

CLAIMS

1. A method for wireless communication at a base station, comprising:
 - identifying a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;
 - identifying a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission from a user equipment (UE);
 - determining, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and
 - receiving the PUCCH transmission via the PUCCH resource.
2. The method of claim 1, further comprising:
 - transmitting, to the UE, an indication of the PUCCH resource for the PUCCH transmission, the indication comprising a value associated with the corresponding index of the PUCCH resource.
3. The method of claim 1, wherein identifying the PUCCH resource mapping rule comprises:
 - identifying a first resource mapping rule based at least in part on the amount of uplink control information for the PUCCH transmission being less than or equal to a threshold amount.
4. The method of claim 1, wherein identifying the PUCCH resource mapping rule comprises:
 - identifying a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and
 - identifying a first resource mapping rule based at least in part on a number of PUCCH resources included in the first set being above a threshold number of PUCCH resources.

5. The method of claim 4, wherein the threshold number of PUCCH resources comprises a maximum number of PUCCH resources identifiable in a downlink control information (DCI) field associated with PUCCH transmissions.

6. The method of claim 4, wherein:
the first resource mapping rule is different than a second resource mapping rule, the second resource mapping rule for use when the number of PUCCH resources included in the first set is less than or equal to the threshold number of PUCCH resources.

7. The method of claim 1, wherein identifying the PUCCH resource mapping rule comprises:

identifying a second resource mapping rule based at least in part on the amount of uplink control information for the PUCCH transmission being above a threshold amount.

8. The method of claim 1, wherein identifying the PUCCH resource mapping rule comprises:

identifying a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount;

identifying a second resource mapping rule based at least in part on a number of PUCCH resources included in the first set being less than or equal to a threshold number of PUCCH resources.

9. The method of claim 8, wherein the threshold number of PUCCH resources comprises a maximum number of PUCCH resources identifiable in a downlink control information (DCI) field associated with PUCCH transmissions.

10. The method of claim 1, wherein:
the PUCCH resource for the PUCCH transmission further comprises one or more of a cyclic shift, one or more resource blocks, or an orthogonal cover code.

11. The method of claim 1, further comprising:
identifying a transmission time interval (TTI) mapping rule based at least in part on the PUCCH resource mapping rule;

determining a TTI in which the PUCCH resource is to be used for the PUCCH transmission based at least in part on the TTI mapping rule; and
transmitting a signal indicative of the TTI.

12. The method of claim 11, further comprising:
including in the signal indicative of the TTI an explicit indication of the TTI, wherein the explicit indication of the TTI comprises an index representative of an offset relative to a current TTI used for a current PUCCH transmission.

13. The method of claim 11, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:
identifying an implicit TTI mapping rule when the PUCCH resource mapping rule is a first resource mapping rule.

14. The method of claim 13, wherein:
the implicit TTI mapping rule comprises applying an offset relative to a current TTI used for a current PUCCH transmission.

15. The method of claim 11, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:
identifying an explicit TTI mapping rule when the PUCCH resource mapping rule is a second resource mapping rule.

16. The method of claim 11, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:
identifying an implicit uplink TTI mapping rule when the PUCCH resource mapping rule is a second resource mapping rule.

17. The method of claim 11, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:
identifying an explicit TTI mapping rule when the PUCCH resource mapping rule is a first resource mapping rule.

18. The method of claim 1, wherein:
the PUCCH resource comprises resources within more than one transmission time interval (TTI).

19. The method of claim 1, wherein:
the PUCCH resource comprises more than one set of resources within one transmission time interval (TTI).

20. The method of claim 1, wherein identifying the PUCCH resource mapping rule comprises:

identifying a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and

identifying an implicit resource mapping rule based at least in part on a number of PUCCH resources included in the first set being above a threshold number of PUCCH resources.

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

identifying a plurality of indices for a plurality of corresponding physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

identifying a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission;

determining, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and

transmitting the PUCCH transmission via the PUCCH resource.

22. The method of claim 21, further comprising:
receiving an indication of the PUCCH resource for the PUCCH transmission, the indication comprising a value associated with the corresponding index of the PUCCH resource.

23. The method of claim 21, wherein identifying the PUCCH resource mapping rule comprises:

identifying a first resource mapping rule based at least in part on the amount of uplink control information for the PUCCH transmission being below a threshold amount.

24. The method of claim 21, wherein identifying the PUCCH resource mapping rule comprises:

identifying a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and

identifying a first resource mapping rule based at least in part on a number of PUCCH resources included in the first set being above a threshold number of PUCCH resources.

25. The method of claim 24, wherein the threshold number of PUCCH resources comprises a maximum number of PUCCH resources identifiable in a downlink control information (DCI) field associated with PUCCH transmissions.

26. The method of claim 24, wherein:

the first resource mapping rule is different than a second resource mapping rule, the second resource mapping rule for use when the number of PUCCH resources included in the first set is less than or equal to the threshold number of PUCCH resources.

27. The method of claim 21, wherein identifying the PUCCH resource mapping rule comprises:

identifying a second resource mapping rule based at least in part on the amount of uplink control information for the PUCCH transmission being above a threshold amount.

28. The method of claim 21, wherein identifying the PUCCH resource mapping rule comprises:

identifying a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and

identifying a second resource mapping rule based at least in part on a number of PUCCH resources included in the first set being less than or equal to a threshold number of PUCCH resources.

29. The method of claim 28, wherein the threshold number of PUCCH resources comprises a maximum number of PUCCH resources identifiable in a downlink control information (DCI) field associated with PUCCH transmissions.

30. The method of claim 21, wherein:
the PUCCH resource for the PUCCH transmission comprises one or more of a cyclic shift, one or more resource blocks, or an orthogonal cover code.

31. The method of claim 21, further comprising:
identifying a transmission time interval (TTI) mapping rule based at least in part on the PUCCH resource mapping rule;
determining a TTI in which the PUCCH resource is to be used for the PUCCH transmission based at least in part on the TTI mapping rule; and
transmitting the PUCCH transmission within the TTI.

32. The method of claim 31, further comprising:
receiving an explicit indication of the TTI, wherein the explicit indication of the TTI comprises an index representative of an offset relative to a current TTI used for a current PUCCH transmission.

33. The method of claim 31, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:
identifying an implicit TTI mapping rule when the PUCCH resource mapping rule is a first resource mapping rule.

34. The method of claim 33, wherein:
the implicit TTI mapping rule comprises applying an offset relative to a current TTI used for a current PUCCH transmission.

35. The method of claim 31, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:

identifying an explicit TTI mapping rule when the PUCCH resource mapping rule is a second resource mapping rule.

36. The method of claim 31, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:

identifying an explicit TTI mapping rule when the PUCCH resource mapping rule is a first resource mapping rule.

37. The method of claim 31, wherein identifying the TTI mapping rule based at least in part on the PUCCH resource mapping rule comprises:

identifying an implicit TTI mapping rule when the PUCCH resource mapping rule is a second resource mapping rule.

38. The method of claim 21, wherein:

the PUCCH resource comprises resources within more than one TTI.

39. The method of claim 21, wherein:

the PUCCH resource comprises more than one set of resources within one TTI.

40. The method of claim 21, wherein identifying the PUCCH resource mapping rule comprises:

identifying a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and

identifying an implicit resource mapping rule based at least in part on a number of PUCCH resources included in the first set being above a threshold number of PUCCH resources.

41. An apparatus for wireless communication at a base station, comprising:

means for identifying a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

means for identifying a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission from a user equipment (UE);

means for determining, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and

means for receiving the PUCCH transmission via the PUCCH resource.

42. An apparatus for wireless communication at a user equipment (UE), comprising:

means for identifying a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

means for identifying a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission;

means for determining, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and

means for transmitting the PUCCH transmission via the PUCCH resource.

43. An apparatus for wireless communication at a base station, comprising:
a processor;
memory coupled with the processor; and
instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to:

identify a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

identify a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission from a user equipment (UE);

determine, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and receive the PUCCH transmission via the PUCCH resource.

44. The apparatus of claim 43, wherein, to identify the PUCCH resource mapping rule, the instructions are operable, when executed by the processor, to cause the apparatus to:

identify a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and

identify a first resource mapping rule based at least in part on a number of PUCCH resources included in the first set being above a threshold number of PUCCH resources.

45. The apparatus of claim 44, wherein, to identify the PUCCH resource mapping rule, the instructions are further operable, when executed by the processor, to cause the apparatus to:

identify a second resource mapping rule different than the first resource mapping rule based at least in part on the number of PUCCH resources included in the first set being less than or equal to the threshold number of PUCCH resources.

46. An apparatus for wireless communication at a user equipment (UE), comprising:

a processor;

memory coupled with the processor; and

instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to:

identify a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

identify a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission;

determine, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and transmit the PUCCH transmission via the PUCCH resource.

47. The apparatus of claim 46, wherein, to identify the PUCCH resource mapping rule, the instructions are operable, when executed by the processor, to cause the apparatus to:

identify a first set of PUCCH resources from among the plurality of PUCCH resources based at least in part on the amount of uplink control information being less than or equal to a threshold amount; and

identify a first resource mapping rule based at least in part on a number of PUCCH resources included in the first set being above a threshold number of PUCCH resources.

48. The apparatus of claim 47, wherein, to identify the PUCCH resource mapping rule, the instructions are further operable, when executed by the processor, to cause the apparatus to:

identify a second resource mapping rule different than the first resource mapping rule based at least in part on the number of PUCCH resources included in the first set being less than or equal to the threshold number of PUCCH resources.

49. A non-transitory computer readable medium storing code for wireless communication at a base station, the code comprising instructions executable by a processor to:

identify a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

identify a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission from a user equipment (UE);

determine, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and

transmit the PUCCH transmission via the PUCCH resource.

50. A non-transitory computer readable medium storing code for wireless communication at a user equipment (UE), the code comprising instructions executable by a processor to:

identify a plurality of indices for a plurality of physical uplink control channel (PUCCH) resources, each index of the plurality of indices associated with a respective PUCCH resource that has a corresponding starting symbol and duration;

identify a PUCCH resource mapping rule based at least in part on an amount of uplink control information for a PUCCH transmission;

determine, from among the plurality of PUCCH resources, a PUCCH resource for the PUCCH transmission based at least in part on using the PUCCH resource mapping rule to identify a corresponding index of the plurality of indices; and

transmit the PUCCH transmission via the PUCCH resource.