an E-DCH buffer is empty, a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing, by a wireless transmit/receive unit (WTRU), an E-DCH resource on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

42. (New) The method as in claim 41, wherein an inactivity timer is started when the E-DCH buffer is empty.

43. (New) The method as in claim 42, wherein the transmission of the SI is triggered when the inactivity timer expires.

44. (New) The method as in claim 41, further comprising transmitting an E-DCH transmission on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

45. (New) The method as in claim 41, wherein the transmission is completed on a condition of cell reselection or radio link failure.

46. (New) An apparatus capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the apparatus comprising:

an E-DCH buffer;

a transceiver;

a hybrid automatic repeat request (HARQ) buffer; and

a processor,

wherein the processor is configured to:

trigger, on the condition that E-DCH buffer is empty, a transmission by the transceiver to the base station of scheduling information (SI) including an E-DCH buffer status (TEBS) equal to zero;

release the E-DCH resource on the condition that the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

47. (New) The apparatus as in claim 46, wherein the processor is further configured to complete the transmission on a condition of cell reselection or a radio link failure.

48. (New) The apparatus as in claim 46, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

49. (New) The apparatus as in claim 48, wherein the transmission of the SI is triggered when the inactivity timer expires.

50. (New) The apparatus as in claim 46, wherein the processor is further configured to transmit, by the transceiver, an E-DCH transmission to the base station on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

51. (New) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor,

wherein the processor is configured to:

on a condition that an E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

on a condition that the transmission of scheduling information (SI) with the TEBS equal to zero has been made and that a last hybrid automatic repeat request (HARQ) data transmission has been made, release the E-DCH resource.

52. (New) The WTRU as in claim 51, wherein the processor is further configured to complete the transmission on a condition of cell reselection or radio link failure.

53. (New) The WTRU as in claim 51, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

54. (New) The WTRU as in claim 53, wherein the transmission of the SI is triggered when the inactivity timer expires.

55. (New) The WTRU as in claim 51, wherein the processor is further configured to transmit, via the transmitter, an E-DCH transmission to the base station on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

56. (New) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

on a condition that an E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty, releasing, by a wireless transmit/receive unit (WTRU), the E-DCH resource.

57. (New) The method as in claim 56, wherein an inactivity timer is started when the E-DCH buffer is empty.

58. (New) The method as in claim 57, wherein the transmission of the SI is triggered when the inactivity timer expires.

59. (New) The method as in claim 56, further comprising transmitting an E-DCH transmission to the base station on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

60. (New) The method as in claim 56, further comprising completing the transmission on a condition of cell reselection or radio link failure.

61. (New) An apparatus comprising:

a receiver;

a processor configured to allocate an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver; and

a transmitter, responsive to the processor, configured to transmit to the WTRU information regarding the allocated EU resource;

wherein the processor releases the allocated EU resource on a condition that a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

62. (New) The apparatus of claim 61, wherein the allocated EU resources information is transmitted to the WTRU via an enhanced acquisition indication channel.

63. (New) The apparatus of claim 61, wherein the receiver is further configured to receive a random access channel preamble from the WTRU and the transmitter is configured to transmit a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

64. (New) The apparatus of claim 63, wherein the receiver is configured to receive EU data from the WTRU after the transmission of the allocated EU resources information.

65. (New) The apparatus of claim 64, wherein the HARQ process is configured to generate acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data, and the transmitter is further configured to transmit the HARQ ACKs and NACKs to the WTRU.

66. (New) The apparatus of claim 61, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

67. (New) The apparatus of claim 61, wherein the apparatus is a base station.

68. (New) A method comprising:

receiving, at a base station, a request from a wireless transmit receive unit (WTRU);

allocating, by the base station, an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for the WTRU based on the received request;

transmitting, by the base station, information regarding the allocated EU resources to the WTRU; and

releasing, by the base station, the allocated EU resource on a condition that a scheduling information (SI) is received from the WTRU with an E-DCH buffer

status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

69. (New) The method of claim 68, wherein the allocated EU resources information is transmitted to the WTRU via an enhanced acquisition indication channel.

70. (New) The method of claim 68, further comprising the steps of:

receiving, at the base station, a random access channel preamble from the WTRU; and

transmitting, by the base station, a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

71. (New) The method of claim 70, further comprising the step of:

receiving, at the base station, EU data from the WTRU after the transmission of the allocated EU resources information.

72. (New) The method of claim 71, further comprising the steps of:

generating, by the HARQ process at the base station, acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data; and

transmitting, by the base station, the HARQ ACKs and NACKs to the WTRU.

73. (New) The method of claim 68, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

REMARKS

After the foregoing Preliminary Amendment, claims 1-73 are currently pending in this application. Claims 1, 6, 11 and 16 are amended. New claims 21-73 are added. No new subject matter has been added.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicant respectfully submits that the present application, including claims 1-73, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Signal Trust for Wireless Innovation

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AAH/say

Electronic Patent Application Fee Transmittal

Application Number:	14319608
Filing Date:	30-Jun-2014
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Filer:	Abhik A. Huq/Sandy Yi
Attorney Docket Number:	SIG-2-1853US03

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in Excess of 20	1202	53	80	4240
Independent claims in excess of 3	1201	10	420	4200
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Request for Continued Examination	1801	1	1200	1200
		Total in USD ($)		**9640**

Electronic Acknowledgement Receipt	
EFS ID:	23368159
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	01-SEP-2015
Filing Date:	30-JUN-2014
Time Stamp:	16:03:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$9640
RAM confirmation Number	2539
Deposit Account	220493
Authorized User	HUQ, ABHIK A.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	SIG_2_1853US03_RCE_trans.PDF	1350046 81932c72321252d57131d2d7b8f3a4c7af5a9202	no	3
Warnings:					
Information:					
2		20150901_SIG_2_1853US03_Prel_Amend.pdf	133181 425ff6391f337dc9366d0e593478d2db507530a1	yes	17

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment Submitted/Entered with Filing of CPA/RCE	1	1
Claims	2	15
Applicant Arguments/Remarks Made in an Amendment	16	17

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	34330 25a4d9dcdea09b4885062da70e3d1e7d579765ef	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	1517557	

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/319,608	Filing Date 06/30/2014	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	09/01/2015	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 73	Minus	** 20	= 53	X $80 =	4240
	Independent (37 CFR 1.16(h))	* 14	Minus	***4	= 10	X $420 =	4200
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**8440**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/PARTHENIA D. MERRILL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: October 28, 2015
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

Please amend the application without prejudice or disclaimer as follows:

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently Amended) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining, by a wireless transmit/receive unit (WTRU), that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~

determining by the WTRU if a hybrid automatic repeat request (HARQ) buffer is empty; and

~~on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and the HARQ buffer is empty,~~ releasing, by the WTRU, an E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

2. (Original) The method as in claim 1, wherein an inactivity timer is started when the E-DCH buffer is empty.

3. (Original) The method as in claim 2, wherein the transmission of the SI is triggered when the inactivity timer expires.

4. (Original) The method as in claim 1, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. (Original) The method as in claim 1, further comprising completing the transmission in case of cell reselection or radio link failure.

6. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor is configured to:

determine that the E-DCH buffer is empty;

transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a E-DCH buffer status (TEBS) equal to zero;~~

determine if the HARQ buffer is empty; and

~~on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and the HARQ buffer is empty,~~ release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

7. (Original) The WTRU as in claim 6, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

8. (Original) The WTRU as in claim 6, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

9. (Original) The WTRU as in claim 8, wherein the transmission of the SI is triggered when the inactivity timer expires.

10. (Original) The WTRU as in claim 6, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor is configured to:

determine that an E-DCH buffer is empty;

transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~

determine if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

~~on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and that a~~

~~last HARQ data transmission has been made,~~ release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last HARQ data transmission has been made.

12. (Original) The WTRU as in claim 11, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

13. (Original) The WTRU as in claim 11, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

14. (Original) The WTRU as in claim 13, wherein the transmission of the SI is triggered when the inactivity timer expires.

15. (Original) The WTRU as in claim 11, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. (Currently Amended) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty by a wireless transmit/receive unit (WTRU);

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~

determining by the WTRU if a last hybrid automatic repeat request (HARQ) buffer is empty; and

~~on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last HARQ buffer is empty,~~ releasing, by the WTRU, an E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

17. (Original) The method as in claim 16, wherein an inactivity timer is started when the E-DCH buffer is empty.

18. (Original) The method as in claim 17, wherein the transmission of the SI is triggered when the inactivity timer expires.

19. (Original) The method as in claim 16, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. (Original) The method as in claim 16, further comprising completing the transmission in case of cell reselection or radio link failure.

21. (Currently Amended) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining, by a wireless transmit/receive unit (WTRU), that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~ and

~~on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty,~~ releasing, by the WTRU, an E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

22. (Previously Presented) The method as in claim 21, wherein an inactivity timer is started when the E-DCH buffer is empty.

23. (Previously Presented) The method as in claim 22, wherein the transmission of the SI is triggered when the inactivity timer expires.

24. (Previously Presented) The method as in claim 21, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

25. (Previously Presented) The method as in claim 21, further comprising completing the transmission in case of cell reselection or radio link failure.

26. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor is configured to:

determine that the E-DCH buffer is empty;

transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a E-DCH buffer status (TEBS) equal to zero;~~ and

~~on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and the HARQ buffer is empty,~~ release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

27. (Previously Presented) The WTRU as in claim 26, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

28. (Previously Presented) The WTRU as in claim 26, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

29. (Previously Presented) The WTRU as in claim 28, wherein the transmission of the SI is triggered when the inactivity timer expires.

30. (Previously Presented) The WTRU as in claim 26, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

31. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor is configured to:

determine that an E-DCH buffer is empty;

transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

~~on a condition that the E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~ and

~~on a condition that the transmission of scheduling information (SI) with the E-DCH buffer status (TEBS) equal to zero has been made and that a last hybrid automatic repeat request (HARQ) data transmission has been made,~~ release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

32. (Previously Presented) The WTRU as in claim 31, the processor further configured to complete the transmission on a condition cell reselection or radio link failure.

33. (Previously Presented) The WTRU as in claim 31, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

34. (Previously Presented) The WTRU as in claim 33, wherein the transmission of the SI is triggered when the inactivity timer expires.

35. (Previously Presented) The WTRU as in claim 31, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

36. (Currently Amended) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty by a wireless transmit/receive unit (WTRU);

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer ;

~~on a condition that the E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~ and

~~on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty,~~ releasing, by the WTRU, an E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty.

37. (Previously Presented) The method as in claim 36, wherein an inactivity timer is started when the E-DCH buffer is empty.

38. (Previously Presented) The method as in claim 37, wherein the transmission of the SI is triggered when the inactivity timer expires.

39. (Previously Presented) The method as in claim 36, wherein an E-DCH transmission occurs on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

40. (Previously Presented) The method as in claim 36, further comprising completing the transmission in case of cell reselection or radio link failure.

41. (Currently Amended) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

~~triggering, on a condition that an E-DCH buffer is empty, a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~ and

releasing, by a wireless transmit/receive unit (WTRU), an E-DCH resource ~~on a condition that~~ when the transmission of the SI ~~scheduling information~~ with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

42. (Previously Presented) The method as in claim 41, wherein an inactivity timer is started when the E-DCH buffer is empty.

43. (Previously Presented) The method as in claim 42, wherein the transmission of the SI is triggered when the inactivity timer expires.

44. (Previously Presented) The method as in claim 41, further comprising transmitting an E-DCH transmission on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

45. (Previously Presented) The method as in claim 41, wherein the transmission is completed on a condition of cell reselection or radio link failure.

46. (Currently Amended) An apparatus capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the apparatus comprising:

an E-DCH buffer;

a transceiver;

a hybrid automatic repeat request (HARQ) buffer; and

a processor,

wherein the processor is configured to:

transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

~~trigger, on the condition that E-DCH buffer is empty, a transmission by the transceiver to the base station of scheduling information (SI) including an E-DCH buffer status (TEBS) equal to zero;~~

release the E-DCH resource ~~on the condition that~~ when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

47. (Previously Presented) The apparatus as in claim 46, wherein the processor is further configured to complete the transmission on a condition of cell reselection or a radio link failure.

48. (Previously Presented) The apparatus as in claim 46, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

49. (Previously Presented) The apparatus as in claim 48, wherein the transmission of the SI is triggered when the inactivity timer expires.

50. (Previously Presented) The apparatus as in claim 46, wherein the processor is further configured to transmit, by the transceiver, an E-DCH transmission to the base station on a condition that a response is received on an E-

DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

51. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor,

wherein the processor is configured to:

transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

~~on a condition that an E-DCH buffer is empty, trigger a transmission by the transmitter to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~ and

~~on a condition that the transmission of scheduling information (SI) with the TEBS equal to zero has been made and that a last hybrid automatic repeat request (HARQ) data transmission has been made,~~ release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

52. (Previously Presented) The WTRU as in claim 51, wherein the processor is further configured to complete the transmission on a condition of cell reselection or radio link failure.

53. (Previously Presented) The WTRU as in claim 51, wherein the processor is further configured to start an inactivity timer when the E-DCH buffer is empty.

54. (Previously Presented) The WTRU as in claim 53, wherein the transmission of the SI is triggered when the inactivity timer expires.

55. (Previously Presented) The WTRU as in claim 51, wherein the processor is further configured to transmit, via the transmitter, an E-DCH transmission to the base station on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

56. (Currently Amended) A method for communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;

~~on a condition that an E-DCH buffer is empty, triggering a transmission to the base station of scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero;~~ and

~~on a condition that the transmission of scheduling information with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty,~~ releasing, by a wireless transmit/receive unit (WTRU), the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty.

57. (Previously Presented) The method as in claim 56, wherein an inactivity timer is started when the E-DCH buffer is empty.

58. (Previously Presented) The method as in claim 57, wherein the transmission of the SI is triggered when the inactivity timer expires.

59. (Previously Presented) The method as in claim 56, further comprising transmitting an E-DCH transmission to the base station on a condition that a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

60. (Previously Presented) The method as in claim 56, further comprising completing the transmission on a condition of cell reselection or radio link failure.

61. (Currently Amended) An apparatus comprising:

a receiver;

a processor configured to allocate an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver; and

a transmitter, responsive to the processor, configured to transmit to the WTRU information regarding the allocated EU resource;

wherein the processor releases the allocated EU resource ~~on a condition that~~ when a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

62. (Previously Presented) The apparatus of claim 61, wherein the allocated EU resources information is transmitted to the WTRU via an enhanced acquisition indication channel.

63. (Previously Presented) The apparatus of claim 61, wherein the receiver is further configured to receive a random access channel preamble from the WTRU and the transmitter is configured to transmit a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

64. (Previously Presented) The apparatus of claim 63, wherein the receiver is configured to receive EU data from the WTRU after the transmission of the allocated EU resources information.

65. (Previously Presented) The apparatus of claim 64, wherein the HARQ process is configured to generate acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data, and the transmitter is further configured to transmit the HARQ ACKs and NACKs to the WTRU.

66. (Previously Presented) The apparatus of claim 61, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

67. (Previously Presented) The apparatus of claim 61, wherein the apparatus is a base station.

68. (Currently Amended) A method comprising:

receiving, at a base station, a request from a wireless transmit receive unit (WTRU);

allocating, by the base station, an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for the WTRU based on the received request;

transmitting, by the base station, information regarding the allocated EU resources to the WTRU; and

releasing, by the base station, the allocated EU resource ~~on a condition that~~ when a scheduling information (SI) is received from the WTRU with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

69. (Previously Presented) The method of claim 68, wherein the allocated EU resources information is transmitted to the WTRU via an enhanced acquisition indication channel.

70. (Previously Presented) The method of claim 68, further comprising the steps of:

receiving, at the base station, a random access channel preamble from the WTRU; and

transmitting, by the base station, a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

71. (Previously Presented) The method of claim 70, further comprising the step of:

receiving, at the base station, EU data from the WTRU after the transmission of the allocated EU resources information.

72. (Previously Presented) The method of claim 71, further comprising the steps of:

generating, by the HARQ process at the base station, acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data; and

transmitting, by the base station, the HARQ ACKs and NACKs to the WTRU.

73. (Previously Presented) The method of claim 68, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

REMARKS

After the foregoing Preliminary Amendment, claims 1-73 are currently pending in this application. Claims 1, 6, 11, 16, 21, 26, 31, 36, 41, 46, 51, 56, 61 and 68 are amended. No new subject matter has been added.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicant respectfully submits that the present application, including claims 1-73, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Signal Trust for Wireless Innovation

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Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20151028_SIG_2_1853US03_Prel_Amend.pdf	130866 772dfeaa4ff8c26b1d608863e6157dedad811016	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	1
	Claims	2	17
	Applicant Arguments/Remarks Made in an Amendment	18	18
Warnings:			
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/319,608	Filing Date 06/30/2014	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)		
AMENDMENT	**10/28/2015**	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 73	Minus	** 73	= 0	X $80 =	0
	Independent (37 CFR 1.16(h))	* 14	Minus	***14	= 0	X $420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

		(Column 1)		(Column 2)	(Column 3)		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/SONYA HILLIARD/

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EXAMINER
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ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 01/14/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

TITLE OF INVENTION: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	04/14/2016

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

3624 7590 01/14/2016
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

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nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	04/14/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
YUEN, KAN	2464	370-329000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

3624 7590 01/14/2016

VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER	
YUEN, KAN	

ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 01/14/2016

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/319,608	Applicant(s) PELLETIER ET AL.	
	Examiner KAN YUEN	Art Unit 2464	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *10/28/2015*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-73*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/KAN YUEN/
Primary Examiner, Art Unit 2464

Allowable Subject Matter

1. Claims 1-73 are allowed. The prior art of record fails to disclose the feature for releasing, by the WTRU, an E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty, as recited in claims 1, 6, 16, 21, 26, 41, 46.

2. The prior art of record fails to disclose the feature to release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last HARQ data transmission has been made, as recited in claims 11, 31, 36, 51, 56.

3. The prior art of record fails to disclose a processor configured to allocate an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver; and a transmitter, responsive to the processor, configured to transmit to the WTRU information regarding the allocated EU resource; wherein the processor releases the allocated EU resource when a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed, as recited in claims 61 and 68.

Terminal Disclaimer

4. The terminal disclaimer filed on 4/2/2015 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of

Patent No.: 8,774,104 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAN YUEN whose telephone number is (571)270-1413. The examiner can normally be reached on Monday-Friday 11:00a.m-6:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KAN YUEN/
Primary Examiner, Art Unit 2464

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/04/2016								
1	1	=								
2	2	=								
3	3	=								
4	4	=								
5	5	=								
6	6	=								
7	7	=								
8	8	=								
9	9	=								
10	10	=								
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30	30	=								
31	31	=								
32	32	=								
33	33	=								
34	34	=								
35	35	=								
36	36	=								

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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/04/2016								
37	37	=								
38	38	=								
39	39	=								
40	40	=								
41	41	=								
42	42	=								
43	43	=								
44	44	=								
45	45	=								
46	46	=								
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67	67	=								
68	68	=								
69	69	=								
70	70	=								
71	71	=								
72	72	=								

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	KAN YUEN	2464

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=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/04/2016								
73	73	=								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	39	(discontinu$4 or releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no" or zero)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 19:39
L2	4017	(harq or (hybrid near2 automatic$4 near2 repeat$4)) with (empty or zero or last$4 or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 19:49
L3	22	1 2	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 19:49
L4	5	("2005250504").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 19:56
L5	2	("20050250504").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 19:56
L6	19	(discontinu$4 or releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (harq or (hybrid near2 automatic$4 near2 repeat$4)) with (empty or zero or last$4 or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 20:55
L7	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS;	AND	ON	2016/01/04 21:14

			EPO; DERWENT; IBM_TDB			
L8	558719	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L9	567094	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L10	3393	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L11	394	(harq or (hybrid near2 automatic$4 near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L12	40	L9 L10 L11	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L13	1219	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L14	1219	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L15	27	L12 L14	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L16	27	L12 L14	US-PGPUB; USPAT;	AND	ON	2016/01/04 21:14

			USOCR; FPRS; EPO; DERWENT; IBM_TDB			
L27	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 21:14
L28	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 21:14
L29	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L30	1334	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L31	7932	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L32	97	L30 L31	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L33	567096	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L34	20	L32 L33	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14

L35	20	L32 L33	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L36	2339	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L37	567094	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L38	226	L36 L37	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L39	136	(harq or (hybrid near2 automatic$4 near2 repeat$4)) L38	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L40	136	(harq or (hybrid near2 automatic$4 near2 repeat$4)) L38	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L41	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" | "20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" | "20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14

		"7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.				
L42	3	L40 L41	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L43	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L44	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 21:14
L45	49	(edch or e-dch or dch) near5 (stor$3 or buffer$4 or queu$4) with (zero or empty or "0") same ("SI" or (schedul$4 near2 information))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L46	3415	(harq or (hybrid near2 automatic$4 near2 request$4)) with (zero or empty or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L47	18	L45 L46	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L48	1140	(releas$4 or cancel$6 or tear$4 or teardown or tear-down or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L49	17	L47 L48	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L50	17	L47 L48	US-PGPUB; USPAT;	AND	ON	2016/01/04 21:14

			USOCR; FPRS; EPO; DERWENT; IBM_TDB			
L51	2	L50 L43	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L52	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L53	558719	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L54	567094	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L55	3393	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L56	394	(harq or (hybrid near2 automatic$4 near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L57	40	L54 L55 L56	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L58	1219	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14

L59	1219	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L60	27	L57 L59	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L61	27	L57 L59	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L62	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 21:14
L63	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 21:14
L64	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L65	1334	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L66	7932	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L67	97	L65 L66	US-PGPUB; USPAT; USOCR; FPRS; EPO;	AND	ON	2016/01/04 21:14

			DERWENT; IBM_TDB			
L68	567096	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L69	20	L67 L68	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L70	20	L67 L68	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L71	2339	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L72	567094	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L73	226	L71 L72	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L74	136	(harq or (hybrid near2 automatic$4 near2 repeat$4)) L73	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L75	136	(harq or (hybrid near2 automatic$4 near2 repeat$4)) L73	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L76	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" |	US-PGPUB; USPAT; USOCR;	AND	ON	2016/01/04 21:14

		"20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" | "20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" | "7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.	FPRS; EPO; DERWENT; IBM_TDB			
L77	3	L75 L76	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L89	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L90	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2016/01/04 21:14
L91	31	(releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L92	31	(releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L93	36	(releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or	US-PGPUB; USPAT; USOCR; FPRS; EPO;	AND	ON	2016/01/04 21:14

		edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no" or zero)	DERWENT; IBM_TDB			
L94	1	14/319975	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L95	1	L93 L94	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L96	82	(e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no" or zero)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
L97	5	(e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (queu$4 or stor$3 or database or (data near2 base)) near8 (empty$4 or last$4 or "0" "no" or zero)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 21:14
S1	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 13:48
S2	521539	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:07
S3	529353	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:08
S4	3065	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:16
S5	314	(harq or (hybrid near2 automatic$4	US-PGPUB;	AND	ON	2015/02/02

		near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB			14:17
S6	30	S3 S4 S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:17
S7	1074	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:18
S8	1074	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:19
S9	24	S6 S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:20
S10	24	S6 S8	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 14:20
S23	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/02/02 16:24
S24	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/02/02 16:24
S25	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT	AND	ON	2015/02/02 16:32

			IBM_TDB			
S26	1182	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S27	5087	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S28	68	S26 S27	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:35
S29	529355	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:36
S30	16	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:37
S31	16	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 17:37
S32	2101	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:10
S33	529353	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:11
S34	200	S32 S33	US-PGPUB; USPAT; USOCR; FPRS;	AND	ON	2015/02/02 19:12

			EPO; DERWENT; IBM_TDB			
S35	118	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:12
S36	118	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:18
S37	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" | "20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" | "20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" | "7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:22
S38	3	S36 S37	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/02/02 19:22
S39	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:22
S40	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/06/09 15:34
S41	48	(edch or e-dch or dch) near5 (stor$3 or	US-PGPUB;	AND	ON	2015/06/09

		buffer$4 or queu$4) with (zero or empty or "0") same ("SI" or (schedul$4 near2 information))	USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB			15:40
S42	2883	(harq or (hybrid near2 automatic$4 near2 request$4)) with (zero or empty or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:40
S43	18	S41 S42	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S44	1061	(releas$4 or cancel$6 or tear$4 or teardown or tear-down or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S45	17	S43 S44	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S46	17	S43 S44	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:41
S47	2	S46 S39	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:42
S48	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S49	535753	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT;	AND	ON	2015/06/09 15:43

			IBM_TDB			
S50	543761	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S51	3177	(dch or e-dch or edch or (dedicat$4 near4 channel)) near6 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S52	344	(harq or (hybrid near2 automatic$4 near2 repeat$4)) near7 (buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S53	33	S50 S51 S52	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S54	1139	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S55	1139	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S56	25	S53 S55	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S57	25	S53 S55	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S58	3	("8774014").PN.	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2015/06/09 15:43

			EPO; DERWENT; IBM_TDB			
S59	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/06/09 15:43
S60	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S61	1249	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) with (e-dch or edch or (enhanc$4 near2 dedicat$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S62	5696	h04w76/046,062,068.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S63	77	S61 S62	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S64	543763	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$6 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S65	16	S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S66	16	S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S67	2203	(releas$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or	US-PGPUB; USPAT;	AND	ON	2015/06/09 15:43

		teardown or (tear-down) or (tear$4 adj2 down)) with (dch or e-dch or edch or (enhanc$4 near2 dedicat$4))	USOCR; FPRS; EPO; DERWENT; IBM_TDB			
S68	543761	(buffer$4 or storage or store or database or (data adj2 base) or queu$4 or memory) with (unfill$4 or vacant$4 or unoccup$4 or empty or empt$4 or zero or "0")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S69	212	S67 S68	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S70	127	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S69	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S71	127	(harq or (hybrid near2 automatic$4 near2 repeat$4)) S69	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S72	125	("20040052229" | "20040068505" | "20040117860" | "20050026623" | "20050053035" | "20050054298" | "20050101299" | "20050180371" | "20050250504" | "20060023629" | "20060039326" | "20060140154" | "20060251027" | "20070115871" | "20070135113" | "20070213059" | "20070223609" | "20080008152" | "20080049669" | "20080125043" | "20080192766" | "20080268852" | "20090061881" | "20090086671" | "20090135769" | "20090143074" | "20090168704" | "20090168724" | "20090219868" | "20090225709" | "20090225739" | "20100091652" | "20100215005" | "20100216471" | "20100278143" | "20110164540" | "20120327833" | "6167248" | "6246692" | "6721566" | "6845238" | "7079489" | "7406314" | "7477609" | "7480269" | "7508792" | "7643515" | "7890094" | "7894390").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/09 15:43
S73	3	S71 S72	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT;	AND	ON	2015/06/09 15:43

			IBM_TDB			
S85	2	14/319608	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2015/06/11 15:48
S86	3	("8774104").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	OR	OFF	2015/06/11 15:48
S87	31	(releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 14:31
S88	31	(releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no")	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 14:32
S89	36	(releas$4 or clos$4 or deactivat$4 or de-activat$4 or disconnect$4 or cancel$6 or terminat$4 or revok$4 or stop$4 or cancellation or teardown or (tear-down) or (tear$4 adj2 down)) near9 (e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no" or zero)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 14:45
S90	1	14/319975	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 14:51
S91	1	S89 S90	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 14:51
S92	82	(e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (buffer$4 or tebs or "si") near8 (empty$4 or last$4 or "0" "no" or zero)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 15:34

S93	5	(e-dch or edch or (enhanc$4 near2 (dedicat$4 or dch))) with (queu$4 or stor$3 or database or (data near2 base)) near8 (empty$4 or last$4 or "0" "no" or zero)	US-PGPUB; USPAT; USOCR; FPRS; EPO; DERWENT; IBM_TDB	AND	ON	2016/01/04 16:44

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L17	2379	(buffer$4 near4 empt$4).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L18	13582	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L19	4092	(harq).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L20	16	L17 L18 L19	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L21	703	(e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L22	7	L20 L21	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L23	30	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L24	4	L22 L23	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L25	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L26	3	L24 L25	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L78	2379	(buffer$4 near4 empt$4).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L79	13582	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L80	4092	(harq).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L81	16	L78 L79 L80	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L82	703	(e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L83	7	L81 L82	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L84	30	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L85	4	L83 L84	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L86	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L87	3	L85 L86	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L88	1	(e-dch near2 buffer near2 empty).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2016/01/04 21:14
L98	13582	(schedul$4 near3	US-PGPUB; USPAT	AND	ON	2016/01/04

		information).clm.				21:14
L99	219	(tebs).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 21:14
L100	30	L98 L99	US-PGPUB; USPAT	AND	ON	2016/01/04 21:14
L101	30	(releas$4 near5 e-dch).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 21:14
L102	9	L100 L101	US-PGPUB; USPAT	AND	ON	2016/01/04 21:14
L103	44	(harq near4 (last$4 or empty)).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 21:14
L104	3	L102 L103	US-PGPUB; USPAT	AND	ON	2016/01/04 21:14
S11	2262	(buffer$4 near4 empt$4).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:30
S12	12151	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:30
S13	3288	(harq).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:31
S14	15	S11 S12 S13	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:31
S15	613	(e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:31
S16	7	S14 S15	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:32
S17	24	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:32
S18	4	S16 S17	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:32
S21	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:34
S22	3	S18 S21	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/02/02 14:34
S74	2323	(buffer$4 near4 empt$4).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S75	12750	(schedul$6 near3 information).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S76	3613	(harq).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S77	16	S74 S75 S76	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S78	647	(e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S79	7	S77 S78	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S80	28	(releas$4 near4 e-dch).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S81	4	S79 S80	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S82	11	(tebs near2 zero).clm.	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S83	3	S81 S82	US-PGPUB; USPAT; * No UPAD	AND	ON	2015/06/09 15:43
S84	1	(e-dch near2 buffer near2	US-PGPUB; USPAT;	AND	ON	2015/06/09

		empty).clm.	* No UPAD			15:50
S94	13582	(schedul$4 near3 information).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 16:52
S95	219	(tebs).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 16:53
S96	30	S94 S95	US-PGPUB; USPAT	AND	ON	2016/01/04 16:55
S97	30	(releas$4 near5 e-dch).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 16:55
S98	9	S96 S97	US-PGPUB; USPAT	AND	ON	2016/01/04 16:55
S99	44	(harq near4 (last$4 or empty)).clm.	US-PGPUB; USPAT	AND	ON	2016/01/04 16:56
S100	3	S98 S99	US-PGPUB; USPAT	AND	ON	2016/01/04 16:56

1/4/2016 9:23:51 PM
C:\Users\kyuen\Documents\EAST\Workspaces\14319608.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	Art Unit
	KAN YUEN	2464

CPC- SEARCHED		
Symbol	Date	Examiner
h04w76/046,062,068	1/4/2016	KY

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
370	328,329,338,341,348	1/4/2016	KY
455	450,464	1/4/2016	KY
709	226,229	1/4/2016	KY

SEARCH NOTES		
Search Notes	Date	Examiner
EAST SEARCH; MANUAL SEARCH 370/329	1/4/2016	KY

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	INTERFERENCE SEARCH PRINTOUT (SEE SEARCH PRINTOUT)	1/4/2016	KY

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

CPC						
Symbol					**Type**	**Version**
H04W		74	/	0833	F	2013-01-01
H04W		72	/	12	A	2013-01-01
H04W		76	/	046	I	2013-01-01
H04W		76	/	068	I	2013-01-01
H04W		28	/	04	I	2013-01-01
H04L		5	/	0053	I	2013-01-01
H04W		72	/	0406	I	2013-01-01
H04W		72	/	04	I	2013-01-01
			/			
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			/			
			/			
			/			

CPC Combination Sets							
Symbol				**Type**	**Set**	**Ranking**	**Version**
			/				
			/				

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	73	
/KAN YUEN/ Primary Examiner.Art Unit 2464	01/04/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

U.S. Patent and Trademark Office — Part of Paper No. 20160104

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION												
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED							
370	328	H	0	4	W	4 / 00 (2009.0)								

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
370	338				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	73	
/KAN YUEN/ Primary Examiner.Art Unit 2464	01/04/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17	33	33	49	49	65	65						
2	2	18	18	34	34	50	50	66	66						
3	3	19	19	35	35	51	51	67	67						
4	4	20	20	36	36	52	52	68	68						
5	5	21	21	37	37	53	53	69	69						
6	6	22	22	38	38	54	54	70	70						
7	7	23	23	39	39	55	55	71	71						
8	8	24	24	40	40	56	56	72	72						
9	9	25	25	41	41	57	57	73	73						
10	10	26	26	42	42	58	58								
11	11	27	27	43	43	59	59								
12	12	28	28	44	44	60	60								
13	13	29	29	45	45	61	61								
14	14	30	30	46	46	62	62								
15	15	31	31	47	47	63	63								
16	16	32	32	48	48	64	64								

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	73	
/KAN YUEN/ Primary Examiner.Art Unit 2464	01/04/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: January 28, 2016
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

This amendment is submitted further to the Notice of Allowance dated January 14, 2016.

Please amend the application without prejudice or disclaimer as follows:

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate ~~for communicating~~ with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining~~, by a wireless transmit/receive unit (WTRU),~~ that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero when ~~for~~ the ~~empty~~ E-DCH buffer is determined to be empty;

determining ~~by the WTRU~~ if a hybrid automatic repeat request (HARQ) buffer is empty; and

releasing~~, by the WTRU, an~~ the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

2. (Currently Amended) The method as in claim 1, further comprising starting ~~wherein~~ an inactivity timer ~~is started~~ when the E-DCH buffer is empty.

3. (Currently Amended) The method as in claim 2, further comprising triggering ~~wherein~~ the transmission of the SI ~~is triggered~~ when the inactivity timer expires.

4. (Currently Amended) The method as in claim 1, further comprising transmitting using the ~~wherein an~~ E-DCH ~~transmission occurs on a condition that~~ resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. (Currently Amended) The method as in claim 1, further comprising completing ~~the~~ an E-DCH transmission when a ~~in case of~~ cell reselection or a radio link failure occurs.

6. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor ~~is configured to~~:

determines ~~that~~ if the E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the ~~empty~~ E-DCH buffer when the processor has determined that the E-DCH buffer is empty;

determines if the HARQ buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

7. (Currently Amended) The WTRU as in claim 6, wherein the processor ~~further configured to~~ completes ~~the~~ an E-DCH transmission when a ~~on a condition~~ cell reselection or a radio link failure occurs.

8. (Currently Amended) The WTRU as in claim 6, wherein the processor ~~is further configured to~~ starts an inactivity timer when the E-DCH buffer is empty.

9. (Currently Amended) The WTRU as in claim 8, wherein the transmitter transmits ~~transmission of~~ the SI ~~is triggered~~ when the inactivity timer expires.

10. (Currently Amended) The WTRU as in claim 6, wherein the transmitter transmits using the E-DCH resource when ~~an E-DCH transmission occurs on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor ~~is configured to~~:

determines ~~that~~ if an E-DCH buffer is empty;

transmits to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the ~~empty~~ E-DCH buffer when the processor has determined that the E-DCH buffer is empty;

determines if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and [[a]] the last HARQ data transmission has been made.

12. (Currently Amended) The WTRU as in claim 11, wherein the processor ~~further configured to~~ completes ~~the~~ an E-DCH transmission when ~~on a condition~~ a cell reselection or a radio link failure occurs.

13. (Currently Amended) The WTRU as in claim 11, wherein the processor ~~is further configured to~~ starts an inactivity timer when the E-DCH buffer is empty.

14. (Currently Amended) The WTRU as in claim 13, wherein the transmitter transmits ~~transmission of~~ the SI ~~is triggered~~ when the inactivity timer expires.

15. (Currently Amended) The WTRU as in claim 11, wherein the transmitter transmits using the E-DCH resource when ~~an E-DCH transmission occurs on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. (Currently Amended) A method ~~for communicating~~ performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty ~~by a wireless transmit/receive unit (WTRU)~~;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

determining ~~by the WTRU~~ if a last hybrid automatic repeat request (HARQ) buffer is empty; and

releasing~~, by the WTRU, an~~ the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the last HARQ buffer is empty.

17. (Currently Amended) The method as in claim 16, further comprising starting ~~wherein~~ an inactivity timer ~~is started~~ when the E-DCH buffer is empty.

18. (Currently Amended) The method as in claim 17, further comprising triggering ~~wherein~~ the transmission of the SI ~~is triggered~~ when the inactivity timer expires.

19. (Currently Amended) The method as in claim 16, further comprising transmitting using the ~~wherein an~~ E-DCH ~~transmission occurs on a condition that~~ resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. (Currently Amended) The method as in claim 16, further comprising completing ~~the~~ an E-DCH transmission when a ~~in case of~~ cell reselection or a radio link failure occurs.

21. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate ~~for communicating~~ with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining~~, by a wireless transmit/receive unit (WTRU),~~ that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer; and

releasing~~, by the WTRU, an~~ the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

22. (Currently Amended) The method as in claim 21, further comprising starting ~~wherein~~ an inactivity timer ~~is started~~ when the E-DCH buffer is empty.

23. (Currently Amended) The method as in claim 22, further comprising triggering ~~wherein~~ the transmission of the SI ~~is triggered~~ when the inactivity timer expires.

24. (Currently Amended) The method as in claim 21, further comprising transmitting using the ~~wherein an~~ E-DCH ~~transmission occurs on a condition that~~ resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

25. (Currently Amended) The method as in claim 21, wherein ~~further comprising the~~ an E-DCH transmission is completed when a ~~in case of~~ cell reselection or a radio link failure occurs.

26. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor ~~is configured to~~:

determines ~~that~~ if the E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the ~~empty~~ E-DCH buffer when the processor has determined that the E-DCH buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

27. (Currently Amended) The WTRU as in claim 26, wherein the processor ~~is further configured to~~ completes an E-DCH transmission when ~~on a condition of~~ a cell reselection or a radio link failure occurs.

28. (Currently Amended) The WTRU as in claim 26, wherein the processor ~~is further configured to~~ starts an inactivity timer when the E-DCH buffer is empty.

29. (Currently Amended) The WTRU as in claim 28, wherein the processor causes the transmitter to transmit ~~transmission of~~ the SI ~~is triggered~~ when the inactivity timer expires.

30. (Currently Amended) The WTRU as in claim 26, wherein the transmitter transmits using the E-DCH resource when ~~an E-DCH transmission occurs on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

31. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor ~~is configured to~~:

determines ~~that~~ if an E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the ~~empty~~ E-DCH buffer when the processor has determined that the E-DCH buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

32. (Currently Amended) The WTRU as in claim 31, the processor ~~further configured to~~ completes ~~the~~ an E-DCH transmission when ~~on a condition~~ a cell reselection or a radio link failure occurs.

33. (Currently Amended) The WTRU as in claim 31, wherein the processor ~~is further configured to~~ starts an inactivity timer when the E-DCH buffer is empty.

34. (Currently Amended) The WTRU as in claim 33, wherein the processor causes the transmitter to transmit ~~transmission of~~ the SI ~~is triggered~~ when the inactivity timer expires.

35. (Currently Amended) The WTRU as in claim 31, wherein the transmitter transmits using the E-DCH resource when ~~an E-DCH transmission occurs on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

36. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate ~~for communicating~~ with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty ~~by a wireless transmit/receive unit (WTRU)~~;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer; and

releasing~~, by the WTRU, an~~ the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty.

37. (Currently Amended) The method as in claim 36, further comprising starting ~~wherein~~ an inactivity timer ~~is started~~ when the E-DCH buffer is empty.

38. (Currently Amended) The method as in claim 37, further comprising triggering the ~~wherein the~~ transmission of the SI ~~is triggered~~ when the inactivity timer expires.

39. (Currently Amended) The method as in claim 36, further comprising transmitting using the ~~wherein an~~ E-DCH ~~transmission occurs on a condition that~~ resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

40. (Currently Amended) The method as in claim 36, further comprising completing ~~the~~ an E-DCH transmission when ~~in case of~~ a cell reselection or a radio link failure occurs.

41. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate ~~for communicating~~ with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing~~, by a wireless transmit/receive unit (WTRU), an~~ the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

42. (Currently Amended) The method as in claim 41, further comprising starting ~~wherein~~ an inactivity timer ~~is started~~ when the E-DCH buffer is empty.

43. (Currently Amended) The method as in claim 42, further comprising triggering ~~wherein~~ the transmission of the SI ~~is triggered~~ when the inactivity timer expires.

44. (Currently Amended) The method as in claim 41, further comprising transmitting using the E-DCH ~~transmission on a condition that~~ resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

45. (Currently Amended) The method as in claim 41, ~~wherein the~~ further comprising completing an E-DCH transmission ~~is completed~~ when a ~~on a condition of~~ cell reselection or a radio link failure occurs.

46. (Currently Amended) An apparatus capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the apparatus comprising:

an E-DCH buffer;

a transmitter ~~transceiver~~;

a hybrid automatic repeat request (HARQ) buffer; and

a processor,

wherein the processor ~~is configured to~~:

causes the transmitter to transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

47. (Currently Amended) The apparatus as in claim 46, wherein the processor ~~is further configured to~~ completes ~~the~~ an E-DCH transmission ~~on a condition of~~ when a cell reselection or a radio link failure occurs.

48. (Currently Amended) The apparatus as in claim 46, wherein the processor ~~is further configured to~~ starts an inactivity timer when the E-DCH buffer is empty.

49. (Currently Amended) The apparatus as in claim 48, wherein the processor causes the transmitter to transmit ~~transmission of~~ the SI ~~is triggered~~ when the inactivity timer expires.

50. (Currently Amended) The apparatus as in claim 46, wherein the processor causes ~~is further configured to transmit, by~~ the transmitter ~~transceiver~~ to transmit[[,]] an E-DCH transmission to the base station when ~~on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

51. (Currently Amended) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor,

wherein the processor ~~is configured to~~:

causes the transmitter to transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

52. (Currently Amended) The WTRU as in claim 51, wherein the processor ~~is further configured to~~ completes ~~the~~ an E-DCH transmission when a ~~on a condition of~~ cell reselection or a radio link failure occurs.

53. (Currently Amended) The WTRU as in claim 51, wherein the processor ~~is further configured to~~ starts an inactivity timer when the E-DCH buffer is empty.

54. (Currently Amended) The WTRU as in claim 53, wherein the processor causes the transmitter to transmit ~~transmission of~~ the SI ~~is triggered~~ when the inactivity timer expires.

55. (Currently Amended) The WTRU as in claim 51, wherein ~~the processor is further configured to transmit, via~~ the transmitter transmits using the [[,]] ~~an~~ E-DCH resource ~~transmission~~ to the base station when ~~on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

56. (Currently Amended) A method performed by a wireless transmit/receiver unit (WTRU) to communicate ~~for communicating~~ with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing~~, by a wireless transmit/receive unit (WTRU),~~ the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty.

57. (Currently Amended) The method as in claim 56, further comprising starting ~~wherein~~ an inactivity timer ~~is started~~ when the E-DCH buffer is empty.

58. (Currently Amended) The method as in claim 57, further comprising triggering the ~~wherein the~~ transmission of the SI ~~is triggered~~ when the inactivity timer expires.

59. (Currently Amended) The method as in claim 56, further comprising transmitting ~~an~~ using the E-DCH resource ~~transmission~~ to the base station when ~~on a condition that~~ a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

60. (Currently Amended) The method as in claim 56, further comprising completing ~~the~~ an E-DCH transmission when a ~~on a condition of~~ cell reselection or a radio link failure occurs.

61. (Currently Amended) An apparatus comprising:

a receiver;

a transmitter; and

a processor,

wherein the processor:

~~a processor configured to~~ allocates an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver; ~~and~~

causes the a transmitter~~, responsive to the processor, configured~~ to transmit to the WTRU information regarding the allocated EU resource[[;]], and

~~wherein the processor~~ releases the allocated EU resource when a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

62. (Currently Amended) The apparatus of claim 61, wherein the processor causes the transmitter to transmit the allocated EU resources information ~~is transmitted~~ to the WTRU via an enhanced acquisition indication channel.

63. (Currently Amended) The apparatus of claim 61, wherein the receiver ~~is further configured to~~ receives a random access channel preamble from the WTRU and the transmitter ~~is configured to~~ transmits a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

64. (Currently Amended) The apparatus of claim 63, wherein the receiver ~~is configured to~~ receives EU data from the WTRU after the transmission of the allocated EU resources information.

65. (Currently Amended) The apparatus of claim 64, wherein the HARQ process ~~is configured to~~ generates acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data, and the transmitter ~~is further configured to~~ transmits the HARQ ACKs and NACKs to the WTRU.

66. (Previously Presented) The apparatus of claim 61, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

67. (Previously Presented) The apparatus of claim 61, wherein the apparatus is a base station.

68. (Currently Amended) A method performed by a base station to communicate with a wireless transmit/receive unit (WTRU), the method comprising:

receiving~~, at a base station,~~ a request from the ~~a wireless transmit receive unit (~~WTRU~~)~~;

allocating~~, by the base station,~~ an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for the WTRU based on the received request;

transmitting~~, by the base station,~~ information regarding the allocated EU resources to the WTRU; and

releasing~~, by the base station,~~ the allocated EU resource when a scheduling information (SI) is received from the WTRU with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

69. (Currently Amended) The method of claim 68, ~~wherein~~ further comprising transmitting the allocated EU resources information ~~is transmitted~~ to the WTRU via an enhanced acquisition indication channel.

70. (Currently Amended) The method of claim 68, further comprising ~~the steps of~~:

receiving~~, at the base station,~~ a random access channel preamble from the WTRU; and

transmitting~~, by the base station,~~ a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

71. (Currently Amended) The method of claim 70, further comprising ~~the step of~~:

receiving~~, at the base station,~~ EU data from the WTRU after the transmission of the allocated EU resources information.

72. (Currently Amended) The method of claim 71, further comprising ~~the steps of~~:

generating, by the HARQ process ~~at the base station~~, acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data; and

transmitting~~, by the base station,~~ the HARQ ACKs and NACKs to the WTRU.

73. (Previously Presented) The method of claim 68, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

REMARKS

After the foregoing Supplemental Preliminary Amendment, claims 1-73 are currently pending in this application. Claims 1-65 and 68-72 are amended. No new subject matter has been added.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicant respectfully submits that the present application, including claims 1-73, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Signal Trust for Wireless Innovation

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Electronic Acknowledgement Receipt

EFS ID:	24749252
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	28-JAN-2016
Filing Date:	30-JUN-2014
Time Stamp:	12:25:58
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20160128_SIG_2_1853US03_312_Amendment.pdf	136840 bf14af0747a2a26ba242dfec1fb2440f6446059c	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment after Notice of Allowance (Rule 312)	1	1
	Claims	2	17
	Applicant Arguments/Remarks Made in an Amendment	18	18
Warnings:			
Information:			
	Total Files Size (in bytes):	136840	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

3624 7590 02/08/2016

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EXAMINER	
YUEN, KAN	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
02/08/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eoffice@volpe-koenig.com

Response to Rule 312 Communication	Application No.	Applicant(s)
	14/319,608	PELLETIER ET AL.
	Examiner	Art Unit
	KAN YUEN	2464

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

1. ☒ The amendment filed on *28 January 2016* under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☒ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/KAN YUEN/
Primary Examiner, Art Unit 2464

OK TO ENTER: /K.Y./

02/02/2016

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: January 28, 2016
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

This amendment is submitted further to the Notice of Allowance dated January 14, 2016.

Please amend the application without prejudice or disclaimer as follows:

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: February 10, 2016
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

This amendment is submitted further to the Notice of Allowance dated January 14, 2016, and the Rule 312 Amendment filed January 28, 2016.

Please amend the application without prejudice or disclaimer as follows:

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining if ~~that~~ a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero when the E-DCH buffer is determined to be empty;

determining if a hybrid automatic repeat request (HARQ) buffer is empty; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

2. (Previously Presented) The method as in claim 1, further comprising starting an inactivity timer when the E-DCH buffer is empty.

3. (Previously Presented) The method as in claim 2, further comprising triggering the transmission of the SI when the inactivity timer expires.

4. (Previously Presented) The method as in claim 1, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. (Previously Presented) The method as in claim 1, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

6. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor:

determines if the E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty;

determines if the HARQ buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

7. (Previously Presented) The WTRU as in claim 6, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

8. (Previously Presented) The WTRU as in claim 6, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

9. (Previously Presented) The WTRU as in claim 8, wherein the transmitter transmits the SI when the inactivity timer expires.

10. (Previously Presented) The WTRU as in claim 6, wherein the transmitter transmits using the E-DCH resource when a response is received on an

E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor:

determines if an E-DCH buffer is empty;

transmits to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty;

determines if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the last HARQ data transmission has been made.

12. (Previously Presented) The WTRU as in claim 11, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

13. (Previously Presented) The WTRU as in claim 11, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

14. (Previously Presented) The WTRU as in claim 13, wherein the transmitter transmits the SI when the inactivity timer expires.

15. (Previously Presented) The WTRU as in claim 11, wherein the transmitter transmits using the E-DCH resource when a response is received on an

E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

determining if a last hybrid automatic repeat request (HARQ) buffer is empty; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the last HARQ buffer is empty.

17. (Previously Presented) The method as in claim 16, further comprising starting an inactivity timer when the E-DCH buffer is empty.

18. (Previously Presented) The method as in claim 17, further comprising triggering the transmission of the SI when the inactivity timer expires.

19. (Previously Presented) The method as in claim 16, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. (Previously Presented) The method as in claim 16, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

21. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

22. (Previously Presented) The method as in claim 21, further comprising starting an inactivity timer when the E-DCH buffer is empty.

23. (Previously Presented) The method as in claim 22, further comprising triggering the transmission of the SI when the inactivity timer expires.

24. (Previously Presented) The method as in claim 21, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

25. (Previously Presented) The method as in claim 21, wherein an E-DCH transmission is completed when a cell reselection or a radio link failure occurs.

26. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor:

determines if the E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

27. (Previously Presented) The WTRU as in claim 26, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

28. (Previously Presented) The WTRU as in claim 26, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

29. (Previously Presented) The WTRU as in claim 28, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

30. (Previously Presented) The WTRU as in claim 26, wherein the transmitter transmits using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

31. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor:

determines if an E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

32. (Previously Presented) The WTRU as in claim 31, the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

33. (Previously Presented) The WTRU as in claim 31, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

34. (Previously Presented) The WTRU as in claim 33, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

35. (Previously Presented) The WTRU as in claim 31, wherein the transmitter transmits using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

36. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an

enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty.

37. (Previously Presented) The method as in claim 36, further comprising starting an inactivity timer when the E-DCH buffer is empty.

38. (Previously Presented) The method as in claim 37, further comprising triggering the transmission of the SI when the inactivity timer expires.

39. (Previously Presented) The method as in claim 36, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

40. (Previously Presented) The method as in claim 36, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

41. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

42. (Previously Presented) The method as in claim 41, further comprising starting an inactivity timer when the E-DCH buffer is empty.

43. (Previously Presented) The method as in claim 42, further comprising triggering the transmission of the SI when the inactivity timer expires.

44. (Previously Presented) The method as in claim 41, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

45. (Previously Presented) The method as in claim 41, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

46. (Previously Presented) An apparatus capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the apparatus comprising:

an E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor,

wherein the processor:

causes the transmitter to transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

47. (Previously Presented) The apparatus as in claim 46, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

48. (Previously Presented) The apparatus as in claim 46, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

49. (Previously Presented) The apparatus as in claim 48, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

50. (Previously Presented) The apparatus as in claim 46, wherein the processor causes the transmitter to transmit an E-DCH transmission to the base station when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

51. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor,

wherein the processor:

causes the transmitter to transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

52. (Previously Presented) The WTRU as in claim 51, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

53. (Previously Presented) The WTRU as in claim 51, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

54. (Previously Presented) The WTRU as in claim 53, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

55. (Previously Presented) The WTRU as in claim 51, wherein the transmitter transmits using the E-DCH resource to the base station when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

56. (Previously Presented) A method performed by a wireless transmit/receiver unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) buffer is empty.

57. (Previously Presented) The method as in claim 56, further comprising starting an inactivity timer when the E-DCH buffer is empty.

58. (Previously Presented) The method as in claim 57, further comprising triggering the transmission of the SI when the inactivity timer expires.

59. (Previously Presented) The method as in claim 56, further comprising transmitting using the E-DCH resource to the base station when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

60. (Previously Presented) The method as in claim 56, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

61. (Previously Presented) An apparatus comprising:

a receiver;

a transmitter; and

a processor,

wherein the processor:

allocates an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver;

causes the transmitter–to transmit to the WTRU information regarding the allocated EU resource, and

releases the allocated EU resource when a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

62. (Previously Presented) The apparatus of claim 61, wherein the processor causes the transmitter to transmit the allocated EU resources information to the WTRU via an enhanced acquisition indication channel.

63. (Previously Presented) The apparatus of claim 61, wherein the receiver receives a random access channel preamble from the WTRU and the transmitter transmits a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

64. (Previously Presented) The apparatus of claim 63, wherein the receiver receives EU data from the WTRU after the transmission of the allocated EU resources information.

65. (Previously Presented) The apparatus of claim 64, wherein the HARQ process generates acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data, and the transmitter transmits the HARQ ACKs and NACKs to the WTRU.

66. (Previously Presented) The apparatus of claim 61, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

67. (Previously Presented) The apparatus of claim 61, wherein the apparatus is a base station.

68. (Previously Presented) A method performed by a base station to communicate with a wireless transmit/receive unit (WTRU), the method comprising:

receiving a request from the WTRU;

allocating an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for the WTRU based on the received request;

transmitting information regarding the allocated EU resources to the WTRU; and

releasing the allocated EU resource when a scheduling information (SI) is received from the WTRU with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

69. (Previously Presented) The method of claim 68, further comprising transmitting the allocated EU resources information to the WTRU via an enhanced acquisition indication channel.

70. (Previously Presented) The method of claim 68, further comprising:

receiving a random access channel preamble from the WTRU; and

transmitting a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

71. (Previously Presented) The method of claim 70, further comprising:

receiving EU data from the WTRU after the transmission of the allocated EU resources information.

72. (Previously Presented) The method of claim 71, further comprising:

generating, by the HARQ process, acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data; and

transmitting the HARQ ACKs and NACKs to the WTRU.

73. (Previously Presented) The method of claim 68, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

REMARKS

After the foregoing Supplemental Preliminary Amendment, claims 1-73 are currently pending in this application. Claim 1 is amended. No new subject matter has been added.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicant respectfully submits that the present application, including claims 1-73, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Signal Trust for Wireless Innovation

By /Abhik A. Huq/
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Electronic Acknowledgement Receipt

EFS ID:	24874754
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	10-FEB-2016
Filing Date:	30-JUN-2014
Time Stamp:	11:53:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20160210_SIG_2_1853US03_312_Amendment.pdf	127113 5bcbf9a950099cf181c4ac3607ce3ee22a44f8f1	yes	16

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment after Notice of Allowance (Rule 312)	1	1
	Claims	2	15
	Applicant Arguments/Remarks Made in an Amendment	16	16
Warnings:			
Information:			
	Total Files Size (in bytes):	127113	

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New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

3624 7590 02/22/2016

VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

EXAMINER	
YUEN, KAN	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
02/22/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eoffice@volpe-koenig.com

Response to Rule 312 Communication	Application No.	Applicant(s)
	14/319,608	PELLETIER ET AL.
	Examiner	Art Unit
	KAN YUEN	2464

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

1. ☒ The amendment filed on *10 February 2016* under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☒ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/KAN YUEN/
Primary Examiner, Art Unit 2464

OK TO ENTER: /K.Y./

02/12/2016

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Benoit Pelletier et al.	
Application No.: 14/319,608	
Confirmation No.: 5147	Our File: SIG-2-1853US03
Filed: June 30, 2014	Date: February 10, 2016
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	
Group: 2464	
Examiner: Kan Yuen	

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

This amendment is submitted further to the Notice of Allowance dated January 14, 2016, and the Rule 312 Amendment filed January 28, 2016.

Please amend the application without prejudice or disclaimer as follows:

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

3624 7590 01/14/2016
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PHILADELPHIA, PA 19103

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

TITLE OF INVENTION: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	04/14/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
YUEN, KAN	2464	370-329000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Volpe and Koenig, P.C.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Signal Trust for Wireless Innovation

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Wilmington, Delaware

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☑ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☑ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☑ Payment by credit card.
- ☑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 220493 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Abhik A. Huq/ Date March 8, 2016

Typed or printed name Abhik A. Huq Registration No. 40,656

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal	
Application Number:	14319608
Filing Date:	30-Jun-2014
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Filer:	Abhik A. Huq/Sandy Yi
Attorney Docket Number:	SIG-2-1853US03
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Utility Appl Issue Fee	1501	1	960	960
Publ. Fee- Early, Voluntary, or Normal	1504	1	0	0
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		Total in USD ($)		**960**

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International Application Number:	
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Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 CFR 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 CFR 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 CFR 1.19 (Document supply fees)

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Charge any Additional Fees required under 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	SIG_2_1853US03_issue_fee_transmittal.PDF	90195 f85d653b2314d1487d4569c6d9c3c23ef4ad2daf	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32592 c09392f6c48ad40c41478f121eda7a56c28cd802	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	122787		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

[0001] METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

[0002] CROSS REFERENCE TO RELATED APPLICATIONS

[0003] This application is a continuation of U.S. Patent Application No. 12/238,910 filed September 26, 2008, which claims the benefit of U.S. Provisional Application No. 60/975,985 filed on September 28, 2007; U.S. Provisional Application No. 60/982,528 filed on October 25, 2007; U.S. Provisional Application No. 61/018,999, filed on January 4, 2008; U.S. Provisional Application No. 61/025,441 filed on February 1, 2008; U.S. Provisional Application No. 61/038,576 filed on March 21, 2008; U.S. Provisional Application No. 61/074,288 filed on June 20, 2008; and U.S. Provisional Application No. 61/083,409 filed on July 24, 2008, which are incorporated by reference as if fully set forth. This application is also related to the application referred to as Attorney Docket No. SIG-2-1853US04 filed on the same date herewith and is incorporated by reference as if fully set forth.

14/319975

Change(s) applied to document, /K.S.S./ 8/6/2015

[0004] FIELD OF INVENTION

[0005] The present application is related to wireless communication.

[0006] BACKGROUND

[0007] In wireless communications systems, access to radio resources is controlled by a radio network. When a wireless transmit receive unit (WTRU) has data to transmit to the network, the WTRU requires access to the radio resources before transmitting its data payload. In a Third Generation Partnership Project (3GPP) network, the WTRU may transmit on the uplink using a contentious channel known as a random access channel (RACH). Because access to the RACH is contentious, a collision might occur when multiple WTRUs are accessing the resources simultaneously.

[0008] The current RACH access procedure in the 3GPP comprises a preamble phase with power ramp-up, followed by channel acquisition information and message

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	04/12/2016	9313809	SIG-2-1853US03	5147

3624 7590 03/23/2016

VOLPE AND KOENIG, P.C.
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30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/319,608	06/30/2014	Benoit Pelletier	SIG-2-1853US03	5147

3624 7590 04/08/2016

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PHILADELPHIA, PA 19103

EXAMINER	
YUEN, KAN	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
04/08/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eoffice@volpe-koenig.com

Corrected Notice of Allowability	Application No. 14/319,608	Applicant(s) PELLETIER ET AL.	
	Examiner KAN YUEN	Art Unit 2464	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *2/10/2016*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-73*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20160331* .
5. ☒ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/KAN YUEN/
Primary Examiner, Art Unit 2464

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Donch on 3/31/2016.

The application has been amended as follows:

1. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining if a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero when the E-DCH buffer is determined to be empty;

determining if a hybrid automatic repeat request (HARQ) buffer is empty; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

2. (Previously Presented) The method as in claim 1, further comprising starting an inactivity timer when the E-DCH buffer is empty.

3. (Previously Presented) The method as in claim 2, further comprising triggering the transmission of the SI when the inactivity timer expires.

4. (Previously Presented) The method as in claim 1, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

5. (Previously Presented) The method as in claim 1, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

6. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor:

determines if the E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty;

determines if the HARQ buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

7. (Previously Presented) The WTRU as in claim 6, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

8. (Previously Presented) The WTRU as in claim 6, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

9. (Previously Presented) The WTRU as in claim 8, wherein the transmitter transmits the SI when the inactivity timer expires.

10. (Previously Presented) The WTRU as in claim 6, wherein the transmitter transmits using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

11. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor:

determines if an E-DCH buffer is empty;

transmits to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty;

determines if a last hybrid automatic repeat request (HARQ) data transmission has been made; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the last HARQ data transmission has been made.

12. (Previously Presented) The WTRU as in claim 11, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

13. (Previously Presented) The WTRU as in claim 11, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

14. (Previously Presented) The WTRU as in claim 13, wherein the transmitter transmits the SI when the inactivity timer expires.

15. (Previously Presented) The WTRU as in claim 11, wherein the transmitter transmits using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

16. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer;

determining if a [[last]] hybrid automatic repeat request (HARQ) buffer is empty; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the [[last]] HARQ buffer is empty.

17. (Previously Presented) The method as in claim 16, further comprising starting an inactivity timer when the E-DCH buffer is empty.

18. (Previously Presented) The method as in claim 17, further comprising triggering the transmission of the SI when the inactivity timer expires.

19. (Previously Presented) The method as in claim 16, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

20. (Previously Presented) The method as in claim 16, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

21. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced

dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

22. (Previously Presented) The method as in claim 21, further comprising starting an inactivity timer when the E-DCH buffer is empty.

23. (Previously Presented) The method as in claim 22, further comprising triggering the transmission of the SI when the inactivity timer expires.

24. (Previously Presented) The method as in claim 21, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

25. (Previously Presented) The method as in claim 21, wherein an E-DCH transmission is completed when a cell reselection or a radio link failure occurs.

26. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the WTRU comprising:

a E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor;

wherein the processor:

determines if the E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

27. (Previously Presented) The WTRU as in claim 26, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

28. (Previously Presented) The WTRU as in claim 26, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

29. (Previously Presented) The WTRU as in claim 28, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

30. (Previously Presented) The WTRU as in claim 26, wherein the transmitter transmits using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

31. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor;

wherein the processor:

determines if an E-DCH buffer is empty;

causes the transmitter to transmit to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the E-DCH buffer when the processor has determined that the E-DCH buffer is empty; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

32. (Previously Presented) The WTRU as in claim 31, the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

33. (Previously Presented) The WTRU as in claim 31, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

34. (Previously Presented) The WTRU as in claim 33, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

35. (Previously Presented) The WTRU as in claim 31, wherein the transmitter transmits using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

36. (Currently Amended) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

determining that a E-DCH buffer is empty;

transmitting to the base station scheduling information (SI), wherein the SI includes a total E-DCH buffer status (TEBS) equal to zero for the empty E-DCH buffer; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a [[last]] hybrid automatic repeat request (HARQ) buffer is empty.

37. (Previously Presented) The method as in claim 36, further comprising starting an inactivity timer when the E-DCH buffer is empty.

38. (Previously Presented) The method as in claim 37, further comprising triggering the transmission of the SI when the inactivity timer expires.

39. (Previously Presented) The method as in claim 36, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

40. (Previously Presented) The method as in claim 36, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

41. (Previously Presented) A method performed by a wireless transmit/receive unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a hybrid automatic repeat request (HARQ) buffer is empty.

42. (Previously Presented) The method as in claim 41, further comprising starting an inactivity timer when the E-DCH buffer is empty.

43. (Previously Presented) The method as in claim 42, further comprising triggering the transmission of the SI when the inactivity timer expires.

44. (Previously Presented) The method as in claim 41, further comprising transmitting using the E-DCH resource when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

45. (Previously Presented) The method as in claim 41, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

46. (Previously Presented) An apparatus capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the apparatus comprising:

an E-DCH buffer;

a transmitter;

a hybrid automatic repeat request (HARQ) buffer; and

a processor,

wherein the processor:

causes the transmitter to transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty.

47. (Previously Presented) The apparatus as in claim 46, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

48. (Previously Presented) The apparatus as in claim 46, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

49. (Previously Presented) The apparatus as in claim 48, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

50. (Previously Presented) The apparatus as in claim 46, wherein the processor causes the transmitter to transmit an E-DCH transmission to the base station when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

51. (Previously Presented) A wireless transmit/receive unit (WTRU) capable of communicating with a base station using an enhanced dedicated channel (E-DCH) resource, the WTRU comprising:

a transmitter; and

a processor,

wherein the processor:

causes the transmitter to transmit to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releases the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last hybrid automatic repeat request (HARQ) data transmission has been made.

52. (Previously Presented) The WTRU as in claim 51, wherein the processor completes an E-DCH transmission when a cell reselection or a radio link failure occurs.

53. (Previously Presented) The WTRU as in claim 51, wherein the processor starts an inactivity timer when the E-DCH buffer is empty.

54. (Previously Presented) The WTRU as in claim 53, wherein the processor causes the transmitter to transmit the SI when the inactivity timer expires.

55. (Previously Presented) The WTRU as in claim 51, wherein the transmitter transmits using the E-DCH resource to the base station when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

56. (Currently Amended) A method performed by a wireless transmit/receiver unit (WTRU) to communicate with a base station using an enhanced dedicated channel (E-DCH) resource while in a cell forward access channel (CELL_FACH) state, the method comprising:

transmitting to the base station scheduling information (SI) including a total E-DCH buffer status (TEBS) equal to zero; and

releasing the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a [[last]] hybrid automatic repeat request (HARQ) buffer is empty.

57. (Previously Presented) The method as in claim 56, further comprising starting an inactivity timer when the E-DCH buffer is empty.

58. (Previously Presented) The method as in claim 57, further comprising triggering the transmission of the SI when the inactivity timer expires.

59. (Previously Presented) The method as in claim 56, further comprising transmitting using the E-DCH resource to the base station when a response is received on an E-DCH acquisition indication channel (E-AICH) to a preamble transmitted by the WTRU.

60. (Previously Presented) The method as in claim 56, further comprising completing an E-DCH transmission when a cell reselection or a radio link failure occurs.

61. (Previously Presented) An apparatus comprising:

a receiver;

a transmitter; and

a processor,

wherein the processor:

allocates an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver;

causes the transmitter–to transmit to the WTRU information regarding the allocated EU resource, and

releases the allocated EU resource when a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

62. (Previously Presented) The apparatus of claim 61, wherein the processor causes the transmitter to transmit the allocated EU resources information to the WTRU via an enhanced acquisition indication channel.

63. (Previously Presented) The apparatus of claim 61, wherein the receiver receives a random access channel preamble from the WTRU and the transmitter transmits a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

64. (Previously Presented) The apparatus of claim 63, wherein the receiver receives EU data from the WTRU after the transmission of the allocated EU resources information.

65. (Previously Presented) The apparatus of claim 64, wherein the HARQ process generates acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data, and the transmitter transmits the HARQ ACKs and NACKs to the WTRU.

66. (Previously Presented) The apparatus of claim 61, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

67. (Previously Presented) The apparatus of claim 61, wherein the apparatus is a base station.

68. (Previously Presented) A method performed by a base station to communicate with a wireless transmit/receive unit (WTRU), the method comprising:

receiving a request from the WTRU;

allocating an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for the WTRU based on the received request;

transmitting information regarding the allocated EU resources to the WTRU; and

releasing the allocated EU resource when a scheduling information (SI) is received from the WTRU with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed.

69. (Previously Presented) The method of claim 68, further comprising transmitting the allocated EU resources information to the WTRU via an enhanced acquisition indication channel.

70. (Previously Presented) The method of claim 68, further comprising:

receiving a random access channel preamble from the WTRU; and

transmitting a response to the random access channel preamble prior to the transmission of the allocated EU resources information.

71. (Previously Presented) The method of claim 70, further comprising:

receiving EU data from the WTRU after the transmission of the allocated EU resources information.

72. (Previously Presented) The method of claim 71, further comprising:

generating, by the HARQ process, acknowledgments (ACKs) and negative acknowledgements (NACKs) in response to the received EU data; and

transmitting the HARQ ACKs and NACKs to the WTRU.

73. (Previously Presented) The method of claim 68, wherein the HARQ process is completed when a HARQ buffer controlled by the HARQ process is empty.

Allowable Subject Matter

2. Claims 1-73 are allowed. The prior art of record fails to disclose the feature for releasing, by the WTRU, an E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and the HARQ buffer is empty, as recited in claims 1, 6, 16, 21, 26, 41, 46.

The prior art of record fails to disclose the feature to release the E-DCH resource when the transmission of the SI with the TEBS equal to zero has been made and a last HARQ data transmission has been made, as recited in claims 11, 31, 36, 51, 56.

The prior art of record fails to disclose a processor configured to allocate an enhanced uplink (EU) resource and an associated hybrid automatic repeat request (HARQ) process for a wireless transmit receive unit (WTRU) based on a request received from the WTRU by the receiver; and a transmitter, responsive to the processor, configured to transmit to the WTRU information regarding the allocated EU resource; wherein the processor releases the allocated EU resource when a scheduling information (SI) is received from the WTRU by the receiver with an E-DCH buffer status (TEBS) equal to zero and a HARQ transmission associated with the HARQ process is completed, as recited in claims 61 and 68.

Terminal Disclaimer

3. The terminal disclaimer filed on 4/2/2015 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of

Patent No.: 8,774,104 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAN YUEN whose telephone number is (571)270-1413. The examiner can normally be reached on Monday-Friday 11:00a.m-6:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KAN YUEN/
Primary Examiner, Art Unit 2464

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	14/319,608	PELLETIER ET AL.	
	Examiner	Art Unit	
	KAN YUEN	2464	

All participants (applicant, applicant's representative, PTO personnel):

(1) *KAN YUEN*. (3)_____.

(2) *JOHN DONCH*. (4)_____.

Date of Interview: *31 March 2016*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *16,36 and 56*.

Identification of prior art discussed: *N/A*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed about Examiner's Amendment to remove the term "last" in claims 16, 36 and 56.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/KAN YUEN/ Primary Examiner, Art Unit 2464	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	Art Unit
	KAN YUEN	2464

CPC- SEARCHED		
Symbol	Date	Examiner
h04w76/046,062,068	1/4/2016	KY

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
370	328,329,338,341,348	1/4/2016	KY
455	450,464	1/4/2016	KY
709	226,229	1/4/2016	KY

SEARCH NOTES		
Search Notes	Date	Examiner
EAST SEARCH; MANUAL SEARCH 370/329	1/4/2016	KY

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	INTERFERENCE SEARCH PRINTOUT (SEE SEARCH PRINTOUT)	1/4/2016	KY

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/04/2016								
1	1	=								
2	2	=								
3	3	=								
4	4	=								
5	5	=								
6	6	=								
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33	33	=								
34	34	=								
35	35	=								
36	36	=								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/04/2016								
37	37	=								
38	38	=								
39	39	=								
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68	68	=								
69	69	=								
70	70	=								
71	71	=								
72	72	=								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/04/2016								
73	73	=								

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

CPC									
Symbol								**Type**	**Version**
H04W	/	74	/	0833				F	2013-01-01
H04W	/	72	/	12				A	2013-01-01
H04W	/	76	/	046				I	2013-01-01
H04W	/	76	/	068				I	2013-01-01
H04W	/	28	/	04				I	2013-01-01
H04L	/	5	/	0053				I	2013-01-01
H04W	/	72	/	0406				I	2013-01-01
H04W	/	72	/	04				I	2013-01-01

CPC Combination Sets									
Symbol								**Type**	**Set**	**Ranking**	**Version**

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	73	
/KAN YUEN/ Primary Examiner.Art Unit 2464	01/04/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

U.S. Patent and Trademark Office — Part of Paper No. 20160104

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION												
CLASS	SUBCLASS	CLAIMED						NON-CLAIMED						
370	328	H	0	4	W	4 / 00								
CROSS REFERENCE(S)														
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)													
370	338													

NONE (Assistant Examiner)	(Date)	Total Claims Allowed: 73	
/KAN YUEN/ Primary Examiner.Art Unit 2464	01/04/2016	O.G. Print Claim(s) 1	O.G. Print Figure 6
(Primary Examiner)	(Date)		

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14319608	PELLETIER ET AL.
	Examiner	**Art Unit**
	KAN YUEN	2464

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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3	3	19	19	35	35	51	51	67	67						
4	4	20	20	36	36	52	52	68	68						
5	5	21	21	37	37	53	53	69	69						
6	6	22	22	38	38	54	54	70	70						
7	7	23	23	39	39	55	55	71	71						
8	8	24	24	40	40	56	56	72	72						
9	9	25	25	41	41	57	57	73	73						
10	10	26	26	42	42	58	58								
11	11	27	27	43	43	59	59								
12	12	28	28	44	44	60	60								
13	13	29	29	45	45	61	61								
14	14	30	30	46	46	62	62								
15	15	31	31	47	47	63	63								
16	16	32	32	48	48	64	64								

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	73	
/KAN YUEN/ Primary Examiner.Art Unit 2464	01/04/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	14319608
Filing Date	30-Jun-2014
First Named Inventor	Benoit Pelletier
Attorney Docket Number	SIG-2-1853US03
Title of Invention	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Signal Trust for Wireless Innovation	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

8774104

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ○ Small Entity ○ Micro Entity ◉ Regular Undiscounted I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 40656 ○ A sole inventor ○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ○ A joint inventor; all of whom are signing this request	
Signature	/Abhik A. Huq/
Name	Abhik A. Huq

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	14319608
Filing Date:	30-Jun-2014
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Filer:	Abhik A. Huq/Sandy Yi
Attorney Docket Number:	SIG-2-1853US03

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Statutory or Terminal Disclaimer	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 14319608

Filing Date: 30-Jun-2014

Applicant/Patent under Reexamination: Pelletier et al.

Electronic Terminal Disclaimer filed on April 8, 2016

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	25441623
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	08-APR-2016
Filing Date:	30-JUN-2014
Time Stamp:	16:07:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$160
RAM confirmation Number	2569
Deposit Account	220493
Authorized User	HUQ, ABHIK A.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 CFR 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 CFR 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 CFR 1.19 (Document supply fees)

Charge any Additional Fees required under 37 CFR 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Electronic Terminal Disclaimer-Filed	eTerminal-Disclaimer.pdf	33519 ee4db426fec6b14a23423e15760fc9fbf97ab906	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30816 425fa99d27b11c5b4f37d4b1141727ef30d07911	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	64335		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT** of:	
	Pelletier et al.
Patent No.:	9,313,809 B2
Issued:	April 12, 2016
Appln. No.:	14/319,608
Filed:	June 30, 2014
For: METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL	

Our File: SIG-2-1853US03

Date: June 14, 2016

REQUEST FOR CERTIFICATE OF CORRECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

A Certificate of Correction under 35 U.S.C. § 254 and 37 C.F.R. §1.322 is requested for U.S. Patent No. 9,313,809 B2. The following errors were made during printing by the United States Patent and Trademark Office.

IN THE CLAIMS

In claim 16, at column 12, line 4, before the word "hybrid", delete "last".

In claim 16, at column 12, line 8, before the word "HARQ", delete "last".

In claim 36, at column 13, line 48, at the end of the line, delete "last".

In claim 56, at column 15, line 17, at the end of the line, delete "last".

REMARKS

Support for these corrections can be found in the Examiner's Amendment contained in the Corrected Notice of Allowability mailed April 8, 2016. Patentee believes that the above errors are of such a nature as to justify the issuance of a Certificate of Correction. Patentee has enclosed a completed Certificate of Correction Form PTO/SB/44.

Patentee believes no fees are due. However, the Commissioner is hereby authorized to charge any fees due or credit any overpayment to Deposit Account No. 22-0493.

Patentee respectfully requests that the Certificate of Correction be issued.

Respectfully submitted,

Signal Trust for Wireless Innovation

By /Abhik A. Huq/
Abhik A. Huq
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United Plaza
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AAH/say

PTO/SB/44 (09-07)
Approved for use through 08/31/2013. OMB 0651-0033
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 9,313,809 B2

APPLICATION NO.: 14/319,608

ISSUE DATE : April 12, 2016

INVENTOR(S) : Benoit Pelletier, Diana Pani, Rocco DiGirolamo, Christopher R. Cave, Vincent Roy, Paul Marinier and Eldad M. Zeira

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS:

In claim 16, at column 12, line 4, before the word "hybrid", delete "last".

In claim 16, at column 12, line 8, before the word "HARQ", delete "last".

In claim 36, at column 13, line 48, at the end of the line, delete "last".

In claim 56, at column 15, line 17, at the end of the line, delete "last".

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Abhik A. Huq, Volpe and Koenig, P.C.
30 South 17th Street, United Plaza
Philadelphia, PA 19013

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	26063293
Application Number:	14319608
International Application Number:	
Confirmation Number:	5147
Title of Invention:	METHOD AND APPARATUS FOR TERMINATING TRANSMISSION OF A MESSAGE IN AN ENHANCED RANDOM ACCESS CHANNEL
First Named Inventor/Applicant Name:	Benoit Pelletier
Customer Number:	3624
Filer:	Abhik A. Huq/Sandy Yi
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-1853US03
Receipt Date:	14-JUN-2016
Filing Date:	30-JUN-2014
Time Stamp:	17:06:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	20160614_SIG_2_1853US03_CoC_Request.pdf	72305 7faa7b5f43fa67e4759e165143371e44c31c2f62	no	2
Warnings:					
Information:					

2	Request for Certificate of Correction	SIG_2_1853US03_SB44.PDF	164749 018da6fa899b47c2ddce3c755f75d2fe1f5f2757	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	237054	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 9,313,809 B2
APPLICATION NO.	: 14/319608
DATED	: April 12, 2016
INVENTOR(S)	: Benoit Pelletier et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS:

In claim 16, at column 12, line 4, before the word "hybrid", delete "last".

In claim 16, at column 12, line 8, before the word "HARQ", delete "last".

In claim 36, at column 13, line 48, at the end of the line, delete "last".

In claim 56, at column 15, line 17, at the end of the line, delete "last".

Signed and Sealed this
Twelfth Day of July, 2016

Michelle K. Lee

Michelle K. Lee
Director of the United States Patent and Trademark Office

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Southern District of Florida on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
0:21-cv-62474-RS	12/8/2021	Southern District of Florida

PLAINTIFF	DEFENDANT
Pantech Corporation, Pantech Wireless, LLC	GNJ Manufacturing Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	see complaint		
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
ANGELA E. NOBLE	PHILIP CURTIS	12/9/2021

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Print Save As... Reset

35. On July 26, 2021, Pantech Corp. and Pantech Wireless followed up with additional correspondence to CellAllure. The correspondence contained additional information regarding Pantech Corp.'s patents and also provided CellAllure notice that Pantech Wireless had acquired the Signal Trust portfolio of patents. Pantech Corp. and Pantech Wireless made CellAllure a licensing offer on fair and reasonable terms that included the Pantech Corp. and Pantech Wireless patents. Again, no response was received from CellAllure. The result is that CellAllure has continued, and continues today, to make, use, sell and offer for sale Pantech Corp.'s and Pantech Wireless's patented technology without license.

36. As set forth above, in accordance with ETSI's policy, Plaintiffs provided CellAllure with license offers on terms that are fair, reasonable and non-discriminatory ("FRAND") for both the Pantech Corp. and Pantech Wireless patents. The United States Department of Justice, with the United States Patent and Trademark Office (USPTO) and the National Institute of Standards and Technology (NIST), have made clear that patent owners and potential licensees of essential patents should "engage in good-faith negotiations to reach F/RAND license terms" to "help reduce the costs and other burdens associated with litigation." 2019 Policy Statement on Remedies for SEPs Subject to Voluntary F/RAND Commitments, https://www.justice.gov/atr/page/file/1228016/download (December 19, 2019).

37. Pantech Corp. and Pantech Wireless made good faith efforts to negotiate, including but not limited to providing technical details regarding the Asserted Patents and their "standards essential" nature and offering to license the Asserted Patents and other offered patents on FRAND terms. However, Defendant has not engaged in good faith discussions or negotiations with Pantech Corp. or Pantech Wireless. Indeed, Defendant has not even responded to Plaintiffs.

38. Defendant has been operating and continue to operate without a license to Plaintiffs' standards-essential and other patents. Plaintiff's licensing efforts to-date have been unsuccessful because Defendant refuses to even acknowledge Plaintiffs' offer to conduct licensing negotiations, let alone accept Plaintiffs' fair, reasonable and non- discriminatory licensing terms.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 8,102,804

39. The allegations set forth in the foregoing paragraphs 1 through 38 are incorporated into this claim for relief.

40. On January 24, 2012 the '804 Patent, entitled "Method for Transmitting and Receiving Random Access Request and Transmitting and Receiving Random Access Response" was duly and legally issued by the United States Patent and Trademark Office from U.S. Patent Application No. 12/347,352, filed on December 31, 2008. The '804 Patent claims priority to U.S. Provisional Application No. 61/018,492, filed on January 1, 2008. A true and correct copy of the '804 Patent is attached as Exhibit 1.

41. Pantech Corp. is the assignee and owner of all right, title and interest in and to the '804 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for its infringement.

42. The '804 Patent discloses apparatuses and methods for a contention based random access procedure that includes a random access preamble and random access response. The '804 Patent specifies, *inter alia*, that the random access response comprises information associated with a sub-frame number of an uplink sub-frame in which the random access preamble was transmitted, and that the UE is configured to receive the random access response only during a predetermined time period that starts at a second time following the first time by an interval equal to half of a round trip time for a hybrid automatic repeat request (HARQ) process. For example, claims 1 and

5 of the '804 Patent recites elements of a random access procedure mandated by the LTE standard, including at least 3GPP TS 36.321, TS 36.300, TS 36.331, and TS 36.211.

43. Upon information and belief, Defendant has and continues to directly infringe at least claims 1 and 5 of the '804 Patent by making, using, selling, importing, offering to sell within the United States, and providing to and within the United States, Accused Instrumentalities that practice at least claims 1 and 5 of the '804 Patent (the "CellAllure Accused '804 Instrumentalities"). Defendant also has and continues to directly infringe at least claims 1 and 5 by practicing claims 1 and 5 through the CellAllure Accused '804 Instrumentalities, and by causing the CellAllure Accused '804 Instrumentalities to practice the patented inventions.

44. CellAllure Accused '804 Instrumentalities include, for example, the Bolt Mega, and other LTE-compatible products that support the LTE contention based random access procedure. On information and belief, each of the CellAllure Accused '804 Instrumentalities incorporates at least one processor configured to comply with LTE and to support the LTE contention based random access procedure.

45. Defendant was made aware of the '804 Patent and its infringement thereof at least as early as the filing of this Complaint.

46. Since at least as early as the filing of this Complaint, Defendant's infringement will have been, and continue to be willful.

47. Upon information and belief, the CellAllure Accused '804 Instrumentalities are used, marketed, provided to, and/or used by or for Defendant's partners, clients, customers/subscribers and end users across the country and in this district.

48. Upon information and belief, Defendant has induced and continues to induce others to infringe at least claims 1 and 5 of the '804 Patent under 35 U.S.C. § 271(b) by, among other

things, and with specific intent or willful blindness, actively aiding and abetting others to infringe, including, but not limited to Defendant's partners, clients, customers/subscribers, and end users, whose use of the CellAllure Accused '804 Instrumentalities constitute direct infringement of at least one claim of the '804 Patent.

49. In particular, Defendant's actions that aid and abet others such as its partners, customers/subscribers, clients, and end users to infringe include advertising and distributing the CellAllure Accused '804 Instrumentalities, and providing instruction materials, training and services regarding the CellAllure Accused '804 Instrumentalities.

50. Any party, including Defendant's partners, clients, customers/subscribers, and end users, using the CellAllure Accused '804 Instrumentalities necessarily infringes the '804 Patent because the inventions of the '804 Patent are required to comply with the relevant cellular standards. Defendant advertises its CellAllure Accused '804 Instrumentalities as compliant with LTE, which induces others to infringe the '804 Patent. Defendant has knowingly induced infringement since at least as early as the filing of this Complaint.

51. Upon information and belief, Defendant is liable as a contributory infringer of the '804 Patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United States the CellAllure Accused '804 Instrumentalities that infringe the patented inventions, to be especially made or adapted for use in an infringement of the '804 Patent. Each of the CellAllure Accused '804 Instrumentalities is a material component for use in practicing the '804 Patent and is specifically made and not a staple article of commerce suitable for substantial non-infringing use. In particular, each of the CellAllure Accused '804 Instrumentalities is advertised to be compliant with the relevant standards and primarily used in compliance with such standards.

52. Pantech Corp. has been harmed by Defendant's infringing activities.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 6,809,641

53. The allegations set forth in the foregoing paragraphs 1 through 52 are incorporated into this claim for relief.

54. On Oct. 26, 2004, U.S. Patent No. 6,809,641, "Method For Disabling Alarm Temporarily In Mobile Communication Terminal" was duly and legally issued by the United States Patent and Trademark Office from U.S. Patent Application No. 10/194,038, filed on July 11, 2002. The '641 Patent claims foreign priority to KR 10-2001-41909, filed on July 12, 2001. A true and correct copy of the '641 Patent is attached as Exhibit 2.

55. Pantech Corp. is the assignee and owner of all right, title and interest in and to the '641 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it.

56. The '641 Patent discloses a method for disabling temporarily a preset alarm in a mobile communication terminal for one day, periodically, or on a designated date.

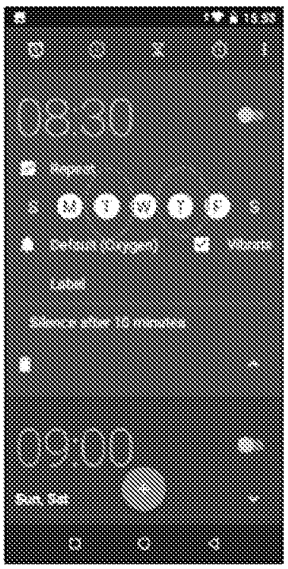
57. Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the '641 Patent by making, using, selling, importing, offering to sell within the United States, importing into the United States, and providing to and within the United States, Accused Instrumentalities that practice at least claim 1 of the '641 Patent (the "CellAllure Accused '641 Instrumentalities"). Defendant also has and continues to directly infringe at least claim 1 by practicing claim 1 through the CellAllure Accused '641 Instrumentalities, and by causing the CellAllure Accused '641 Instrumentalities to practice the patented inventions.

58. For example, temporarily disabling a preset alarm in each of the CellAllure Accused '641 Instrumentalities includes a first step of determining whether a temporal disabling menu button (*e.g.*, button annotated in green block below showing Mon-Fri preselected) has been pushed by a user while the CellAllure Accused '641 Instrumentality (*e.g.*, Chic X2) is in receive

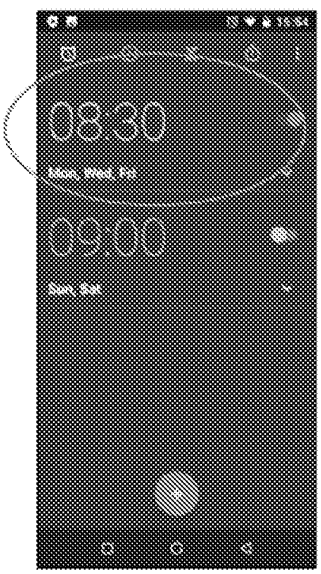
wait mode; a second step of displaying temporal disabling menu items (*e.g.*, individual round buttons indicating days of the week such as Monday, Tuesday, etc. on the next screen) upon push of said temporal disabling menu button by said user; and a third step of temporarily disabling alarms of the date designated by the corresponding menu item upon selection of a temporal disabling menu item by said user.



Monday-Friday preselected



User chooses to further disable Tuesdays and Fridays



Tuesdays and Thursdays successfully disabled

Annotated Screenshots of Chic X2

59. Defendant was made aware of the '641 Patent and its infringement thereof at least as early as the correspondence sent from Pantech Corp. on March 9, 2021, as discussed above.

60. Since at least as March 9, 2021, Defendant's infringement will have been, and continue to be willful.

61. Upon information and belief, the CellAllure Accused '641 Instrumentalities are used, marketed, provided to, and/or used by or for Defendant's partners, clients, customers/subscribers and end users across the country and in this district.

62. Upon information and belief, Defendant has induced and continues to induce others to infringe at least claim 1 of the '641 Patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful blindness, actively aiding and abetting others to infringe, including, but not limited to Defendant's partners, clients, customers/subscribers, and end users, whose use of the CellAllure Accused '641 Instrumentalities constitute direct infringement of at least claim 1 of the '641 Patent.

63. In particular, Defendant's actions that aid and abet others such as its partners, customers/subscribers, clients, and end users to infringe include advertising and distributing the CellAllure Accused '641 Instrumentalities, and providing instruction materials, training and services regarding the CellAllure Accused '641 Instrumentalities.

64. Any party, including Defendant's partners, clients, customers/subscribers, and end users, using the preset alarm disabling function of the CellAllure Accused '641 Instrumentalities infringes the '641 Patent. Defendant has knowingly induced infringement since at least March 9, 2021, when Defendant was first made aware of the '641 Patent, as discussed above.

65. Upon information and belief, Defendant is liable as a contributory infringer of the '641 Patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United States the CellAllure Accused '641 Instrumentalities that infringe the patented inventions, to be especially made or adapted for use in an infringement of the '641 Patent. Each of the CellAllure Accused '641 Instrumentalities is a material component for use in practicing the '641 Patent and

is specifically made and not a staple article of commerce suitable for substantial non-infringing use.

66. Pantech Corp. has been harmed by Defendant's infringing activities.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 9,807,799

67. The allegations set forth in the foregoing paragraphs 1 through 66 are incorporated into this claim for relief.

68. On October 31, 2017, the '799 Patent, entitled "Method and Apparatus for Terminating Transmission of a Message in an Enhanced Random Access Channel," was duly and legally issued by the United States Patent and Trademark Office from U.S. Patent Application No. 14/319,975, filed on June 30, 2014. The '799 Patent claims priority to at least provisional application No. 60/975,985, filed on September 28, 2007. A true742005591 and correct copy of the '799 Patent is attached as Exhibit 3.

69. Pantech Wireless is the assignee and owner of all right, title and interest in and to the '799 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it.

70. The '799 Patent discloses at least a method and an apparatus for terminating an enhanced random access channel (E-RACH) message in an E-RACH transmission. For example, the '799 Patent discloses a method for user equipment (UE) to perform physical random access procedure for an Enhanced Uplink. For example, the UE transmits a preamble to request allocation of resources for transmission by the network. In response to the transmitted preamble, the UE receives acquisition indicator from the network indicating the resources have been allocated for the UE for Enhanced Dedicated Channel (E-DCH) transmission. The UE is also configured to transmit scheduling information to indicate to the serving E-DCH node the amount of resources required for transmission. The scheduling information contains a TEBS (total E-DCH buffer

status) field which indicates the total amount of data available for transmission and retransmission. As set forth in TS 25.321 section 11.8.1.6, the reporting of scheduling information is triggered when TEBS becomes 0 and the last data is being transmitted. In particular, the transmission of scheduling information is triggered when the TEBS remains zero and no higher layer data remains in MAC to be transmitted for a period during which E-DCH transmission continuation back off period is unequal to "infinity." As set forth in section 11.8.1.9 of TS 25.321, the UE is configured to release the common E-DCH resource when E-DCH transmission continuation back off is not set to "infinity," the empty buffer status (TEBS=0) has been reported, and no MAC PDU is left in a HARQ process for transmission or retransmission. Compliance with 3GPP TS 25.211, TS 25.214, and TS 25.321, as required by at least the UMTS, WCDMA or 3G cellular standards, requires the use of the inventions recited in at least claims 29-33 of the '799 Patent, including the functionality described in this paragraph

71. Upon information and belief, Defendant has and continues to directly infringe at least claims 29-33 of the '799 Patent by making, using, selling, importing, offering to sell within the United States, importing into the United States, and providing to and within the United States, Accused Instrumentalities that practice at least claims 29-33 of the '799 Patent (the "CellAllure Accused '799 Instrumentalities"). Defendant also has and continues to directly infringe at least claims 29-33 by practicing claims 29-33 through the CellAllure Accused '799 Instrumentalities, and by causing the CellAllure Accused '799 Instrumentalities to practice the patented inventions.

72. CellAllure Accused '799 Instrumentalities include, for example, Cool Pro, and other UMTS/WCDMA-compatible products that support the request and receipt of enhanced uplink resources from a wireless network in compliance with 3GPP TS 25.211, TS 25.214, and TS 25.321. On information and belief, each of the CellAllure Accused '799 Instrumentalities

incorporates at least one processor configured to comply with one or more of UMTS, WCDMA, and 3G cellular communication protocols.

73. CellAllure Accused '799 Instrumentalities incorporate a chipset, application processor, SoC, or system-on-chip that, on information and belief, complies with one or more of UMTS, WCDMA, and 3G cellular communication protocols including at least 3GPP TS 25.211, TS 25.214, and TS 25.321.

74. Defendant was made aware of the '799 Patent and its infringement thereof at least as early as the correspondence sent on behalf of Pantech Corp. and Pantech Wireless on July 26, 2021, as discussed above.

75. Since at least as early as July 26, 2021, Defendant's infringement will have been, and continue to be willful.

76. Upon information and belief, the CellAllure Accused '799 Instrumentalities are used, marketed, provided to, and/or used by or for Defendant's partners, clients, customers/subscribers and end users across the country and in this district.

77. Upon information and belief, Defendant has induced and continues to induce others to infringe at least claims 29-33 of the '799 Patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful blindness, actively aiding and abetting others to infringe, including, but not limited to Defendant's partners, clients, customers/subscribers, and end users, whose use of the CellAllure Accused '799 Instrumentalities constitute direct infringement of at least one claim of the '799 Patent.

78. In particular, Defendant's actions that aid and abet others such as its partners, customers/subscribers, clients, and end users to infringe include advertising and distributing the

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF FLORIDA

PANTECH CORPORATION and PANTECH WIRELESS, LLC Plaintiffs, v. GNJ MANUFACTURING INC., Defendant.	Case No. **COMPLAINT AND JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs Pantech Corporation ("Pantech Corp.") and Pantech Wireless, LLC (Pantech Wireless") (collectively, "Plaintiffs"), for this Complaint for patent infringement against Defendant GNJ Manufacturing Inc., d/b/a CellAllure ("CellAllure" or "Defendant"), allege the following:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.*

THE PARTIES

2. Pantech Corp. is an entity organized under the laws of South Korea, with a place of business at 8, Yangjaecheon-ro 21gil, Suite 402, Seoul, 06748, Republic of Korea.

3. Pantech Wireless is the wholly owned subsidiary of Pantech Corp. Pantech Wireless is an entity organized under the laws of Texas, with a place of business at 3000 Polar Lane, #302, Cedar Park, TX 78613.

CellAllure Accused '799 Instrumentalities, and providing instruction materials, training and services regarding the CellAllure Accused '799 Instrumentalities.

79. Any party, including Defendant's partners, clients, customers/subscribers, and end users, using the CellAllure Accused '799 Instrumentalities necessarily infringes the '799 Patent because the inventions of the '799 Patent are required to comply with the UMTS, WCDMA or 3G cellular standards (including at least 3GPP TS 25.211, TS 25.214, and TS 25.321). Defendant advertises its CellAllure Accused '799 Instrumentalities as compliant with UMTS, WCDMA, or 3G, which induces others to infringe the '799 Patent. Defendant has knowingly induced infringement since at least as early as July 26, 2021, when Defendant was made aware of the '799 Patent.

80. Upon information and belief, Defendant is liable as a contributory infringer of the '799 Patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United States the CellAllure Accused '799 Instrumentalities that infringe the patented inventions, to be especially made or adapted for use in an infringement of the '799 Patent. Each of the CellAllure Accused '799 Instrumentalities is a material component for use in practicing the '799 Patent and is specifically made and not a staple article of commerce suitable for substantial non-infringing use. In particular, each of the CellAllure Accused '799 Instrumentalities is advertised to be compliant with the relevant standards and primarily used in compliance with such standards.

81. Pantech Wireless has been harmed by Defendant's infringing activities.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 9,313,809

82. The allegations set forth in the foregoing paragraphs 1 through 81 are incorporated into this claim for relief.

83. On April 12, 2016, the '809 Patent, entitled "Method and Apparatus for Terminating Transmission of a Message in an Enhanced Random Access Channel" was duly and

legally issued by the United States Patent and Trademark Office from U.S. Patent Application No. 14/319,608, filed on June 30, 2014. The '809 Patent claims priority to at least provisional application No. 60/975,985, filed on September 28, 2007. A true and correct copy of the '809 Patent is attached as Exhibit 4.

84. Pantech Wireless is the assignee and owner of all right, title and interest in and to the '809 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it.

85. The '809 Patent discloses at least a method and an apparatus for terminating an enhanced random access channel (E-RACH) message in an E-RACH transmission. For example, the '809 Patent discloses a method to be performed by a user equipment (UE) for requesting and receiving enhanced uplink resource from a wireless network. For example, the UE is configured with MAC entity that manages FACH (forward access channel) communications between the UE and the network. The UE determines and reports the total E-DCH buffer status (TEBS). For example, the TEBS value can be 0 indicating that the buffer is empty. The buffer indicates the total amount of data available for transmission. The UE uses the condition of TEBSS being zero as a trigger for transmitting scheduling information to the network. In addition, the UE (e.g. WTRU) is configured to transmit scheduling information to indicate to the serving E-DCH node the amount of resources required for transmission. The scheduling information contains a TEBS (total E-DCH buffer status) field which indicates the total amount of data available for transmission and retransmission. As set forth in TS 25.321 section 11.8.1.6, the reporting of scheduling information is triggered when TEBS becomes 0 and the last data is being transmitted. As set forth in section 11.8.1.9 of TS 25.321, the UE is configured to release the common E-DCH resource when no MAC PDU is left in a HARQ process for transmission or retransmission. As set forth in section

11.8.1.9 of TS 25.321, the UE is configured to release the common E-DCH resource when the empty buffer status (TEBS=0) has been reported, and no MAC PDU is left in a HARQ process for transmission or retransmission. Compliance with 3GPP TS 25.211, TS 25.214, and TS 25.321, as required by at least the UMTS, WCDMA, or 3G cellular standards, requires the use of the inventions recited in at least claims 1-5 of the '809 Patent, including the functionality described in this paragraph.

86. Upon information and belief, Defendant has and continues to directly infringe at least claims 1-5 of the '809 Patent by making, using, selling, importing, offering to sell within the United States, importing into the United States, and providing to and within the United States, Accused Instrumentalities that practice at least claims 1-5 of the '809 Patent (the "CellAllure Accused '809 Instrumentalities"). Defendant also has and continues to directly infringe at least claims 1-5 by practicing claims 1-5 through the CellAllure Accused '809 Instrumentalities, and by causing the CellAllure Accused '809 Instrumentalities to practice the patented inventions.

87. CellAllure Accused '809 Instrumentalities include, for example, the Cool Pro, and other UMTS/WCDMA-compatible products that support the request and receipt of enhanced uplink resources from a wireless network in compliance with 3GPP TS 25.211, TS 25.214, and TS 25.321. On information and belief, each of the CellAllure Accused '809 Instrumentalities incorporates at least one processor configured to comply with one or more of UMTS, WCDMA, and 3G cellular communication protocols.

88. Certain exemplary CellAllure Accused '809 Instrumentalities incorporate a chipset, application processor, SoC, or system-on-chip that, on information and belief, complies with one or more of UMTS, WCDMA, and 3G cellular communication protocols including at least 3GPP TS 25.211, TS 25.214 and TS 25.321.

89. Defendant was made aware of the '809 Patent and its infringement thereof at least as early as the correspondence sent on behalf of Pantech Corp. and Pantech Wireless on July 26, 2021, as discussed above.

90. Since at least July 26, 2021, Defendant's infringement will have been, and continue to be willful.

91. Upon information and belief, the CellAllure Accused '809 Instrumentalities are used, marketed, provided to, and/or used by or for Defendant's partners, clients, customers/subscribers and end users across the country and in this district.

92. Upon information and belief, Defendant has induced and continues to induce others to infringe at least claims 1-5 of the '809 Patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful blindness, actively aiding and abetting others to infringe, including, but not limited to Defendant's partners, clients, customers/subscribers, and end users, whose use of the CellAllure Accused '809 Instrumentalities constitute direct infringement of at least one .claim of the '809 Patent.

93. In particular, Defendant's actions that aid and abet others such as its partners, customers/subscribers, clients, and end users to infringe include advertising and distributing the CellAllure Accused '809 Instrumentalities, and providing instruction materials, training and services regarding the CellAllure Accused '809 Instrumentalities.

94. Any party, including Defendant's partners, clients, customers/subscribers, and end users, using the CellAllure Accused '809 Instrumentalities necessarily infringes the '809 Patent because the inventions of the '809 Patent are required to comply with the UMTS, WCDMA or 3G cellular standards (including at least 3GPP TS 25.211, TS 25.214, and TS 25.321). Defendant advertises its CellAllure Accused '809 Instrumentalities as compliant with UMTS, WCDMA, or

3G, which induces others to infringe the '809 Patent. Defendant has knowingly induced infringement since at least as early as July 26, 2021, when Defendant was made aware of the '809 Patent.

95. Upon information and belief, Defendant is liable as a contributory infringer of the '809 Patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United States the CellAllure Accused '809 Instrumentalities that infringe the patented inventions, to be especially made or adapted for use in an infringement of the '809 Patent. Each of the CellAllure Accused '809 Instrumentalities is a material component for use in practicing the '809 Patent and is specifically made and not a staple article of commerce suitable for substantial non-infringing use. In particular, each of the CellAllure Accused '809 Instrumentalities is advertised to be compliant with the relevant standards and primarily used in compliance with such standards.

96. Pantech Wireless has been harmed by Defendant's infringing activities.

DAMAGES

As a result of Defendant's acts of infringement, Plaintiffs have suffered actual and consequential damages. To the fullest extent permitted by law, Plaintiffs seek recovery of damages at least in the form of reasonable royalties.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiffs demand a trial by jury on all issues triable as such.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs demand judgment for itself and against Defendant as follows:

A. An adjudication that Defendant has infringed U.S. Patent Nos. U.S. Patent Nos. 8,102,804, 6,809,641, 9,807,799, and 9,313,809;

B. An award of damages to be paid by Defendant adequate to compensate Plaintiffs for Defendant's past infringement of the Asserted Patents, and any continuing or future infringement through the date such judgment is entered, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

C. A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of Plaintiffs' reasonable attorneys' fees; and

D. An award to Plaintiffs of such further relief at law or in equity as the Court deems just and proper.

Dated: December 8, 2021

Respectfully submitted,

/s/ Marcos Daniel Jiménez

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(* *pro hac vice* application to be filed)

CERTIFICATE OF SERVICE

I hereby certify that on December 8, 2021, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system which in turn will serve a copy by electronic mail to all counsel of record.

/s/ Marcos Daniel Jiménez
Marcos Daniel Jiménez

4. Defendant GNJ Manufacturing, Inc. is a Florida for-profit corporation with a principal place of business located at 5811 West Hallandale Beach Blvd., West Park, Florida 33023.

5. On information and belief, CellAllure is in the business of providing information and communications technology solutions. Specifically, CellAllure provides wireless telecommunications equipment, including smart phones.

JURISDICTION AND VENUE

6. This Court has subject matter jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a) because the action arises under the patent laws of the United States, 35 U.S.C. § 271, *et seq.*

7. This Court has personal jurisdiction over Defendant pursuant to due process because, inter alia, (i) Plaintiffs' claims arise in whole or in part from Defendant's conduct in Florida; (ii) Defendant has a principal place of business in Florida; (iii) Defendant is incorporated in the State of Florida and has purposely availed itself of the privileges of conducting business in the State of Florida by regularly conducting and soliciting business within the State of Florida and within this district; (iv) on information and belief, Defendant has committed and continues to commit acts of patent infringement in the State of Florida, including making, using, offering to sell, and/or selling accused products in Florida, and/or importing accused products into Florida, including by Internet sales and sales via retail and wholesale stores, inducing others to commit acts of patent infringement in Florida, and/or committing a least a portion of any other infringements alleged herein.

8. Venue is proper in this district as to Defendant pursuant to 28 U.S.C. § 1400(b) as CellAllure is incorporated in the State of Florida and has a regular and established place of business in this district of 5811 West Hallandale Beach Blvd., West Park, Florida 33023.

ACCUSED INSTRUMENTALITIES

9. Defendant makes, uses, sells and offers for sale, provides, and causes to be used, now and within the past six years, mobile phones and certain other WCDMA- and/or LTE-capable devices (the "Accused Instrumentalities").

10. For example, Defendant advertises that its mobile phones, such as the Aqua, Smart One, Earn 2 CL, Cool Duo, Miracle CS, Fashion CS, Cool Extreme 2, Cool Extreme, Chic X1, Cool Pro, Bolt Mega, Cool S2, Bolt 5.5S, and Miracle 6.0S are compliant with the WCDMA and/or LTE cellular network standards.

PATENTS-IN-SUIT

11. The Asserted Patents are U.S. Patent Nos. 8,102,804, 6,809,641, 9,807,799, and 9,313,809.

12. U.S. Patent No. 8,102,804 (the "'804 Patent") is entitled "Method for Transmitting and Receiving Random Access Request and Transmitting and Receiving Random Access Response." On May 7, 2020, Pantech Corp. obtained full and complete ownership, title and interest in the '804 Patent.[1]

[1] The named inventors of the '804 Patent are Min Seok Noh, Yeong Hyeon Kwon, Jin Sam Kwak, Dong Cheol Kim, Sung Ho Moon, Seung Hee Han, Hyun Woo Lee, and Dragan Vujcic. The U.S. patent application was filed on December 31, 2008, published July 9, 2009, and the '804 Patent issued on January 24, 2012. In March 2009, the inventors assigned the '804 Patent application, U.S. Patent App. No. 12/347,352, to LG Electronics Inc. On February 15, 2012, LG Electronics, Inc. transferred interest in the '804 Patent to Pantech Co., Ltd. On July 6, 2016, Pantech Co. Ltd. transferred the interest to Pantech Inc. On October 31, 2016, Pantech Inc. transferred the interest to Goldpeak Innovations Inc. On May 7, 2020, Goldpeak Innovations Inc. transferred the interest to Pantech Corp.

13. U.S. Patent No. 6,809,641 (the "'641 Patent") is entitled "Method for Disabling Alarm Temporarily in Mobile Communication Terminal." On May 7, 2020, Pantech Corp. obtained full and complete ownership, title and interest in the '641 Patent.[2]

14. U.S. Patent No. 9,807,799 (the "'799 Patent") is entitled "Method and apparatus for terminating transmission of a message in an enhanced random access channel." On April 27, 2021, Pantech Wireless obtained full and complete ownership, title and interest in the '799 Patent.[3]

15. U.S. Patent No. 9,313,809 (the "'809 Patent") is entitled "Method and apparatus for terminating transmission of a message in an enhanced random access channel." On April 27, 2021, Pantech Wireless obtained full and complete ownership, title and interest in the '809 Patent.[4]

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[2] The named inventors of the '641 Patent are Cham-A Choi and Hee-Jung Lee. The patent application was filed on July 11, 2002, published on February 6, 2003, and the '641 Patent issued on October 26, 2004. On September 30, 2002, the inventors assigned their interests to SK Teletech Co., Ltd. On August 26, 2005, SK Teletech Co., Ltd. changed its name to Sky Teletech Co., Ltd. On December 2, 2005, Sky Teletech Co., Ltd. merged with and assigned its interest to Pantech Co., Ltd. On October 22, 2015, Pantech Co., Ltd. transferred the '641 Patent to Pantech Inc. On October 31, 2016, Pantech Inc. transferred the patent to Goldpeak, and on May 7, 2020, Goldpeak transferred the '641 Patent to Pantech Corp.

[3] The named inventors of the '799 Patent are Benoit Pelletier, Diana Pani, Rocco DiGirolamo, Christopher R. Cave, Vincent Roy, Paul Marinier, and Eldad M. Zeira. The U.S. patent application was filed on June 30, 2014, published October 23, 2014, and the '799 Patent issued on October 31, 2017. On November 24, 2008, the inventors assigned the parent application, U.S. Patent App. No. 12/238,910 and any continuations thereto, including the application underlying the '799 Patent, to InterDigital Patent Holdings, Inc. On October 11, 2013, InterDigital Patent Holdings, Inc. transferred the interest to InterDigital Holdings, Inc., who transferred the interest to InterDigital, Inc., who transferred the interest to DST Holdings. Inc. On October 15, 2013, DST Holdings, Inc. transferred the interest to Signal Trust for Wireless Innovation ("Signal Trust"). On December 30, 2020, Signal Trust transferred the interest to RnB Wireless LLC ("RnB Wireless"). On April 27, 2021, RnB Wireless transferred the interest to Pantech Wireless.

[4] The named inventors of the '809 Patent are Benoit Pelletier, Diana Pani, Rocco DiGirolamo, Christopher R. Cave, Vincent Roy, Paul Marinier, and Eldad M. Zeira. The U.S. patent application was filed on June 30, 2014, published October 16, 2014, and the '809 Patent issued on April 12, 2016. On November 24, 2008, the inventors assigned the parent application, U.S. Patent App. No. 12/238,910 and any continuations thereto, including the application underlying the '809 Patent, to InterDigital Patent Holdings, Inc. On October 11, 2013, InterDigital Patent Holdings, Inc. transferred the interest to InterDigital Holdings, Inc., who transferred the interest

16. Pantech Corp. is the rightful owner of the '804 and '641 Patents and holds the entire right, title and interest in the '804 and '641 Patents, including the right to collect for past damages.

17. Pantech Wireless is the rightful owner of the '799 and '809 Patents and holds the entire right, title and interest in the '799 and '809 Patents, including the right to collect for past damages.

BACKGROUND

Pantech Corp.

18. Pantech Co., Ltd., the predecessor in interest to what is now Pantech Corporation[5], was originally founded in 1991 in Seoul, South Korea as a competitor in the wireless phone marketplace.

19. Throughout the 1990s and 2000s, Pantech rose to become a leading manufacturer of mobile phones. By 2012, Pantech had become the second best-selling Korean handset maker.

20. Pantech's products were sold in South Korea, the United States, Japan, China, Europe, Vietnam, and other countries around the world. Pantech launched operations in the United States in 2003.

21. Pantech's portfolio of intellectual property is broad and extensive, comprising thousands of worldwide patents and patent applications in the areas of telecommunications, "smart" devices, and Internet of Things products. Pantech's portfolio, in one aspect, covers

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to InterDigital, Inc., who transferred the interest to DST Holdings. Inc. On October 15, 2013, DST Holdings, Inc. transferred the interest to Signal Trust. On December 30, 2020, Signal Trust transferred the interest to RnB Wireless. On April 27, 2021, RnB Wireless transferred the interest to Pantech Wireless.

[5] Pantech Co., Ltd. was formed in 1991, and as the result of a restructuring and acquisition in 2015 became Pantech, Inc. Thereafter, Pantech Corporation was formed. Pantech, Inc. transferred its assets to Pantech Corp. as part of an asset sale in 2020 (these three entities are hereinafter referred to collectively as "Pantech").

wireless communication systems and devices and methods for using those communication systems. In the wireless technology space alone, Pantech holds more than 200 U.S. patents and applications, many of which have been declared standard essential patents.

22. Pantech has invested heavily in research and development, investing, on average, over 10% of its annual revenue in research and development. Pantech's research and development efforts in network technology include, but are not limited to, technologies focused on LTE & 5G networks, WCDMA/CDMA, WiMAX, WiFi, Near Field Communication (NFC), Visible Light Communication, Human Body Communication, Ultra-Wideband Communication and IP Mesh Network.

23. Over the last decade, Pantech has enthusiastically contributed to the 3rd Generation Partnership Project (3GPP) LTE/LTE-A standardization by submitting proposals to TSG RAN, RAN1, and RAN2. Indeed, Pantech secured numerous LTE Standard Essential Patents and patent applications (SEPs) in connection with its contributions. In 2014, National Applied Research Labs in Taiwan reported that Pantech held 1% of LTE-related SEPs, and that number has only increased since 2014.

24. Recognizing the value of its own portfolio and its potential role in the Fourth Industrial Revolution, Pantech has committed to making its intellectual property available in the marketplace, including to competitors. On its website, under the heading "IP Umbrella Services," Pantech offers to exchange intellectual property and technology, and collaborate with competitors and patent holders, through licenses, to enable the market to identify new technological ventures.

25. Pantech Corp. is the owner by assignment of a portfolio of patents, including the Asserted Patents described in Paragraphs 12-13 and in detail in the counts below, that relate to mobile device user interface features and technology for cellular communications networks,

including variations or generations of cellular communication network technology such as, but not limited to LTE, as discussed herein.

Pantech Wireless

26. InterDigital, Inc. ("InterDigital") is a wireless research and development company that has, for decades, been a pioneer in the development of fundamental wireless technologies that are at the core of mobile devices, networks, and services worldwide. InterDigital has been one of the major contributors to worldwide mobile standards over the past 20 years.

27. In 2013, InterDigital established Signal Trust for Wireless Innovation ("Signal Trust"). The patents and patent applications that comprise Signal Trust were developed by InterDigital, and distributions from Signal Trust were earmarked to support continued research related to cellular wireless technologies, as well as scholarly analysis of intellectual property rights and the technological, commercial, and creative innovations they facilitate.

28. A portion of the patent portfolio created by InterDigital and transferred to Signal Trust was thereafter transferred to RnB Wireless LLC and then to Pantech Wireless.

29. Pantech Wireless is the owner by assignment of a portfolio of patents, including the Asserted Patents described in Paragraphs 14-15 and in detail in the counts below, that relate to mobile device user interface features and technology for cellular communications networks, including variations or generations of cellular communication network technology such as, but not limited to UMTS, WCDMA, and 3G, as discussed herein.

Negotiations Between the Parties

30. Cellular communication network technology is used to provide data transmission across mobile cellular networks.

31. It is critical for cellular communication network technology to be standardized around the globe. Independent standard-setting organizations, like the European Telecommunications Standards Institute (ETSI), establish global standards for the telecommunication industries. ETSI, along with other standard-setting organizations, have made it possible to have global interoperability between networks, devices and network operators.

32. ETSI sets forth a policy in order to balance intellectual property protections against the need for an open standard by designating certain intellectual property rights (IPR) as "essential." ETSI sets forth the following definition of "essential":

> "ESSENTIAL" as applied to IPR means that it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, to make, sell, lease, otherwise dispose of, repair, use or operate EQUIPMENT or METHODS which comply with a STANDARD without infringing that IPR. For the avoidance of doubt in exceptional cases where a STANDARD can only be implemented by technical solutions, all of which are infringements of IPRs, all such IPRs shall be considered ESSENTIAL.

Clause 15.6 of the ETSI IPR Policy, https://www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf.

33. CellAllure is required to have a license to one or more essential patents owned by Pantech Corp. and Pantech Wireless including the Asserted Patents that are identified as essential.

34. Pantech Corp. first sent a letter to Mr. Eric Gavara, CEO of GNJ Manufacturing, d/b/a CellAllure, on March 9, 2021, offering to license patents currently owned and/or managed by Pantech Corp., including those that are essential to cellular standards including LTE and LTE-Advanced, on fair and reasonable terms. The correspondence identified CellAllure products that were covered by claims of the offered patents, such as Bolt Mega, Chic X1, Cool Duo, Cool Extreme, Cool Pro, Cool S2, Earn, Earn 2 CL, Fashion 2 Plus, Fashion C, Miracle 6.0 S, Smart One, and Survivor, and attached a list of Pantech Corp.'s patents, including those covering CellAllure's products. No response was received from CellAllure.

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Eastern District of Texas, Texarkana Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
5:22-CV-00113	9/2/2022	for the Eastern District of Texas, Texarkana Division

PLAINTIFF	DEFENDANT
PANTECH CORPORATION and PANTECH WIRELESS, LLC	LG ELECTRONICS INC., and LG ELECTRONICS U.S.A., INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,136,924	9/15/2015	Pantech Corporation
2	9,854,545	12/26/2017	Pantech Corporation
3	10,869,247	12/15/2020	Pantech Wireless
4	9,313,809	4/12/2016	Pantech Wireless
5	9,065,486	6/23/2015	Pantech Wireless

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO:	**Mail Stop 8** **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Eastern District of Texas, Texarkana Division on the following

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DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
5:22-CV-00113	9/2/2022	for the Eastern District of Texas, Texarkana Division

PLAINTIFF	DEFENDANT
PANTECH CORPORATION and PANTECH WIRELESS, LLC	LG ELECTRONICS INC., and LG ELECTRONICS U.S.A., INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,283,839	10/16/2007	Pantech Corporation
2	9,575,631	2/21/2017	Pantech Corporation
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**