CLAIMS

1. A method for wireless communication at a user equipment (UE), comprising:

identifying that uplink control information is scheduled for transmission by the UE via an uplink control transmission that overlaps with multiple repetitions of an uplink data transmission, the multiple repetitions being scheduled for transmission by the UE;

determining, for each of the multiple repetitions, a quantity of resources available for carrying uplink control information;

generating encoded uplink control information by encoding the uplink control information based at least in part on the quantity of resources available in each of the multiple repetitions;

multiplexing the encoded uplink control information on at least one of the multiple repetitions based at least in part on the quantity of resources available in each of the multiple repetitions.

2. The method of claim 1, further comprising:

allocating portions of the encoded uplink control information to different ones of the multiple repetitions for multiplexing.

3. The method of claim 2, wherein allocating portions of the encoded uplink control information to different ones of the multiple repetitions comprises:

allocating the encoded uplink control information proportionally to the quantity of resources in each of the multiple repetitions available for carrying uplink control information.

4. The method of claim 1, wherein generating the encoded uplink control information comprises:

determining a total quantity of resources to be used by the encoded uplink control information, wherein the total quantity of resources is based at least in part on a payload size of the uplink control information before encoding, a payload size of uplink data transmission before encoding, a total number of resources available within the multiple repetitions for data

transmission, a ratio of coding rates of the uplink data transmission and the uplink control transmission, and combinations thereof.

5. The method of claim 4, wherein generating the encoded uplink control information further comprises:

encoding the uplink control information to a number of encoded bits based at least in part on the total quantity of resources.

6. The method of claim 5, further comprising:

splitting the total quantity of resources to be used by the encoded uplink control information into amounts to be included in each of the multiple repetitions, wherein the amounts are proportional to the quantity of resources in each of the multiple repetitions available for carrying uplink control information.

7. The method of claim 5, further comprising:

partitioning the encoded bits proportionally to the quantity of resources in each of the multiple repetitions available for carrying uplink control information.

8. The method of claim 4, wherein the total quantity of resources to be used by the encoded uplink control information is also determined based on a maximum portion of the total number of resources available within the multiple repetitions for data transmission.

9. The method of claim 1, wherein generating the encoded uplink control information comprises:

determining individual quantities of resources to be used by the encoded uplink control information in each of the multiple repetitions; and

determining a total quantity of resources to be used by the encoded uplink control information based at least in part on a sum of individual quantities of resources determined for each of the multiple repetitions.

10. The method of claim 9, wherein generating the encoded uplink control

information further comprises:

encoding the uplink control information to a number of encoded bits based at least in part on the total quantity of resources.

11. The method of claim 10, wherein determining the individual quantities of resources to be used by the encoded uplink control information in each of the multiple repetitions comprises:

determining the individual quantities of resources based at least in part on a payload size of the uplink control information before encoding, a payload size of uplink data transmission before encoding, a number of resources available for data transmission within a respective repetition of the multiple repetitions, a ratio of coding rates of the uplink data transmission and the uplink control transmission, and combinations thereof.

12. The method of claim11, further comprising:

splitting the total quantity of resources to be used by the encoded uplink control information into amounts to be included in each of the multiple repetitions, wherein the amounts are based on the individual quantities of resources.

13. The method of claim11, further comprising:

partitioning the encoded bits for inclusion in the multiple repetitions, wherein the encoded bits are partitioned based on the individual quantities of resources.

14. The method of claim 9, wherein the total quantity of resources to be used by the encoded uplink control information is also determined, for each of the multiple repetitions, based on a maximum portion of the quantity of resources available for carrying uplink control information for respective ones of the multiple repetitions.

15. A method for wireless communication at a user equipment (UE), comprising:

identifying that uplink control information is scheduled for transmission by the UE via an uplink control transmission that overlaps with one or more scheduled repetitions of an

uplink data transmission;

determining to multiplex the uplink control information on one or more selected repetitions of the repetitions of the uplink data transmission;

multiplexing the uplink control information on the one or more selected repetitions; and

transmit the uplink control information.

16. The method of claim 15, wherein the one or more selected repetitions are at least partially different from the one or more scheduled repetitions of the uplink data transmission.

17. The method of claim 15, wherein determining to multiplex the uplink control information on the one or more selected repetitions comprises:

determining to multiplex the uplink control information on all of the one or more scheduled repetitions of the uplink data transmission.

18. The method of claim 15, wherein determining to multiplex the uplink control information on the one or more selected repetitions comprises:

determining to multiplex the uplink control information on a first repetition in time of the one or more scheduled repetitions of the uplink data transmission and on at least one subsequent repetition.

19. The method of claim 15, wherein determining to multiplex the uplink control information on the one or more selected repetitions comprises:

identifying one or more largest capacity repetitions of the one or more scheduled repetitions of the uplink data transmission, wherein the one or more largest capacity repetitions each include a maximum number of resources available for multiplexing of uplink control information of the one or more scheduled repetitions of the uplink data transmission; and

determining to multiplex the uplink control information on at least one of the one or more of the largest capacity repetitions.

20. The method of claim 19, wherein determining to multiplex the uplink control information on at least one of the one or more of the largest capacity repetitions comprises:

determining to multiplex the uplink control information on all of the one or more of the largest capacity repetitions.

21. The method of claim 19, wherein determining to multiplex the uplink control information on at least one of the one or more of the largest capacity repetitions comprises:

determining to multiplex the uplink control information on only a first largest capacity repetition in time of the one or more of the largest capacity repetitions.

22. The method of claim 15, wherein determining to multiplex the uplink control information on the one or more selected repetitions comprises:

identifying one or more largest capacity repetitions of the one or more scheduled repetitions of the uplink data transmission, wherein the one or more largest capacity repetitions each include a number of resources available for multiplexing of uplink control information above a threshold; and

determining to multiplex the uplink control information on only the one or more of the largest capacity repetitions.

23. The method of claim 15, wherein determining to multiplex the uplink control information on the one or more selected repetitions comprises:

identifying one or more highest effective coding rate repetitions of the one or more scheduled repetitions of the uplink data transmission, wherein the one or more highest effective coding rate repetitions each include an effective coding rate above a threshold; and

determining to multiplex the uplink control information on at least one repetition of the one or more selected repetitions that is not included in the one or more highest effective coding rate repetitions.

24. The method of claim 15, wherein determining to multiplex the uplink

control information on the one or more selected repetitions comprises:

determining to multiplex the uplink control information only on one or more repetitions of the one or more scheduled repetitions that begin at a duration of time after receipt by the UE of an uplink grant associated with the uplink control transmission.

25. The method of claim 15, wherein determining to multiplex the uplink control information on the one or more selected repetitions comprises:

determining to multiplex the uplink control information on only one or more repetitions of the one or more scheduled repetitions that are scheduled to be transmitted within a duration of time corresponding to a slot of the uplink control transmission.

26. The method of claim 15, further comprising:

determining, for each of the selected repetitions, a quantity of resources available for carrying uplink control information; and

generating encoded uplink control information by encoding the uplink control information based at least in part on the quantity of resources available in each of the selected repetitions,

wherein the uplink control information that is multiplexed on the one or more selected repetitions is the encoded uplink control information.

27. The method of claim 26, further comprising:

allocating portions of the encoded uplink control information to different ones of the selected repetitions for multiplexing.

28. The method of claim 27, wherein allocating portions of the encoded uplink control information to different ones of the selected repetitions comprises:

allocating the encoded uplink control information proportionally to the quantity of resources in each of the selected repetitions available for carrying uplink control information.

29. An apparatus for wireless communication, comprising:

a processor,

memory in electronic communication with the processor; and

instructions stored in the memory and executable by the processor to cause the apparatus to:

identify that uplink control information is scheduled for transmission via an uplink control transmission that overlaps with multiple repetitions of an uplink data transmission, the multiple repetitions being scheduled for transmission;

determine, for each of the multiple repetitions, a quantity of resources available for carrying uplink control information;

generate encoded uplink control information by encoding the uplink control information based at least in part on the quantity of resources available in each of the multiple repetitions; and

multiplex the encoded uplink control information on at least one of the multiple repetitions based at least in part on the quantity of resources available in each of the multiple repetitions.

30. An apparatus for wireless communication, comprising:

a processor,

memory in electronic communication with the processor; and

instructions stored in the memory and executable by the processor to cause the apparatus to:

identify that uplink control information is scheduled for transmission via an uplink control transmission that overlaps with one or more scheduled repetitions of the set of repetitions an uplink data transmission;

determine to multiplex the uplink control information on one or more selected repetitions of the one or more scheduled repetitions of the uplink data transmission; and

multiplex the uplink control information on the one or more selected repetitions;

transmit the uplink control information.

31. The method of claim 15, the one or more selected repetitions being based

on a number of symbols of the one or more selected repetitions.

32. The method of claim 31, the one or more selected repetitions is one selected repetition.

33. The method of claim 31, the one or more selected repetitions being further based on being first in time.

34. The method of claim 31, the one or more selected repetitions being based on the number of symbols being greater than one symbol.

35. The apparatus of claim 30, the one or more selected repetitions being based on a number of symbols of the one or more selected repetitions.

36. The apparatus of claim 35, the one or more selected repetitions is one selected repetition.

37. The apparatus of claim 35, the one or more selected repetitions being further based on being first in time.

38. The apparatus of claim 35, the one or more selected repetitions being based on the number of symbols being greater than one symbol.