

[0003A] In accordance with an embodiment of the disclosure, a wireless transmit/receive unit (WTRU) can be provided. The WTRU can include a transceiver and a processor. The processor can be configured to determine one or more short transmission time interval (sTTI) physical uplink control channel (sPUCCH) resources for transmitting uplink control information (UCI). The determination can be made based on a number of hybrid automatic repeat request (HARQ) bits and based on a configured threshold associated with the number of HARQ bits. The processor can be further configured to determine a format associated with the UCI based on one or more symbols for the UCI and based on the number of HARQ bits. The WTRU can further include a transceiver configured to transmit the UCI using the one or more determined sPUCCH resources and the determined format.

[0003B] In accordance with an embodiment of the disclosure, a method performed by a wireless transmit/receive unit (WTRU) can be provided. The method can include determining one or more short transmission time interval (sTTI) physical uplink control channel (PUCCH) resources for transmitting uplink control information (UCI), wherein the determination is made based on a number of hybrid automatic repeat request (HARQ) bits and based on a configured threshold associated with the number of HARQ bits. The method can further include determining a format associated with the UCI based on one or more symbols for the UCI and based on the number of HARQ bits. The method can yet further include transmitting the UCI using the one or more determined sPUCCH resources and the determined format.

CLAIMS

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

a transceiver; and

a processor;

wherein the processor is configured to determine one or more short transmission time interval (sTTI) physical uplink control channel (sPUCCH) resources for transmitting uplink control information (UCI), wherein the determination is made based on a number of hybrid automatic repeat request (HARQ) bits and based on a configured threshold associated with the number of HARQ bits; wherein

the processor is further configured to determine a format associated with the UCI based on one or more symbols for the UCI and based on the number of HARQ bits; and

wherein the transceiver is configured to transmit the UCI using the one or more determined sPUCCH resources and the determined format.

2. The WTRU of claim 1, wherein the transceiver is further configured to receive an 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.

3. The WTRU of claim 2, wherein a set of candidate sPDCCH regions includes 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 a downlink short transmission time interval (sTTI) is further configured to overlap with a downlink transmission time interval (TTI).

6. The WTRU of claim 1, wherein the transceiver is further configured to transmit, using sPUCCH resources, first information in an uplink sTTI concurrently with second information in an uplink TTI.

7. The WTRU of claim 6, wherein the sTTI is one of a plurality of uplink sTTIs that overlaps with the uplink TTI.

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

determining one or more short transmission time interval (sTTI) physical uplink control channel (PUCCH) resources for transmitting uplink control information (UCI), wherein the determination is made based on a

number of hybrid automatic repeat request (HARQ) bits and based on a configured threshold associated with the number of HARQ bits;

determining a format associated with the UCI based on one or more symbols for the UCI and based on the number of HARQ bits; and

transmitting the UCI using the one or more determined sPUCCH resources and the determined format.

9. The method of claim 8, further comprising receiving an 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 set of candidate sPDCCH regions includes 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 a downlink short transmission time interval (sTTI) partially overlaps with a downlink transmission time interval (TTI).

13. The method of claim 8, further comprising:
transmitting, using the sPUCCH resources, first information in an uplink sTTI concurrently with second information in an uplink TTI.

14. The method of claim 13, wherein the sTTI is one of a plurality of uplink sTTIs that overlaps with the uplink TTI.