

C L A I M S

1. A method for wireless communication, comprising:

associating, by a first communication node, a least one of a power control parameter, a port parameter, or a first reference signal (RS) resource with a communication parameter set, the communication parameter set comprising at least a second RS resource and at least a quasi co-location (QCL) type parameter; and

transmitting, by the first communication node, an uplink signal according to the communication parameter set and the association.

2. The method of claim 1, further comprising:

receiving, with the first communication node, an association command from a second communication node,

wherein the associating comprises associating the at least one of the power control parameter, the port parameter, or the first RS resource with the communication parameter set in response to receiving the association command.

3. The method of claim 1, wherein the associating comprises associating the first RS resource with the communication parameter set, and wherein the second RS resource comprises a synchronization signal (SS) block, a channel-state information reference signal (CSI-RS) resource, or a sounding reference signal (SRS) resource.

4. The method of claim 1, wherein the uplink signal comprises a sounding reference signal (SRS), a physical uplink control channel (PUCCH), or a physical uplink shared channel (PUSCH).

5. The method of claim 4, wherein the associating comprises associating the first RS resource with the communication parameter set, the method further comprising: in response to the uplink signal comprising the SRS or the PUCCH signal, ignoring the association between the communication parameter set and the first RS resource.

6. The method of claim 4, wherein the associating comprises associating the port parameter with the communication parameter set, wherein in response to the uplink signal comprising the PUSCH,

transmitting the PUSCH at one or more ports corresponding to the port parameter.

7. The method of claim 6, wherein the port parameter comprises a number of PUSCH ports.
8. The method of claim 1, wherein the power control parameter comprises a target power, a path loss RS, a scaling factor for path loss, or a closed loop process.
9. The method of claim, 1, further comprising: receiving a downlink signal according to the communication parameter set.
10. The method of claim 9, wherein the downlink signal comprises a physical downlink control channel (PDCCH), a physical downlink shared channel (PDSCH), or a channel- state information reference signal (CSI-RS).
11. The method of claim 1, wherein the first RS resource comprises a sounding reference signal (SRS) resource and wherein the method comprises at least one of:
 - including a SRS resource identifier (ID) associated with the SRS resource in the communication parameter set;
 - receiving a radio resource control (RRC) command or a medium access control control element (MAC-CE) command that identifies an association between the SRS resource and the communication parameter set;
 - determining the SRS resource according to the second RS resource being the same between the communication parameter set and a spatial relation, or between the communication parameter set and a second communication parameter set of the SRS resource; or
 - determining the SRS resource according to a same communication parameter set between the uplink signal and the SRS resource, and wherein the uplink signal comprises a physical uplink shared channel (PUSCH).
12. The method of claim 11, wherein the SRS resource is configured with a usage of codebook or non-codebook.

13. The method of claim 11, wherein the SRS resource is not configured with a usage or is configured with a usage other than a usage of codebook or non-codebook, if no SRS resource is configured with the usage of codebook or non-codebook.

14. The method of claim 1, further comprising: determining at least one of a spatial relation or the power control parameter of the uplink signal according to the communication parameter set, wherein the uplink signal comprises a physical uplink control channel (PUCCH) or a sounding reference signal (SRS).

15. The method of claim 14, wherein the PUCCH comprises a PUCCH resource or a PUCCH resource group.

16. The method of claim 14, further comprising: determining the spatial relation of the uplink signal according to the second RS resource or the communication parameter set.

17. The method of claim 1, further comprising: determining at least one of a spatial relation, the first RS resource, the port parameter, or the power control parameter of the uplink signal according to the communication parameter set, wherein the uplink signal comprises a physical uplink shared channel (PUSCH), and wherein the first RS resource comprises at least one sounding reference signal (SRS) resource.

18. The method of claim 17, the method further comprising: determining a mapping between one or more PUSCH ports and one or more SRS ports of the at least one SRS resource of the communication parameter set.

19. The method of claim 17, the method further comprising: including the port parameter for transmitting the PUSCH in the communication parameter set, wherein the communication parameter set does not comprise the SRS resource.

20. The method of claim 1, further comprising:

receiving a command comprising a medium access control control element (MAC-CE) command or a downlink control information (DCI) command; and

determining the communication parameter set according to the command.

21. The method of claim 20, wherein in response to the command comprising the MAC-CE command, the MAC-CE command comprises a MAC-CE command configured for physical downlink shared channel (PDSCH) transmission configuration indication (TCI) activation.

22. The method of claim 20, wherein in response to the command comprising the DCI command, the DCI command comprises a DCI format 1_1, a DCI format 0_1 or a group common DCI command.

23. The method of claim 1, further comprising:

determining a plurality of communication parameter sets in response to a first command, wherein the plurality of communication parameter sets comprises the communication parameter set; and

selecting at least the communication parameter set from among the plurality of communication parameter sets for transmitting the uplink signal in response to a second command.

24. The method of claim 23, wherein the first command comprises a radio resource control (RRC) command or a first medium access control control element (MAC-CE) command, and wherein the second command comprises a downlink control information (DCI) command or a second MAC-CE command.

25. The method of claim 23, wherein the plurality of communication parameter sets comprises at least one combination of one or more communication parameter sets, and wherein at least the communication parameter set comprises one of the at least one combination.

26. The method of claim 1, further comprising:

determining a plurality of communication parameter sets in response to a first command, wherein the plurality of communication parameter sets comprises the communication parameter set;

determining a subset of the plurality of communication parameter sets in response to a second

command from among the plurality of communication parameter sets; and

selecting at least the communication parameter set from the subset for transmitting the uplink signal in response to a third command.

27. The method of claim 26, wherein the subset comprises at least one combination of one or more communication parameter sets from the plurality of communication parameter sets, and wherein at least the communication parameter set comprises one of the at least the one combination.

28. The method of claim 26, wherein at least one of: the first command comprises a radio resource control (RRC) command or a first medium access control control element (MAC-CE) command; the second command comprises a second MAC-CE command; or the third command comprises a downlink control information (DCI) command or a third MAC-CE command.

29. The method of claim 26, wherein a communication parameter set of the plurality of communication parameter sets is associated with the power control parameter in response to the first command; and wherein a communication parameter set of the subset, or a combination of communication parameter sets of the subset, is further associated with at least one of a first RS resource or a port parameter in response to the second command.

30. The method of claim 1, the method further comprising: determining a spatial relation for the first RS resource according to the associated communication parameter set.

31. The method of claim 30, further comprising: activating the first RS resource transmission, when the first RS resource is a semi-persistent one.

32. The method of claim 26, wherein a communication parameter set in the subset is associated with a respective one of a plurality of indexes, the method further comprising, at least one of:

receiving a physical downlink control channel (PDCCH), a physical downlink shared channel (PDSCH), or a channel-state information reference signal (CSI-RS) according to a communication parameter set having an index that matches a predetermined index of a plurality of indexes.

33. The method of claim 32, wherein the predetermined index comprises a lowest index of the plurality of entries, a highest index of the plurality of entries, a first index of the plurality of entries or a last index of the plurality of entries..

34. The method of claim 33, wherein at least one of:

a scheduling offset of the PDSCH is less than or equal to a threshold; and

a scheduling offset of the CSI-RS is less than or equal to a threshold.

35. The method of claim 26, wherein a communication parameter set in the subset is associated with one of a plurality of indexes, the method further comprising, at least one of:

transmitting a physical uplink control channel (PUCCH), or a sounding reference signal (SRS) according to a communication parameter set having an index that matches a predetermined index or a combination having an index that matches a predetermined index.

36. The method of claim 35, wherein the predetermined index comprises a lowest index of the plurality of entries, a highest index of the plurality of entries, a first index of the plurality of entries or a last index of the plurality of entries.

37. The method of claim 35, wherein at least one of:

the PUCCH is not configured with a spatial relation parameter or a path loss RS parameter, or the SRS is not configured with the spatial relation parameter or the path loss RS parameter.

38. The method of claim 26, wherein the communication parameter set comprises a first communication parameter set of the subset, and wherein the uplink signal comprises a physical uplink shared channel (PUSCH), the method further comprising:

selecting a second communication parameter set from the subset for receiving a physical downlink shared channel (PDSCH); and

receiving the PDSCH according to the second communication parameter set.

39. The method of claim 38, wherein at least one of:

the first communication parameter set and the second communication parameter set are the same; and

selecting the second communication parameter set comprises selecting the second communication parameter set in response to the third command.

40. The method of claim 26, wherein the subset comprises a plurality of combinations, the combination comprising a first combination, and wherein the uplink signal comprises a physical uplink shared channel (PUSCH), the method further comprising:

selecting a second combination from the subset for receiving a physical downlink shared channel (PDSCH); and

receiving the PDSCH according to the second combination.

41. The method of claim 40, wherein at least one of:

the first combination and the second combination are the same; and

selecting the second combination comprises selecting the second combination in response to the third command.

42. The method of claim 1, further comprising:

determining a plurality of communication parameter sets in response to a first command, wherein the plurality of communication parameter sets comprises the communication parameter set;

determining a first subset of the plurality of communication parameter sets corresponding to a second command;

determining a second subset of the plurality of communication parameter sets corresponding to a third command;

selecting one or more communication parameter sets from the first or second subset for one or more uplink signals or one or more downlink signals.

43. The method of claim 42, wherein the second command comprises a medium access control control element (MAC-CE) command and the third command comprises a downlink control information (DCI) command.

44. The method of claim 1, further comprising:

receiving a downlink control information (DCI) command comprising a plurality of communication parameter set identifiers (IDs), wherein a communication parameter set ID identifying one or more of a plurality of communication parameter sets; and

determining the plurality of communication parameter set IDs based on an index identifying a position for the plurality of communication parameter set IDs in the DCI command or a number of the plurality of communication parameter set IDs.

45. The method of claim 44, wherein the DCI command is cyclic redundancy checked (CRC) scrambled by a specific radio-network temporary identifier.

46. The method of claim 1, further comprising:

reporting to a second communication node by at least one of:

an indicator of supporting a radio resource control (RRC) signal or a medium access control control element (MAC-CE) cross carrier component indicator;

an indicator of supporting the communication parameter set for both downlink transmissions and uplink transmissions;

an indicator of supporting a transmission configuration indication (TCI) for a physical uplink shared channel (PUSCH); or

an indicator of supporting a downlink control information (DCI) command comprising a plurality of communication parameter set identifiers (IDs).

47. The method of claim 1, wherein the uplink signal comprises at least one of a sounding reference signal (SRS), a physical uplink shared channel (PUSCH), or a physical uplink control channel (PUCCH), the method further comprising:

enabling the transmitting of the uplink signal according to the communication parameter set

and the association by at least one of:

- not configuring the uplink signal with a spatial relation parameter; or
- not configuring the uplink signal with an uplink power control parameter.

48. The method of claim 47, wherein the uplink power control parameter comprises at least a path loss RS.

49. The method of claim 47, wherein the uplink signal comprises the PUSCH, and wherein the second SRS associated with the PUSCH is not configured with the path loss RS parameter.

50. The method of claim 47, wherein the uplink signal comprises the PUSCH, and wherein the SRS for non-codebook transmission or codebook transmission is not configured with a power control parameter.

51. The method of claim 1, further comprising:

receiving a radio resource control (RRC) signal enabling transmitting the uplink signal according to the communication parameter set and the association.

52. A method for wireless communication, the method comprising:

transmitting, by a second communication node to a first communication node, a command to associate at least one of a power control parameter, a port parameter, or a first reference signal (RS) resource with a communication parameter set, the communication parameter set comprising at least a second RS resource and at least a quasi-co-location (QCL) type parameter; and

receiving, from the first communication node, an uplink signal according to the communication parameter set and the association.

53. A wireless communications apparatus comprising a processor and a memory, wherein the processor is configured to read code from the memory and implement a method recited in any of claims 1 to 52.

54. A computer program product comprising a computer-readable program medium code stored

thereupon, the code, when executed by a processor, causing the processor to implement a method recited in any of claims 1 to 52.