

CLAIMS

1. A method of wireless communication operable at a scheduling entity, comprising: identifying a slot to carry feedback corresponding to a long downlink burst, including determining whether the feedback can be carried in a short uplink control burst provided in the same slot as the long downlink burst based on a power budget of a scheduled entity, interference experienced by the scheduled entity, or ability of the scheduled entity to decode a scheduled packet in the long downlink burst; transmitting scheduling information operative to schedule transmission of uplink control information by the scheduled entity in the slot identified to carry the feedback corresponding to the long downlink burst transmission, wherein the uplink control information includes the feedback corresponding to the long downlink burst transmission; transmitting the long downlink burst in one of two or more slots that provide for a short uplink control burst; and transmitting a short downlink control burst in at least one slot that provides for a long uplink burst.
2. The method of claim 1, and further comprising: receiving information identifying power available at the scheduled entity for transmission of uplink control information in the short uplink control burst; and generating the scheduling information based on the information identifying power available at the scheduled entity.
3. The method of claim 2, wherein the scheduling information is configured to cause the scheduled entity to: select the long uplink burst for transmission of the uplink control information when there is insufficient power available for reliable transmission of the uplink control information in the short uplink control burst; and select the short uplink control burst for transmission of the uplink control information when there is sufficient power available for reliable transmission of the uplink control information in the short uplink control burst.
4. The method of claim 2, and further comprising: transmitting control information operative to cause the scheduled entity to use a first power setting when transmitting the uplink control information in the short uplink control burst, and use a second power setting when transmitting the uplink control information in the long uplink burst.

5. The method of claim 2, wherein generating the scheduling information comprises: obtaining a measurement of interference in one or more uplink transmissions; and configuring the scheduling information to cause the scheduled entity to select between the short uplink control burst and the long uplink burst for transmission of the uplink control information based on the measurement of interference in the one or more uplink transmissions.
6. The method of claim 5, wherein obtaining the measurement of interference in the one or more uplink transmissions comprises: measuring interference affecting resources scheduled for the short uplink control burst and for the long uplink burst; and scheduling uplink control information based on a difference between measurements of interference affecting the short uplink control burst and the long uplink burst.
7. The method of claim 5, and further comprising: scheduling uplink control information in the long uplink burst based on interference affecting the short uplink control burst.
8. The method of claim 1, and further comprising: generating the scheduling information such that the scheduled entity is configured to transmit the uplink control information in a lesser loaded one of the short uplink control burst and the long uplink burst.
9. The method of claim 1, and further comprising: transmitting control information operative to configure a feedback delay at the scheduled entity, the feedback delay being based on processing capability of the scheduled entity, wherein the feedback delay is used by the scheduled entity to determine a slot offset to the short uplink control burst or the long uplink burst to be used for transmission of the uplink control information.
10. The method of claim 1, wherein transmitting the long downlink burst comprises: aggregating a plurality of long downlink bursts with one short uplink control burst to obtain aggregated slots; and generating the scheduling information based on timing of the short uplink control burst within the aggregated slots, wherein feedback associated with each of the plurality of long downlink bursts is transmitted in the one short uplink control burst.

11. The method of claim 10, wherein generating the scheduling information comprises:
providing the scheduling information for each downlink burst in downlink control information transmitted in a first-transmitted downlink burst in the aggregated slots, wherein the scheduled entity calculates relative timing of the short uplink control burst with respect to each downlink burst in the aggregated slots.
12. The method of claim 1, and further comprising: generating the scheduling information such that uplink control information corresponding to a plurality of long downlink bursts is scheduled for transmission in a common short uplink control burst or long uplink burst.
13. A scheduling entity configured for wireless communication, comprising: a communication interface configured to communicate wirelessly with one or more scheduled entities; a memory comprising executable code; and a processor coupled to the communication interface and the memory, wherein the processor is configured by the executable code to: identify a slot to carry feedback corresponding to a long downlink burst, including determining whether the feedback can be carried in a short uplink control burst provided in the same slot as the long downlink burst based on a power budget of a scheduled entity, interference experienced by the scheduled entity, or ability of the scheduled entity to decode a scheduled packet in the long downlink burst; transmit scheduling information operative to schedule transmission of uplink control information by the scheduled entity in the slot identified to carry the feedback corresponding to the long downlink burst transmission, wherein the uplink control information includes the feedback corresponding to the long downlink burst transmission; transmit the long downlink burst in one of two or more slots that provide for a short uplink control burst; and transmit a short downlink control burst in at least one slot that provides for a long uplink burst.
14. The scheduling entity of claim 13, wherein the processor is further configured by the executable code to: receive information identifying power available at the scheduled entity for transmission of uplink control information in the short uplink control burst; and generate the scheduling information based on the information identifying power available at the scheduled entity.

15. The scheduling entity of claim 14, wherein the scheduling information is configured to cause the scheduled entity to: select the long uplink burst for transmission of the uplink control information when there is insufficient power available for reliable transmission of the uplink control information in the short uplink control burst; and select the short uplink control burst for transmission of the uplink control information when there is sufficient power available for reliable transmission of the uplink control information in the short uplink control burst.

16. The scheduling entity of claim 14, wherein the processor is further configured by the executable code to: transmit control information operative to cause the scheduled entity to use a first power setting when transmitting the uplink control information in the short uplink control burst, and use a second power setting when transmitting the uplink control information in the long uplink burst.

17. The scheduling entity of claim 13, wherein the processor is further configured by the executable code to: obtain a measurement of interference in one or more uplink transmissions; and configure the scheduling information to cause the scheduled entity to select between the short uplink control burst and the long uplink burst for transmission of the uplink control information based on the measurement of interference in the one or more uplink transmissions.

18. The scheduling entity of claim 13, wherein the processor is further configured by the executable code to: measure interference affecting resources scheduled for the short uplink control burst and for the long uplink burst; and schedule uplink control information based on a difference between measurements of interference affecting the short uplink control burst and the long uplink burst.

19. The scheduling entity of claim 13, wherein the processor is further configured by the executable code to: transmit control information operative to cause the scheduled entity to configure a feedback delay at the scheduled entity, the feedback delay being based on processing capability of the scheduled entity, wherein the feedback delay is used by the scheduled entity to determine a slot offset to the short uplink control burst or the long uplink burst to be used for

transmission of the uplink control information.

20. The scheduling entity of claim 13, wherein the processor is further configured by the executable code to: aggregate a plurality of long downlink bursts with one short uplink control burst to obtain aggregated slots; generate the scheduling information for each of the long downlink bursts based on timing of the short uplink control burst within the aggregated slots; and provide the scheduling information for each downlink burst in downlink control information transmitted in the each downlink burst, wherein feedback associated with each of the plurality of long downlink bursts is transmitted in the one short uplink control burst.

21. A non-transitory computer-readable storage medium comprising executable code for causing a scheduling entity to: identify a slot to carry feedback corresponding to a long downlink burst, including determining whether the feedback can be carried in a short uplink control burst provided in the same slot as the long downlink burst based on a power budget of a scheduled entity, interference experienced by the scheduled entity, or ability of the scheduled entity to decode a scheduled packet in the long downlink burst; transmit scheduling information operative to schedule transmission of uplink control information by the scheduled entity in the slot identified to carry the feedback corresponding to the long downlink burst transmission, wherein the uplink control information includes the feedback corresponding to the long downlink burst transmission; transmit a long downlink burst in each of two or more slots that provide for a short uplink control burst; and transmit a short downlink control burst in at least one slot that provide for a long uplink burst, wherein the scheduling information is configured to cause the scheduled entity to select between a short uplink control burst and a long uplink burst for transmission of the uplink control information.

22. The computer-readable storage medium of claim 21, and further comprising code for causing a scheduling entity to: receive information identifying power available at the scheduled entity for transmission of uplink control information in the short uplink control burst; and generate the scheduling information based on the information identifying power available at the scheduled entity, wherein: the scheduling information is configured to cause the scheduled entity to select the long uplink burst for transmission of the uplink control information when there is insufficient

power available for reliable transmission of the uplink control information in the short uplink control burst, and the scheduling information is configured to cause the scheduled entity to select the short uplink control burst for transmission of the uplink control information when there is sufficient power available for reliable transmission of the uplink control information in the short uplink control burst.

23. The computer-readable storage medium of claim 21, and further comprising code for causing a scheduling entity to: generate the scheduling information based on interference or loading in the short uplink control burst or the long uplink burst.

24. The computer-readable storage medium of claim 21, wherein the code for causing a scheduling entity to transmit the long downlink burst comprises code for causing a scheduling entity to: aggregate a plurality of long downlink bursts with one short uplink control burst to obtain aggregated slots; and generate the scheduling information based on timing of the short uplink control burst within the aggregated slots, wherein feedback associated with each of the plurality of long downlink bursts is transmitted in the one short uplink control burst.

25. The computer-readable storage medium of claim 21, and further comprising code for causing a scheduling entity to: generate the scheduling information such that uplink control information corresponding to a plurality of long downlink bursts is scheduled for transmission in a common short uplink control burst or long uplink burst.

26. An apparatus adapted to communicate as a scheduling entity in a wireless network, comprising: means for identifying a slot to carry feedback corresponding to a long downlink burst, wherein the means for identifying the slot to carry feedback is configured to determine whether the feedback can be carried in a short uplink control burst provided in the same slot as the long downlink burst based on a power budget of a scheduled entity, interference experienced by the scheduled entity, or ability of the scheduled entity to decode a scheduled packet in the long downlink burst; means for generating scheduling information to be transmitted to a scheduled entity, the scheduling information including information that schedules transmission of uplink control information by the scheduled entity in the slot identified to carry the feedback

corresponding to the long downlink burst transmission, wherein the uplink control information includes the feedback corresponding to the long downlink burst transmission; and means for transmitting information in a plurality of slots, the plurality of slots including two or more slots configured for a long downlink burst and a short uplink control burst, and at least one slot configured for a short downlink control burst and a long uplink burst, wherein the scheduling information is operative to schedule transmission of uplink control information by the scheduled entity in the slot identified to carry the feedback corresponding to the long downlink burst transmission, wherein the uplink control information includes the feedback corresponding to the long downlink burst transmission.

27. The apparatus of claim 26, and further comprising: means for receiving information identifying power available at the scheduled entity for transmission of uplink control information in the short uplink control burst, wherein the means for generating scheduling information is configured to generate the scheduling information based on the information identifying power available at the scheduled entity by: selecting the long uplink burst for transmission of the uplink control information when there is insufficient power available for reliable transmission of the uplink control information in the short uplink control burst; and selecting the short uplink control burst for transmission of the uplink control information when there is sufficient power available for reliable transmission of the uplink control information in the short uplink control burst.

28. The apparatus of claim 26, wherein the means for generating scheduling information is configured to: obtain a measurement of interference in one or more uplink transmissions; and configure the scheduling information to cause the scheduled entity to select between the short uplink control burst and the long uplink burst for transmission of the uplink control information based on the measurement of interference in the one or more uplink transmissions.

29. The apparatus of claim 26, wherein the means for generating scheduling information is configured to: generate the scheduling information such that the scheduled entity is configured to transmit the uplink control information in a lesser loaded one of the short uplink control burst and the long uplink burst.

30. The apparatus of claim 26, wherein the means for generating scheduling information is configured to: generate the scheduling information such that uplink control information corresponding to a plurality of long downlink bursts is scheduled for transmission in a common short uplink control burst or long uplink burst.