

CLAIMS

1. A wireless transmit/receive unit (WTRU) comprising:

a transceiver; and

a processor;

wherein the transceiver is configured to receive configuration information indicating a plurality of physical uplink control channel (PUCCH) resources for transmitting uplink control information (UCI) and one or more thresholds associated with a number of hybrid automatic repeat request (HARQ) bits to be included in the UCI, wherein each of the plurality of PUCCH resources is associated with at least one PUCCH format and a respective number of orthogonal frequency division multiplexing (OFDM) symbols,

wherein the transceiver is configured to receive a physical downlink control channel (PDCCH) transmission, the PDCCH transmission indicating to transmit the UCI,

wherein the processor is configured to determine one of the plurality of PUCCH resources for transmitting the UCI, wherein the determination is made based on a number of HARQ bits to be included in the UCI and the one or more thresholds,

wherein the transceiver is configured to transmit the UCI using the determined PUCCH resource and one of the at least one PUCCH formats that is associated with the determined PUCCH resource.

2. The WTRU of claim 1, wherein the transceiver is further configured to receive a short transmission time interval (sTTI) physical downlink control channel (sPDCCH) transmission, wherein a downlink sTTI gap is configured between an sPDCCH region and an uplink sTTI for the PUCCH.

3. The WTRU of claim 2, wherein a time duration of the sPDCCH region is defined by a plurality of sTTIs.

4. The WTRU of claim 2, wherein a downlink sTTI length is shorter than an uplink sTTI length.

5. The WTRU of claim 1, wherein each of the PUCCH resources is associated with a respective number of physical resource blocks (PRBs) or a respective number of subcarriers.

6. The WTRU of claim 1, wherein the configuration information indicates a starting symbol within a slot for at least one of the plurality of PUCCH resources.

7. The WTRU of claim 1, wherein at least a first format of the plurality of formats is associated with a number of OFDM symbols that is

different from the number of OFDM symbols with which at least a second format of the plurality of formats is associated.

8. A method performed by a wireless transmit/receive unit (WTRU), the method comprising:

receiving configuration information indicating a plurality of physical uplink control channel (PUCCH) resources for transmitting uplink control information (UCI) and one or more thresholds associated with a number of hybrid automatic repeat request (HARQ) bits to be included in the UCI, wherein each of the plurality of PUCCH resources is associated with at least one format and a respective number of orthogonal frequency division multiplexing (OFDM) symbols;

receiving a physical downlink control channel (PDCCH) transmission, the PDCCH transmission indicating to transmit the UCI;

determining one of the plurality of PUCCH resources for transmitting the UCI, wherein the determination is made based on the number of HARQ bits to be included in the UCI and based on one or more thresholds; and

transmitting the UCI using the determined PUCCH resource and one of the at least one PUCCH formats that is associated with the determined PUCCH resource.

9. The method of claim 8, further comprising receiving a short transmission time interval (sTTI) physical downlink control channel (sPDCCH) transmission, wherein a downlink sTTI gap is configured between an sPDCCH region and an uplink sTTI for the sPUCCH.

10. The method of claim 9, wherein a time duration of the sPDCCH region is defined by a plurality of sTTIs.

11. The method of claim 9, wherein a downlink sTTI length is shorter than an uplink sTTI length.

12. The method of claim 8, wherein each of the PUCCH resources is associated with a respective number of physical resource blocks (PRBs) or a respective number of subcarriers.

13. The method of claim 8, wherein the configuration information indicates a starting symbol within a slot for at least one of the plurality of PUCCH resources.

14. The method of claim 8, wherein at least a first format of the plurality of formats is associated with a number of OFDM symbols that is

different from the number of OFDM symbols with which at least a second format of the plurality of formats is associated.