METHOD AND APPARATUS FOR HANDLING CELL RESELECTIONS AND TRANSITIONS TO AND FROM AN ENHANCED CELL_FACH STATE

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application Nos. 60/915,048, filed Apr. 30, 2007, 60/944,661, filed Jun. 18, 2007, 60/944,540, filed Jun. 18, 2007, and 60/955,578, filed Aug. 13, 2007, which are incorporated by reference as if fully set forth.

FIELD OF INVENTION

This application is related to wireless communications.

BACKGROUND

User equipments (UEs) in a universal telecommunications radio access network (UTRAN) are typically in either of two modes: Idle or Connected. Based on UE mobility and activity while in connected mode, the UTRAN can direct the UE to transition between a number of sub-states, such as cell paging channel (Cell_PCH), UTRAN Registration Area Paging Channel (URA_PCH), cell forward access channel (Cell_FACH), and Cell_DCH. This is typically accomplished through a network based reconfiguration procedure or as a result of a cell update procedure. The latter is initiated by the UE to tell the network about its current location. The Cell_DCH state is characterized by dedicated channels in both the uplink and the downlink. On the UE side, this corresponds to continuous transmission and reception and can be demanding on user power requirements. The Cell_FACH state does not use dedicated channels and thus allows better power consumption, at the expense of a lower uplink and downlink throughput.

Recent work by the standardization bodies has identified the possibility of using High-Speed Downlink Packet Access (HSDPA) in Cell_FACH and Cell/URA_PCH. HSDPA is a feature that was introduced in Release 5 of the Third Generation Partnership Project (3GPP) specifications to operate in Cell_DCH. HSDPA tries to make better use of the downlink shared capacity by using concepts such as Adaptive Modulation and Coding (AMC), retransmissions using a Hybrid-ARQ (HARQ) scheme, and Node B scheduling—all operating at a very fast rate. Packet data units (PDUs) are combined by the HARQ, and subsequently stored in a reordering queue to deal with possible out-of-order reception. Downlink transmissions are addressed to a UE via an HS-DSCH Radio Network Identifier (H-RNTI).

It is assumed that if the UE supports HSDPA in Release 7, then it also supports HSDPA in CELL_FACH and in CELL/URA_PCH. HS-DSCH reception in CELL_FACH can be configured without HS-DSCH reception in CELL_PCH and URA_PCH. High speed downlink shared channel (HS-DSCH) reception in CELL_PCH and URA_PCH without the support of HS-DSCH reception in CELL_FACH is not supported. The UE support for these features is signaled to the network. It should be understood that the embodiments presented can be extended to cases where the support for HSDPA in CELL_FACH and/or CELL_PCH/URA_PCH can be individually signaled to the network.

On the other hand, the network signals its support for enhanced CELL_FACH via the System Information Block (SIB5/5bis). Two new information elements (IEs) have been introduced:

"HS-DSCH common system information"—indicating the HSDPA reception is supported for CELL_FACH state; and

"HS-DSCH paging system information"—indicating that HSDPA reception is supported for CELL/URA_PCH state.

To indicate whether HS-DSCH reception is ongoing in CELL_FACH, two new Boolean variables have been added:

HS_DSCH_RECEPTION_CELL_FACH_STATE: If TRUE indicates that HS_DSCH reception in CELL_FACH is ongoing; and

HS_DSCH_RECEPTION_OF_CCCH_ENABLED: If TRUE indicates that HS-DSCH reception is enabled for CCCH. This variable is set to TRUE when the UE is using a common H-RNTI to receive HSDPA traffic, and is set to FALSE when the UE is not.

A UE is assigned a common H-RNTI to receive traffic when it has not been assigned a dedicated H-RNTI. Three such situations are as follows:

1) UE sends a Radio Resource Control (RRC) CONNECTION REQUEST message (and UE is waiting for an RRC CONNECTION SETUP response from the network).

2) UE sends a CELL UPDATE message and is waiting for a CELL UPDATE CONFIRM response from the network.

3) UE sends a URA UPDATE message and is waiting for a URA UPDATE CONFIRM response from the network.

No new variable has been proposed for CELL/URA_PCH HS-DSCH reception indication. When in CELL/URA_PCH, and if the IE "HS-DSCH paging system information" is broadcast, the UE sets up HSDPA reception. In some cases, a UE will no longer be able to continue reception of high speed PDUs, (e.g., as a result of a hard handover, cell reselection, radio link failure, and the like). In these cases, the MAC should be reset. The reset procedure allows the UE to forward all PDUs in the reordering queues up to higher layers, and to re-initialize all high speed state variables.

In 3GPP Release 6, HSDPA was only supported in CELL_DCH. As a result, MAC resets, (e.g., a mac-hs reset) were performed under the following conditions: the UE underwent a radio link failure, the UE experienced an RLC unrecoverable error, or the UE was ordered to transition to a state where HSDPA was not supported (all states except CELL DCH).

In Release 7, as currently defined, a UE may be required to perform a MAC reset in the following states: CELL_DCH, CELL_FACH, CELL/URA_PCH. In addition to the conditions specified above, (i.e., that apply to a UE in CELL DCH), the UE is required to perform a MAC reset after ALL cell reselections. Currently this is only done when the WTRU with a dedicated H-RNTI performs a cell reselection. There are a number of scenarios where this reset is not performed, resulting in possible reordering errors.

Transitions to/from IDLE have also been impacted by the introduction of Enhanced CELL_FACH. If a Release 7 UE supports HSDPA reception in CELL_FACH state, this UE also supports limited HSDPA reception while in IDLE mode; in particular after a UE has issued an RRC CONNECTION REQUEST, and is waiting for an RRC CONNECTION SETUP message from the network. Three issues have been identified:

1) If the UE has begun HSDPA reception while in IDLE (after issuing a RRC CONNECTION SETUP message), any cell reselections should result in a MAC reset.

2) If an RRC connection procedure is aborted, the UE should clear all its HSDPA resources.

3) While in IDLE mode, a UE may cell reselect from a cell that supports Enhanced CELL FACH to one that does not, and

vice versa. If the UE has initiated an RRC connection procedure, two issues may need to be addressed. First, for a Release 6 to a Release 7 transition, the UE is required to setup the HSDPA resources so that it can receive the RRC CONNECTION SETUP message on the HS-DSCH. Second, for a Release 7 to Release 6 transition, the UE should release all HSDPA resources, as no traffic is expected on the HS-DSCH.

Another new feature of Enhanced CELL_FACH is that the UE will be able to receive dedicated control messages while in CELL_PCH (over the DCCH). Accordingly, a UE may be asked to perform a reconfiguration, (e.g., radio bearer, transport channel, physical channel). Reconfiguration messages can also result in a state change.

In order to allow proper configuration of HSDPA resources the UE should properly manage the setting or clearing of the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to ensure that it is only set to TRUE when the UE is using the common H-RNTI while in an enhanced Cell_FACH state. It should be set to FALSE in all other. Lastly, cell reselections occurring during ongoing cell update or URA update procedures should behave similarly to cell reselections when these procedures are not ongoing.

It would therefore be beneficial to provide a method and apparatus for handling cell reselections and transitions to and from an enhanced CELL_FACH state.

SUMMARY

A method and apparatus for handling cell reselections, transitions, and Cell_DCH radio link failures is disclosed. The method includes executing a cell reselection. A medium access control (MAC)-ehs reset is performed.

BRIEF DESCRIPTION OF THE DRAWINGS

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

FIG. **1** shows an example wireless communication system including a plurality of wireless transmit/receive units (WTRUs) and a Node B;

FIG. **2** is an example functional block diagram of a WTRU and the Node B of FIG. **1**; and

FIG. **3** is a flow diagram of a method for handling cell reselections and transitions to and from an enhanced CELL_FACH state.

DETAILED DESCRIPTION

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.

When referred to hereafter, the terminology "Release 7 (R7)", includes but is not limited to a WTRU or Node B that supports HS-DSCH in CELL_FACH and/or CELL/URA_PCH and "Release 6 (R6)" includes but is not limited to a WTRU or Node B that does not support HS-DSCH in CELL_FACH and/or CELL/URA_PCH.

HS-DSCH in CELL_FACH also includes HS-DSCH reception in idle mode for the reception of RRC connection procedures.

When referred to hereafter, the terminology "enhanced CELL_FACH state" includes but is not limited to a WTRU that is using HSDPA resources in a state other than CELL_DCH.

FIG. **1** shows an example wireless communication system **100** including a plurality of WTRUs **110**, a Node B **120**, and a radio network controller (RNC) **130**. As shown in FIG. **1**, the WTRUs **110** are in communication with the Node B **120**, which is in communication with the RNC **130**. It should be noted that, although an example configuration of WTRUs **110**, Node B **120**, and RNC **130** is depicted in FIG. **1**, any combination of wireless and wired devices may be included in the wireless communication system **100**.

FIG. **2** is an example functional block diagram **200** of a WTRU **110** and the Node B **120** of the wireless communication system **100** of FIG. **1**. As shown in FIG. **2**, the WTRU **110** is in communication with the Node B **120**. The Node B **120** is configured to handle cell reselections and transitions to and from an enhanced Cell_FACH state.

In addition to the components that may be found in a typical WTRU, the WTRU **110** includes a processor **115**, a receiver **116**, a transmitter **117**, and an antenna **118**. The receiver **116** and the transmitter **117** are in communication with the processor **115**. The antenna **118** is in communication with both the receiver **116** and the transmitter **117** to facilitate the transmission and reception of wireless data. The processor **115** of the WTRU **110** is configured to handle cell reselections and transitions to and from an enhanced Cell_FACH state.

In addition to the components that may be found in a typical Node B, the Node B **120** includes a processor **125**, a receiver **126**, a transmitter **127**, and an antenna **128**. The receiver **126** and the transmitter **127** are in communication with the processor **125**. The antenna **128** is in communication with both the receiver **126** and the transmitter **127** to facilitate the transmission and reception of wireless data.

FIG. **3** is a flow diagram of a method **300** for handling cell reselections out of an enhanced CELL_FACH state. Although specifics of the method **300** will be described in greater detail below, in general, a WTRU **110** executes a cell reselection (step **310**). Upon executing the cell reselection, a medium access control (MAC)-ehs reset is performed (step **320**) due to the fact that the source of the HS-DSCH may have changed. Depending on the reselected cell, the WTRU **110** may clear HSDPA resources and stop HS-DSCH reception procedures.

In one example, the MAC-hs/ehs reset is performed when a cell reselection occurs while the WTRU **110** is waiting for a CELL_UPDATE_CONFIRM message. The reset may be performed in all cases upon cell reselection, (i.e., even when the WTRU does not have a dedicated H-RNTI), or only when the WTRU has ongoing HSDPA reception, (i.e., when the WTRU is receiving HS-DSCH prior to cell reselection).

For example, if cell update/URA update timer expires or a reselection to another UTRA cell occurs prior to completion of the cell update or URA update procedure, the WTRU **110** may detect "in service area" if it has not entered idle mode. In this case, if the cell update or URA update procedure counter is less than or equal to a maximum number of retransmissions of the cell update/URA update message, then the WTRU **110** may perform a cell reselection.

For frequency division duplex (FDD), for example, if the WTRU **110** supports HS-DSCH reception and the informa-

tion element (IE) "HS-DSCH common system information" is included in SIB5 or SIB5bis, then the WTRU **110** may reset the MAC-ehs entity.

Alternatively, the WTRU **110** may, after performing cell selection, reset the MAC-ehs entity after a radio link failure from CELL_DCH. As the WTRU **110** may be using a common H-RNTI, rather than a dedicated H-RNTI, a reset may allow reception of a new MAC flow, (e.g., for CCCH and SRB**1**).

For example, the WTRU **110** may initiate a cell update procedure as a result of a radio link failure while in CELL_DCH. For FDD, if the WTRU **110** supports HS-DSCH reception and the information element (IE) "HS-DSCH common system information" is included in SIB5 or SIB5bis, then the WTRU **110** may reset the MAC-ehs entity.

Alternatively, the WTRU **110** may, after performing a cell reselection without a dedicated H-RNTI, reset the MAC-ehs entity.

For example, the WTRU **110** may initiate a URA update or cell update procedure. If the WTRU **110** performed a cell reselection, then for FDD, if the WTRU **110** supports HS-DSCH reception and the information element (IE) "HS-DSCH common system information" is included in SIB5 or SIB5bis, then the WTRU **110** may reset the MAC-ehs entity.

WTRU **110** is allowed to use HS-DSCH reception in IDLE mode (such as after transmitting a RRC CONNECTION REQUEST). When the WTRU **110** transmits a RRC CONNECTION REQUEST, it monitors the downlink transmissions to determine the RNC response. During this time the WTRU **110** may perform cell reselections.

Depending on the reselected cell, the WTRU **110** may transition from a cell that supports HSDPA reception in CELL_FACH and CELL/URA_PCH to one that no longer supports HS-DSCH reception. The WTRU **110** may clear, or release HSDPA resources and stop HS-DSCH reception procedures.

For example, if the WTRU **110** has transmitted a RRC CONNECTION REQUEST and has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY, and if cell re-selection or expiry of RRC CONNECTION REQUEST timers (currently referred to in the standard as T**300** or T**318**) occurs, WTRU **110** may check that the RRC CONNECTION procedure counter (currently referred to in the standard as V**300**) is less than or equal to the maximum number of retransmissions of the RRC CONNECTION REQUEST message (currently referred to in the standard as N**300**), and if cell reselection occurred, for FDD, and if the WTRU **110** supports HS-DSCH reception and if IE: "HS-DSCH common system information" is not included in SIB5 or SIB5bis, then, the WTRU **110** may release HSDPA resources by stopping HS_SCCH and HS-DSCH reception procedures. Additionally, the WTRU **110** may clear the variable H_RNTI and remove any stored H-RNTI. In addition to resetting the MAC-ehs entity, the WTRU **110** may also release all HARQ resources.

Alternatively, the WTRU **110** may choose to perform the above only when HSDPA resources are being used prior to cell reselection.

Also, the WTRU **110** actions can be triggered by using an existing HS_DSCH_RECEPTION variable, or a new HS_DSCH_RECEPTION variable may be defined as a flag to denote HSDPA resource use, thereby triggering a resource release.

Depending on the reselected cell, the WTRU **110** may transition across cells that support HSDPA reception in CELL_FACH and CELL/URA_PCH. The WTRU may perform a MAC-ehs reset.

For example, if the WTRU **110** has transmitted a RRC CONNECTION REQUEST and has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY, and if cell re-selection or expiry of RRC CONNECTION REQUST timers (T**300** or T**318**) occurs, WTRU **110** may check that the RRC CONNECTION procedure counter (V**300**) is less than or equal to the maximum number of retransmissions of the RRC CONNECTION REQUEST message (N**300**), and if cell reselection occurred, for FDD, and if the WTRU **110** supports HS-DSCH reception and if IE: "HS-DSCH common system information" is included in SIB5 or SIB5bis, and if the variable HS-DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE, then, the WTRU **110** may reset the MAC-ehs entity.

Depending on the reselected cell, the WTRU **110** may transition from a cell that does not support HSDPA reception in CELL_FACH and CELL/URA_PCH to one that does support HS-DSCH reception. In such a case, the WTRU **110** may be required to setup the HS-DSCH, (e.g., HARQ resources, common H-RNTI, MAC flow for CCCH traffic, and the like).

In this situation, a number of scenarios may be utilized. For example, if the WTRU **110** has transmitted a RRC CONNECTION REQUEST and has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY, and if cell re-selection or expiry of RRC CONNECTION REQUST timers (T**300** or T**318**) occurs, WTRU **110** may check that the RRC CONNECTION procedure counter (V**300**) is less than or equal to the maximum number of retransmissions of the RRC CONNECTION REQUEST message (N**300**), and if cell reselection occurred, for FDD, and if the WTRU **110** supports HS-DSCH reception and if IE: "HS-DSCH common system information" is included in SIB5 or SIB5bis, and if the variable HS-DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE, then, the WTRU **110** may set the variable HS-DSCH_RECEPTION_OF_CCCH_ENABLED to TRUE, and start receiving HS-DSCH.

Alternatively, a WTRU **110** in IDLE mode may set the CCCH flag to TRUE in an R6 cell. In order to guarantee that HS_DSCH_RECEPTION_OF_CCCH_ENABLED is TRUE in an R6 cell the variable should be set to TRUE each time the system information is read in an R6 cell or anytime the WTRU **110** is in an R6 cell and transitions to IDLE mode from connected mode. This can be achieved by changing the actions when entering idle mode from connected mode.

As another alternative, every time a WTRU **110** in IDLE mode with an ongoing RRC connection procedure performs a cell reselection, the WTRU **110** sets the CCCH flag to TRUE and then performs the actions related to this variable. For example, the WTRU **110** may send an RRC CONNECTION REQUEST message and be waiting for an RRC CONNECTION SETUP MESSAGE. If there is a cell reselection, and the transition is from an R7 to R7 cell, the MAC-ehs entity is reset only. If the transition is from an R6 to R7 cell, the variable HS_DSCH_RECEPTION_OF_CCH_ENABLED is set to "true" and the WTRU **110** begins receiving the HS-DSCH. If the transistion is from an R7 to R6 cell, then HS_SCCH reception procedures are stopped, HS-DSCH reception procedures are stopped, the MAC-ehs entity is reset, HARQ resources are released, and store "HARQ info" IEs are cleared.

The variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is used as a flag to denote that the WTRU **110** is using a common H-RNTI. This variable should be set to "FALSE" when the WTRU **110** is not using its common H-RNTI. This may ensure that evaluation of the variable HS_DSCH_RECEPTON_CELL_FACH_STATE will correctly clear resources only when a dedicated H-RNTI is assigned to the WTRU **110**. Receiving on the common H-RNTI is typically possible when the WTRU **110** has performed a cell reselection and is waiting for the CELL UPDATE CONFIRM message, or when the WTRU **110** has performed a URA reselection and is waiting for the URA UPDATE CONFIRM message, or when the WTRU **110** has initiated an RRC setup and is waiting for the RRC CONNECTION SETUP message.

After receiving an RRC CONNECTION SETUP message that will send the WTRU **110** in the CELL_DCH state, then the WTRU **110** sets variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to "FALSE".

The WTRU **110** may terminate activities associated with CELL_PCH. For example, the WTRU **110** should stop the periodic cell update timer. If the network requests a transition to CELL_FACH or if a new configuration is provided for CELL_PCH, the WTRU **110** should perform actions similar to those when transitioning to CELL_FACH.

For example, if the IE "Frequency info" is included in the received reconfiguration message, the WTRU **110** may select a suitable cell on the provided frequency. If the if IE "Frequency info" is not included in the received reconfiguration message, the WTRU **110** may prohibit periodical status transmission in the RLC, and it may start the timer currently referred to in the standard as T**305**. If the IE "New C-RNTI" is not included in the reconfiguration message, the WTRU **110** can clear variables C_RNTI, H_RNTI, as well as any stored HARQ information, and may also reset the MAC-ehs entity. The WTRU **110** may start monitoring the paging occasions on the selected PICH, and if the IE "UTRAN DRX cycle length coefficient" is included, it can use this value to determining the paging occasions.

Although features and elements are described above in particular combinations, each feature or element can 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 incorporated 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).

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.

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 speaker-

phone, 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.

What is claimed is:

1. A method for handling cell reselections, the method comprising:

initiating a radio resource control (RRC) connection procedure from a user equipment (UE); and

while the UE is in idle mode:

performing cell reselection;

determining whether high speed downlink shared channel (HS-DSCH) reception is ongoing based on received HS-DSCH common system information, wherein:

if HS-DSCH reception is ongoing, performing a medium access control (MAC) reset; else, setting a HS-DSCH reception variable to TRUE and start receiving the HS-DSCH.

2. The method of claim **1**, wherein initiating the RRC connection procedure comprises transmitting a RRC CONNECTION REQUEST message.

3. The method of claim **2**, wherein an Initial UE identity information element (IE) in the transmitted RRC CONNECTION REQUEST message is set to the value of the variable INITIAL_UE_IDENTITY.

4. The method of claim **1**, wherein the UE is in idle mode if, following initiation of the RRC connection procedure, the UE is waiting for receipt of a connection setup message.

5. The method of claim **4**, wherein the connection setup message is a RRC CONNECTION SETUP message issued by a universal telecommunications radio access network (UTRAN).

6. The method of claim **4**, wherein the UE is waiting for receipt of the connection setup message having a value of an Initial UE identity information element (IE) equal to the value of a variable INITIAL_UE_IDENTITY.

7. The method of claim **1**, where in the HS-DSCH common system information is received in a HS-DSCH common system information IE (information element) in a System Information Block (SIB).

8. The method of claim **7**, wherein HS-DSCH reception is ongoing if a variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED in the HS-DSCH common system information IE is set to TRUE.

9. The method of claim **7**, wherein HS-DSCH reception is not ongoing if a variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED in the HS-DSCH common system information IE is not set to TRUE.

10. The method of claim **1**, wherein setting the HS-DSCH reception variable to TRUE is setting the HS_DSCH_RECEPTION_OF_CCCH_ENABLED in the HS-DSCH common system information IE to TRUE, and start receiving HS-DSCH.

11. The method of claim **1**, wherein performing cell reselection comprises reselecting between a cell that does not support HS-DSCH in cell forward access channel (Cell_FACH) and a cell that does support HS-DSCH in Cell_FACH.

12. The method of claim **1**, further comprising:

checking the value of V300; and

determining that the value of V300 is equal to or smaller than N300.

13. The method of claim **1**, further comprising an expiring of timer T300 or timer T318 while the UE is in the idle mode.

14. A user equipment (UE), the UE comprising:

a receiver;

a transmitter; and

a processor in communication with the receiver and the transmitter, the processor configured to:

initiate an radio resource control (RRC) connection procedure from a user equipment (UE); and

while the UE is in idle mode,

perform cell reselection;

determine whether high speed downlink shared channel (HS-DSCH)reception is ongoing based on received HS-DSCH common system information, wherein:

if HS-DSCH reception is ongoing, performing a medium access control (MAC) reset; else, set a HS-DSCH reception variable to TRUE and start receiving the HS-DSCH.

15. The UE of claim **14**, wherein the processor is further configured to initiating the RRC connection procedure comprises transmitting a RRC CONNECTION REQUEST message.

16. The UE of claim **15**, wherein an IE "Initial UE identity" in the transmitted RRC CONNECTION REQUEST message is set to the value of the variable INITIAL_UE_IDENTITY.

17. The UE of claim **14**, wherein the UE is in idle mode if, following initiation of the RRC connection procedure, the UE is waiting for receipt of a connection setup message.

18. The UE of claim **17**, wherein the connection setup message is a RRC CONNECTION SETUP message issued by a universal telecommunications radio access network (UTRAN).

19. The UE of claim **14**, wherein the UE is waiting for receipt of the connection setup message having a value of an Initial UE identity information element (IE) equal to the value of a variable INITIAL_UE_IDENTITY.

20. The UE of claim **14**, where in the HS-DSCH common system information is received in an HS-DSCH common system information IE in a System Information Block (SIB).

21. The UE of claim **20**, wherein HS-DSCH reception is ongoing if a variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED in the HS-DSCH common system information IE is set to TRUE.

22. The UE of claim **20**, wherein HS-DSCH reception is not ongoing if a variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED in the HS-DSCH common system information IE is not set to TRUE.

23. The UE of claim **14**, wherein the processor is further configured to set the HS_DSCH_RECEPTION_OF_C-CCH_ENABLED in the HS-DSCH common system information IE to TRUE, and initiate receipt of HS-DSCH.

24. The UE of claim **14**, wherein performing cell reselection comprises reselecting between a cell that does not support HS-DSCH in cell forward access channel (Cell_FACH) and a cell that does support HS-DSCH in Cell_FACH.

25. The UE of claim **14**, the processor further configured to:

checking the value of V300; and

determining that the value of V300 is equal to or smaller than N300.

26. The UE of claim **14**, wherein the processor is further configured to detect an expiration of timer T300 or timer T318 while the UE is in the idle mode.