WTRU monitors at least one DL EU signaling channel established between the WTRU and at least one Node-B only when it is necessary, based on the WTRU's knowledge of at least one established standard procedure. The WTRU coordinates and consolidates DL signaling channel reception requirements of a plurality of channel allocation and/or data transmission procedures carried out by the WTRU in accordance with the established standard procedure. The WTRU determines whether to enable reception of at least one specific DL signaling channel based on the consolidated DL signaling channel reception requirements.

[0010] In accordance with the present invention, the WTRU does not have to continuously enable the reception of the DL EU signaling channel during EU operation. Instead, the WTRU may selectively turn on and off, (i.e., enable and disable), reception of at least one specific DL EU signaling channel, thus reducing WTRU processing requirements and reducing the probability of misinterpretation of DL signaling.

[0010a] According to a first aspect of the present invention, there is provided a method for channel resource allocation implemented in a wireless transmit/receive unit (WTRU) comprising: sending, by the WTRU, an enhanced uplink (EU) channel allocation request via an uplink (UL) EU channel used for sending enhanced dedicated channel (E-DCH) data; receiving, by the WTRU, channel allocation information via a downlink (DL) EU signaling channel in response to sending the channel allocation request; and determining, by the WTRU, whether to selectively enable the DL EU signaling channel according to at least one predetermined signaling procedure using at least one synchronous hybrid automatic repeat request (HARQ) process that enables reception of the DL EU signaling channel in accordance with a preconfigured schedule.

[0010b] According to a second aspect of the present invention, there is provided a method for channel resource allocation implemented in a wireless transmit/receive unit (WTRU), comprising: sending, by the WTRU, an enhanced uplink (EU) channel allocation request including enhanced dedicated channel (E-DCH) data via at least one uplink (UL) channel; receiving, by the WTRU, channel allocation information and data feedback information via respective downlink (DL) signaling channels in response to sending the channel allocation request including E-DCH data; and determining, by the WTRU, whether to utilize at least one of the respective DL signaling channels according to at least one predetermined signaling procedure using at least one synchronous hybrid automatic repeat request (HARQ) process that enables reception of the at least one respective DL signaling channel in accordance with a preconfigured schedule.

[0010c] According to a third aspect of the present invention, there is provided a method for channel resource allocation implemented in a wireless transmit/receive unit (WTRU) comprising: transmitting, by the WTRU, an enhanced uplink (EU) channel allocation request over an uplink (UL) EU channel, wherein the allocation request includes scheduling information; monitoring, by the WTRU, a plurality of downlink (DL) EU signaling channels according to at least one predetermined signaling procedure; receiving, by the WTRU, UL channel allocation information through at least one of the DL EU signaling channels; and selectively enabling, by the WTRU, at least one of the DL EU signaling channels according to the at least one predetermined signaling procedure using at least one synchronous hybrid automatic repeat request (HARQ) process that enables reception of the at least one DL EU signaling channel in accordance with a preconfigured schedule.

[0010d] According to a fourth aspect of the present invention, there is provided a wireless transmit/receive unit (WTRU) for use in a wireless communication system to selectively enable reception of at least one downlink (DL) signaling channel, the WTRU comprising: a transmitter configured to send a channel allocation request; a receiver configured to enable reception of at least one DL signaling channel in order to receive expected channel allocation information, wherein the expected channel allocation information is responsive to the channel allocation request sent by the WTRU; and the receiver further configured to disable reception of at least one DL signaling channel on at least one condition of that reception of channel allocation information is not expected or reception of the DL signaling channel is not required.

[0010e] According to a fifth aspect of the present invention there is provided a wireless transmit/receive unit (WTRU) for use in a wireless communication system to selectively enable reception of at least one downlink (DL) signaling channel, the WTRU comprising: a receiver configured to enable reception of at least one DL signaling channel in order to receive expected data transmission feedback information in response to data sent by the WTRU; and the receiver further configured to disable reception of at least one DL signaling channel on at least one condition of that reception of data transmission feedback information is not expected or the DL signaling channel is not required.

[0010f] According to a sixth aspect of the present invention, there is provided a method performed by a wireless transmit/receive unit (WTRU) to selectively enable reception of at least one downlink (DL) signaling channel, the method comprising: sending a channel allocation request; enabling reception of at least one DL signaling channel in order to receive expected channel allocation information, wherein the expected channel allocation information is responsive to the channel allocation request sent by the WTRU; and disabling reception of at least one DL signaling channel on at least one condition of that reception of channel allocation information is not expected or reception of the DL signaling channel is not required.

[0010g] According to a seventh aspect of the present invention, there is provided a method performed by a wireless transmit/receive unit (WTRU) to selectively enable reception of at least one downlink (DL) signaling channel, the method comprising: enabling reception of at least one DL signaling channel in order to receive expected data transmission feedback information in response to data sent by the WTRU; and disabling reception of at least one DL signaling channel on at least one condition of that reception of data transmission feedback information is not expected or the DL signaling channel is not required.

[0010h] According to an eighth aspect of the present invention, there is provided a wireless communication device for use in a wireless communication system, the wireless communication device comprising: a transmitter configured to transmit configuration information to a wireless transmit/receive unit (WTRU), wherein the configuration information indicates that the WTRU is to periodically receive channel scheduling information; the transmitter further configured to transmit channel scheduling information over a downlink (DL) enhanced uplink (EU) signaling channel to the WTRU in time periods that the WTRU is to periodically receive the channel scheduling information; and a receiver configured to receive a channel allocation request from the WTRU; the transmitter further configured to transmit channel allocation information over the DL EU signaling channel in response to the received channel allocation request, wherein the channel scheduling information is configured to enable the WTRU to selectively enable the DL EU signaling channel according to at least one predetermined signaling procedure using at least one synchronous hybrid automatic repeat request (HARQ) process that enables reception of the DL EU signaling channel in accordance with a preconfigured schedule.

[0011] BRIEF DESCRIPTION OF THE DRAWINGS

[0012] A more detailed understanding of the invention may be had from the following description of a preferred example, given by way of example and to be understood in conjunction with the accompanying drawing wherein:

[0013] Figure 1 is a block diagram of a wireless communication system operating in accordance with the present invention;

[0014] Figure 2 is a flow diagram of a process including method steps for selectively enabling reception of at least one DL EU signaling channel during EU operation when the WTRU sends an EU channel allocation request and is expecting to receive scheduling information in accordance with one embodiment of the present invention; and

[0015] Figure 3 is a flow diagram of a process including method steps for selectively enabling reception of at least one DL EU signaling channel when the WTRU sends E-DCH data and is expecting to receive feedback information in accordance with another embodiment of the present invention.