

CLAIMS

1. A method for wireless communications, comprising: estimating channel quality information for a plurality of downlink carriers; identifying a number of activated carriers in the plurality of downlink carriers; and configuring an uplink control channel based at least in part on a number of activated carriers in the plurality, of downlink carriers, wherein the uplink control channel is configured using an encoding scheme selected based at least in part on the number of activated carriers while maintaining a constant feedback cycle independent of the number of activated carriers.
2. The method of claim 1, wherein the configuring of the uplink control channel comprises: repeating a codeword within a portion of a transmit timing interval when the number of activated carriers are identified in the plurality of downlink carriers, wherein the number of activated carriers comprise one activated carrier or two activated carriers.
3. The method of claim 2, wherein the configuring of the uplink control channel further comprises: adjusting power in a mobile device transmitting the uplink control channel responsive to the repeating.
4. The method of claim 1, wherein the configuring of the uplink control channel comprises: encoding, when the number of activated carriers are identified in the plurality of downlink carriers, channel quality information for a first carrier in a first codeword and channel quality information for a second carrier in a second codeword; and grouping the first codeword and the second codeword for transmission within a transmit timing interval when the number of activated carriers comprises three or more activated carriers.
5. The method of claim 4, wherein the configuring of the uplink control channel further comprises: repeating the first codeword and the second codeword in the transmit timing interval.
6. The method of claim 1, wherein the configuring of the uplink control channel comprises: encoding, acknowledgement information for a first carrier and a second carrier using a first codeword and acknowledgement information for a third carrier and a fourth carrier using a second codeword; and grouping the first codeword and the second codeword for transmission within a slot of a transmit timing interval.
7. The method of claim 6, wherein the configuring the uplink control channel further comprises: encoding, when the number of activated carriers are identified in the plurality of downlink carriers, acknowledgement information for one or more carriers using a third codeword; and repeating the third codeword within the slot of the transmit timing interval.
8. The method of claim 1, wherein the configuring of the uplink control channel comprises: encoding, when three activated carriers are identified in the plurality of downlink carriers,

acknowledgement information for a first carrier and a second carrier using a first codeword and acknowledgement information for a third carrier using a second codeword; and grouping the first codeword and the second codeword for transmission within a slot of a transmit timing interval.

9. The method of claim 1, wherein the configuring of the uplink control channel comprises: encoding acknowledgement information for one or more carriers using a first codeword for transmission within a half-slot of a transmit timing interval.

10. The method of claim 1, wherein the configuring of the uplink control channel further comprises: configuring an uplink control channel when one or more of the plurality of downlink carriers are configured with multiple-input and multiple-output.

11. The method of claim 1, wherein the configuring of the uplink control channel further comprises: using a first spreading factor for a portion of transmit timing interval when a first number of activated carriers are identified in the plurality of downlink carriers; and using a second spreading factor for the portion of transmit timing interval when a second number of activated carriers are identified in the plurality downlink carriers, the second number different from the first number.

12. The method of claim 1, wherein the configuring of the uplink control channel further comprises: encoding, when there is a discontinuous transmission for the number of activated carriers in the plurality of downlink carriers, acknowledgement information for the number of carriers using a codeword indicating a discontinuous transmission.

13. The method of claim 1, wherein the configuring of the uplink control channel further comprises: mapping a first carrier to a first portion of a transmit timing interval when a first number of activated carriers are identified in the plurality of downlink carriers; and mapping the first carrier to a second portion of a transmit timing interval when a second number of activated carriers are identified in the plurality of downlink carriers, the second number different from the first number.

14. The method of claim 1, wherein the configuring of the uplink control channel further comprises: identifying at least four carriers, the four carriers associated with a logical sequential order; identifying deactivation of one of the at least four carriers; and preserving a logical sequential order of remaining active carriers on the uplink control channel.

15. The method of claim 1, wherein the configuring of the uplink control channel further comprises: identifying activation of a first number of carriers; identifying activation of an additional carrier; and changing configuration of the uplink control channel responsive to the activation of the additional carrier.

16. A mobile terminal for wireless communications, comprising: a channel quality information measurement module configured to estimate channel quality information for a plurality of

downlink carriers; a carrier detection module configured to identify a number of activated carriers in the plurality of downlink carriers; and a feedback encoder module, communicatively coupled with the channel quality information measurement module and the carrier detection module, and configured to modify an uplink control channel based at least in part on a number of activated carriers in the plurality of downlink carriers, wherein the uplink control channel is configured using an encoding scheme selected based at least in part on the number of activated carriers while maintaining a constant feedback cycle independent of the number of activated carriers.

17. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: repeat a codeword for a portion of a transmit timing interval when the first number of activated carriers are identified in the plurality of downlink carriers, wherein the number of activated carriers comprise one activated carrier or two activated carriers.

18. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: repeat a codeword in a transmit timing interval; and adjust transmission power in the mobile terminal responsive to the repetition.

19. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: group, when a first number of activated carriers are identified in the plurality of downlink carriers, channel quality information for a first carrier in a first codeword; and repeat the first codeword in a portion of a transmit timing interval.

20. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is configured to: encode, when the number of activated carriers are identified in the plurality of downlink carriers, channel quality information for a first carrier in a first codeword and channel quality information for a second carrier in a second codeword; and group the first codeword and the second codeword for transmission within the portion of the transmit timing interval when the number of activated carriers comprises three or more activated carriers.

21. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: encode, when the number of activated carriers are identified in the plurality of downlink carriers, acknowledgement information for a first carrier and a second carrier using a first codeword and acknowledgement information for a third carrier and a fourth carrier using a second codeword; and group the first codeword and the second codeword for transmission within a slot of a transmit timing interval.

22. The mobile terminal of claim 21, wherein to modify the uplink control channel, the feedback encoder module is further configured to: encode, when there is a second number of activated carriers in the plurality of downlink carriers, acknowledgement information for two carriers using a third codeword; and repeat the third codeword within the slot of the transmit timing interval.

23. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: encode, when the number of activated carriers identified in the plurality of downlink carriers, acknowledgement information for a first carrier and a second carrier using a first codeword and acknowledgement information for a third carrier using a second codeword; and group the first codeword and the second codeword for transmission within a slot of a transmit timing interval.
24. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is configured to: encode acknowledgement information for one or more carriers using a first codeword for transmission within a half-slot of a transmit timing interval.
25. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: encode, when a first number of activated carriers are identified in the plurality, acknowledgement information for the number of the activated carriers using a codeword indicating a discontinuous transmission.
26. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: modify the uplink control channel when one or more of the plurality of downlink carriers are configured with multiple-input and multiple-output.
27. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: use a first spreading factor for a portion of a transmit timing interval when a first number of activated carriers are identified in the plurality downlink carriers; and use a second spreading factor for the portion of the transmit timing interval when a second number of activated carriers are identified in the plurality of downlink carriers, the second number different from the first number.
28. The mobile terminal of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to: map a first carrier to a first portion of a transmit timing interval when a first number of activated carriers are identified in the plurality of downlink carriers; and map the first carrier to a second portion of a transmit timing interval when a second number of activated carriers are identified in the plurality of downlink carriers, the second portion different from the first portion.
29. The mobile terminal of claim 16, wherein, at least four carriers are activated, the four carriers associated with a logical sequential order; and when one of the at least four carriers are de-activated, the logical sequential order of the remaining active carriers is preserved in the uplink control channel.
30. The mobile terminal of claim 16, wherein, the channel quality information measurement module is further configured to: identify that a first number of carriers are activated; and identify activation of an additional carrier; and the feedback encoder module is further configured to

modify configuration of the uplink control channel responsive to the activation of the additional carrier.

31. A device for wireless communications, comprising: means for estimating channel quality information for a plurality of downlink carriers; and means for configuring an uplink control channel based at least in part on the number of activated carriers in the plurality of downlink carriers, wherein the uplink control channel is configured using an encoding scheme selected based at least in part on the number of activated carriers while maintaining a constant feedback cycle independent of the number of activated carriers.

32. The device of claim 31, wherein the means for configuring the uplink control channel further comprises: means for repeating a codeword within a portion of a transmit timing interval when the number of activated carriers are identified in the plurality of downlink carriers, wherein the number of activated carriers comprise one activated carrier or two activated carriers.

33. The device of claim 32, wherein the means for configuring the uplink control channel comprises: means for adjusting power in a mobile device transmitting the uplink control channel responsive to the repeating.

34. The device of claim 31, wherein the means for configuring the uplink control channel further comprises: means to configure an uplink control channel when one or more of the plurality of downlink carriers are configured with multiple-input and multiple-output.

35. A non-transitory computer-readable medium storing computer-executable code for wireless communications, comprising: code for causing a computer to estimate channel quality information for a plurality of downlink carriers; code for causing the computer to identify a number of activated carriers in the plurality of downlink carriers; and code for causing the computer to configure an uplink control channel based at least in part on a number of activated carriers in the plurality of downlink carriers, wherein the uplink control channel is configured using an encoding scheme selected based at least in part on the number of activated carriers while maintaining a constant feedback cycle independent of the number of activated carriers.

36. The computer-readable medium of claim 35, wherein the code for causing a computer to configure the uplink control channel further comprises: code for causing a computer to repeat a codeword within a portion of a transmit timing interval when the number of activated carriers are identified in the plurality of downlink carriers, wherein the number of activated carriers comprise one activated carrier or two activated carriers.

37. The computer-readable medium of claim 36, wherein the code for causing a computer to configure the uplink control channel further comprises: code for causing a computer to adjust power in a mobile device transmitting the uplink control channel responsive to the repeating.

38. The computer-readable medium of claim 35, wherein the code for causing a computer to configure the uplink control channel further comprises: code for causing a computer to configure an uplink control channel when one or more of the plurality of downlink carriers are configured with multiple-input and multiple-output.

39. The method of claim 1, wherein the configuring of the uplink control channel comprises configuring a channel quality indicator format corresponding to the number of activated carriers.

40. The apparatus of claim 16, wherein to modify the uplink control channel, the feedback encoder module is further configured to configure a channel quality indicator format corresponding to the number of activated carriers.

41. The apparatus of claim 17, wherein to modify the uplink control channel, the feedback encoder module is further configured to use varied codewords for the portion of the transmit timing interval when a second number of activated carriers are identified in the plurality, the second number different from the first number.