CLAIMS

1. A method, comprising:

determining, by a wireless transmit/receive unit (WTRU) for a channel, a respective transmit power control (TPC) factor for each scheduler of a plurality of schedulers, wherein the TPC factor for a particular scheduler is based on a TPC command received from the particular scheduler in response to a previous transmission; and

determining channel power, based on the respective TPC factor, when transmitting the channel to the respective scheduler.

2. The method of claim 1, further comprising updating the TPC factor for a scheduler according to a PUCCH power control rule.

3. The method of claim 1, further comprising updating the TPC factor for the particular scheduler for a subframe as a function of a TPC command received from the particular scheduler for an earlier subframe.

4. The method of claim 1, further comprising scaling a transmit power for at least one of a physical uplink control channel (PUCCH) and a physical uplink shared channel (PUSCH).

5. The method of claim 4, wherein the transmit power is scaled as a function of a priority of the PUCCH or PUSCH.

6. A method, comprising:

determining, by a first scheduler, a first maximum power value for a first set of cells configured for a wireless transmit/receive unit (WTRU); and

determining, by the first scheduler, a second maximum power value for a second set of cells configured for the WTRU,

wherein the first set of configured cells is associated with the first scheduler, and wherein the second set of cells is associated with a second scheduler.

7. The method of claim 6, further comprising receiving an uplink (UL) scheduling attribute from a second scheduler.

8. The method of claim 6, further comprising signaling the second maximum power value to the second scheduler.

9. The method of claim 8, further comprising receiving a request from the second scheduler, the request requesting any of an increase or decrease of the second maximum power value.

10. The method of claim 6, further comprising signaling the first and second maximum power values to the WTRU.

11. The method of claim 10, wherein the signaling comprises signaling such that the WTRU calculates transmit power for the first set of cells and if the calculated transmit power exceeds the first maximum power value, the WTRU adjusts the transmit power to not exceed the first maximum power value.

12. The method of claim 11, wherein the signaling comprises signaling such that the WTRU calculates transmit power for the second set of cells and if the calculated transmit power exceeds the second maximum power value, the WTRU adjusts the transmit power to not exceed the second maximum power value.

13. A method, comprising:

receiving, by a wireless transmit/receive unit (WTRU), a physical uplink control channel (PUCCH) timing advance (TA) command from each scheduler of a plurality of schedulers;

for each scheduler of the plurality of schedulers, determining a respective PUCCH TA based on the PUCCH TA command received from the each scheduler; and

for each scheduler of the plurality of schedulers, applying the determined PUCCH TA to a PUCCH transmitted to the each scheduler.

14. The method of claim 13, further comprising maintaining a downlink (DL) timing reference for the PUCCH.

15. The method of claim 13, further comprising maintaining a TA accumulator for each scheduler of the plurality of schedulers.

16. The method of claim 13, further comprising determining an absolute TA for at least one scheduler of the plurality of schedulers.

17. The method of claim 13, further comprising adjusting a timing of a physical uplink shared channel (PUSCH) to align with a timing of the PUCCH.

18. A method, for a wireless transmit/receive unit (WTRU), the method comprising:

managing a first power headroom process for a first set of cells configured for a WTRU; and

managing a second power headroom process for a second set of cells configured for the WTRU,

wherein the first power headroom process is different than the second power headroom process, and wherein each power headroom process comprises a respective triggering procedure and reporting procedure.

19. The method of claim 18, wherein the reporting procedure of the first power headroom process is based on the triggering procedure of the second power headroom process.

20. The method of claim 18, wherein reporting for the first power headroom process includes scheduling information for the second set of cells.

21. The method of claim 18, wherein reporting for the second power headroom process includes scheduling information for the first set of cells.

22. The method of claim 18, further comprising reporting power headroom information for the first set of configured cells and the second set of configured cells when processing a trigger associated with the first set of cells.

23. The method of claim 18, wherein a report associated with the first power headroom process does not prohibit reporting associated with the second power headroom process.

24. The method of claim 18, wherein a report associated with the first power headroom process comprises power headroom information for the first set of cells and the second set of cells.

25. The method of claim 18, wherein triggering for the second power headroom process is independent of previous reporting for a second set of cells when the previous reporting was caused by a trigger associated with the first power headroom process.

26. A method, comprising:

determining, by a wireless transmit/receive unit (WTRU), a physical uplink control channel (PUCCH) transmit power for reception by a plurality of schedulers, wherein the transmit power is determined using at least one transmit power control (TPC) factor comprising a power control adjustment state; and

transmitting the PUCCH with the determined transmit power using an uplink to the plurality of schedulers.

27. A method comprising:

determining, by a wireless transmit/receive unit (WTRU), a physical uplink control channel (PUCCH) timing advance for reception by a plurality of schedulers, wherein the timing advance is determined at least in part based on a timing advance to minimize a maximum timing advance error among the plurality of schedulers; and

transmitting the PUCCH with timing in accordance with the determinedtiming advance using an uplink to the plurality of schedulers.

28. An apparatus comprising:

a memory configured to store processor-executable instructions; and

a processor in communication with the memory and configured to receive the processor-executable instructions from the memory and to execute the processor-executable instructions to

determine, by a wireless transmit/receive unit (WTRU) for a channel, a respective transmit power control (TPC) factor for each scheduler of a plurality of schedulers, wherein the TPC factor for a particular scheduler is based on a TPC command received from the particular scheduler in response to a previous transmission; and

determine channel power, based on the respective TPC factor, when transmitting the channel to the respective scheduler.

29. An apparatus comprising:

a memory configured to store processor-executable instructions; and

a processor in communication with the memory and configured to receive the processor-executable instructions from the memory and to execute the processor-executable instructions to

determine, by a first scheduler, a first maximum power value for a first set of cells configured for a wireless transmit/receive unit (WTRU); and

determine, by the first scheduler, a second maximum power value for a second set of cells configured for the WTRU,

wherein the first set of configured cells is associated with the first scheduler, and wherein the second set of cells is associated with a second scheduler.

CLAIMS

1. A method comprising:

power headroom reporting for a first set of cells associated with a first eNodeB (eNB) configured for a wireless transmit/receive unit (WTRU) and a second set of cells associated with a second eNB configured for the WTRU, wherein the power headroom reporting comprises

determining a first set of power headrooms for the first set of cells associated with the first eNB and

determining a second set of power headrooms for the second set of cells associated with the second eNB; and

sending one or more of the first set of power headrooms to the second eNB, or the second set of power headrooms to the first eNB.

2. The method of claim 1, further comprising sending the first set of power headrooms and the second set of power headrooms to at least one of the first eNB or the second eNB.

3. The method of claim 1, wherein the first set of power headrooms and the second set of power headrooms are sent simultaneously to at least one of the first eNB, or the second eNB.

4. The method of claim 1, wherein a power headroom report is sent to at least one of the first eNB, or the second eNB and wherein the power headroom report comprises the first set of power headrooms and the second set of power headrooms.

5. The method of claim 1, wherein a power headroom report is simultaneously sent to the first eNB and the second eNB and wherein the power headroom report comprises the first set of power headrooms and the second set of power headrooms.

6. The method of claim 1, wherein determining each of the first set of power headrooms or the second set of power headrooms is based on a respective triggering procedure.

7. The method of claim 6, wherein each of the respective triggering procedures corresponds to a change related to a cell of the set of cells associated with the respective eNB.

8. The method of claim 6, wherein sending the second set of power headrooms to the first eNB is based on the triggering procedure of the second set of power headrooms.

9. The method of claim 1, wherein sending the second set of power headrooms to the first eNB further comprises sending scheduling information for the second set of cells associated with the second eNB.

10. The method of claim 1, wherein sending the first set of power headrooms to the second eNB further comprises sending scheduling information for the first set of cells associated with the first eNB.

11. The method of claim 1, wherein reporting of the first set of power headrooms does not prohibit reporting of the second set of power headrooms.

12. A method of prioritizing uplink transmissions by a wireless transmit/receive unit (WTRU), the method comprising:

determining a transmit power value for at least one channel of at least one cell associated with a first eNodeB (eNB) configured for the WTRU, and

determining a transmit power value for at least one channel of at least one cell associated with a second eNodeB (eNB) configured for the wireless transmit/receive unit (WTRU); and

on a condition that a sum of transmit powers of the at least one channel of the at least one cell associated with the first eNB and the at least one channel of the at least one cell associated with the second eNB is greater than a maximum allowed power limit, prioritizing one or more uplink transmissions, wherein the prioritizing the one or more uplink transmissions comprises prioritizing a channel associated with a primary serving cell of the WTRU over a channel associated with a cell that is not the primary serving cell of the WTRU.

13. The method of claim 12, wherein each of the channel associated with the primary serving cell and the channel associated with the cell that is not the primary serving cell is of a channel type.

14. The method of claim 12, wherein the primary serving cell is associated with the first eNB and the cell that is not the primary serving cell is associated with the second eNB.

15. The method of claim 13, wherein the channel type is a Physical Uplink Control Channel (PUCCH).

16. The method of claim 13, wherein the channel type is a Physical Uplink Shared Channel (PUSCH) carrying uplink control information.

17. The method of claim 12, wherein the channel associated with the primary serving cell is a Physical Uplink Shared Channel (PUSCH) carrying uplink control information and the channel associated with the cell that is not the primary serving cell is a Physical Uplink Control Channel (PUCCH) and wherein the channel associated with the primary serving cell is prioritized over the channel associated with the cell that is not the primary serving cell.

18. The method of claim 12, wherein the prioritizing further comprises the WTRU scaling the at least one channel of the at least one cell that is not the primary serving cell of the WTRU.

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

a processor configured to:

report power headroom for a first set of cells associated with a first eNodeB (eNB) and a second set of cells associated with a second eNB configured for the WTRU, wherein the processor is further configured to:

determine a first set of power headrooms for the first set of cells associated with the first eNB and

determine a second set of power headrooms for the second set of cells associated with the second eNB; and

send one or more of the first set of power headrooms to the second eNB, or the second set of power headrooms to the first eNB.

20. The WTRU of claim 19, wherein the processor is further configured to send the first set of power headrooms and the second set of power headrooms to at least one of the first eNB or the second eNB.

21. The WTRU of claim 19, wherein the first set of power headrooms and the second set of power headrooms are sent simultaneously to at least one of the first eNB, or the second eNB.

22. The WTRU of claim 19, wherein a power headroom report is sent to at least one of the first eNB, or the second eNB and wherein the power headroom report comprises the first set of power headrooms and the second set of power headrooms.

23. The WTRU of claim 19, wherein a power headroom report is simultaneously sent to the first eNB and the second eNB and wherein the power headroom report comprises the first set of power headrooms and the second set of power headrooms.

24. The WTRU of claim 19, wherein the processor is further configured to determine each of the first set of power headrooms or the second set of power headrooms is based on a respective triggering procedure.

25. The WTRU of claim 24, wherein each of the respective triggering procedures corresponds to a change related to a cell of the set of cells associated with the respective eNB.

26. The WTRU of claim 24, wherein sending the second set of power headrooms to the first eNB is based on the triggering procedure of the second set of power headrooms.

27. The WTRU of claim 19, wherein sending the second set of power headrooms to the first eNB further comprises sending scheduling information for the second set of cells associated with the second eNB.

28. The WTRU of claim 19, wherein sending the first set of power headrooms to the second eNB further comprises sending scheduling information for the first set of cells associated with the first eNB.

29. The WTRU of claim 19, wherein reporting of the first set of power headrooms does not prohibit reporting of the second set of power headrooms.

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

a processor configured to:

determine a transmit power value for at least one channel of at least one cell associated with a first eNodeB (eNB) configured for the WTRU, and

determine a transmit power value for at least one channel of at least one cell associated with a second eNodeB (eNB) configured for the wireless transmit/receive unit (WTRU); and

on a condition that a sum of transmit powers of the at least one channel of the at least one cell associated with the first eNB and the at least one channel of the at least one cell associated with the second eNB is greater than a maximum allowed power limit, prioritizing one or more uplink transmissions, wherein the prioritizing the one or more uplink transmissions comprises prioritizing a channel associated with a primary serving cell of the WTRU over a channel associated with a cell that is not the primary serving cell of the WTRU.

31. The WTRU of claim 30, wherein each of the channel associated with the primary serving cell and the channel associated with the cell that is not the primary serving cell is of a channel type.

32. The WTRU of claim 30, wherein the primary serving cell is associated with the first eNB and the cell that is not the primary serving cell is associated with the second eNB.

33. The WTRU of claim 30, wherein the channel type is a Physical Uplink Control Channel (PUCCH).

34. The WTRU of claim 30, wherein the channel type is a Physical Uplink Shared Channel (PUSCH) carrying uplink control information.

35. The WTRU of claim 30, wherein the channel associated with the primary serving cell is a Physical Uplink Shared Channel (PUSCH) carrying uplink control information and the

channel associated with the cell that is not the primary serving cell is a Physical Uplink Control Channel (PUCCH) and wherein the channel associated with the primary serving cell is prioritized over the channel associated with the cell that is not the primary serving cell.

36. The WTRU of claim 30, wherein the prioritizing further comprises the WTRU scaling the at least one channel of the at least one cell that is not the primary serving cell of the WTRU.