CLAIMS

1. An apparatus for wireless communication, comprising:

a memory; and

at least one processor coupled with the memory, wherein the at least one processor is configured to:

receive radio resource control (RRC) signaling for configuring one or more beam indication sets, wherein the RRC signaling includes, for a first beam indication set of the one or more beam indication sets, an indication of at least one of multiple bandwidth parts (BWPs) or multiple component carriers (CCs); and

apply the first beam indication set of the one or more beam indication sets to the at least one of the multiple BWPs or the multiple CCs based on the indication.

2. The apparatus of claim 1, wherein each respective beam indication set of the one or more beam indication sets comprises a respective transmission configuration indication (TCI) state set, a respective spatial relation set, a respective set of candidate beam indications for activation, or a respective set of activated beam indications ready for communications.

3. The apparatus of claim 1, wherein each respective beam indication of the one or more beam indication sets indicates a respective reference signal used to determine one or more beams for a quasi-colocated transmission, and wherein each respective beam indication of the one or more beam indication sets is configured with a respective unspecified or floating BWP identifier (ID) or CC ID.

4. The apparatus of claim 3, wherein the respective reference signal is located in at least one of: a respective BWP or respective CC to which the respective beam indication set is applied.

5. The apparatus of claim 1, wherein the multiple BWPs and multiple CCs comprise quasi co-located BWPs and CCs.

6. The apparatus of claim 5, wherein the quasi co-located BWPs and CCs share a same analog beam.

7. The apparatus of claim 1, wherein the at least one processor is further configured to:

receive downlink control information (DCI) scheduling one or more transmissions, wherein the DCI indicates one or more beam indications of the first beam indication set to use for determining one or more beams for the one or more transmissions.

8. The apparatus of claim 7, wherein:

the first beam indication set comprises a transmission configuration indication (TCI) state set and the one or more beam indications comprises one or more TCI states;

the one or more transmissions comprise one or more physical downlink shared channel (PDSCH) transmissions; and

the at least one processor is further configured to use one or more receive beams for receiving one or more PDSCH transmissions based on the indicated one or more TCI states.

9. The apparatus of claim 7, wherein:

the first beam indication set comprises a spatial relation set and the one or more beam indications comprises one or more spatial relations;

the DCI indicates the one or more spatial relations directly via spatial relation identifiers (IDs) or indirectly via resource IDs associated with different spatial relation IDs;

the one or more transmissions comprise one or more physical uplink shared channel (PUSCH) transmissions; and

the at least one processor is further configured to use one or more transmit beams for transmitting the one or more PUSCH transmissions based on the indicated one or more spatial relations.

10. The apparatus of claim 1, wherein the indication of the at least one of multiple BWPs or multiple CCs comprises an indication to apply the first beam indication set to any

BWP or CC when a BWP identifier (ID) or CC ID is not indicated for the first beam indication set.

11. A network node for wireless communication, comprising:

a memory; and

at least one processor coupled with the memory, wherein the at least one processor is configured to:

transmit radio resource control (RRC) signaling, to a user equipment (UE), configuring one or more beam indication sets, wherein the RRC signaling includes, for a first beam indication set of the one or more beam indication sets, an indication of at least one of multiple bandwidth parts (BWPs) or multiple component carriers (CCs); and

apply the first beam indication set of the one or more beam indication sets to the at least one of the multiple BWPs or the multiple CCs.

12. The network node of claim 11, wherein each respective beam indication set of the one or more beam indication sets comprises a respective transmission configuration indication (TCI) state set, a respective spatial relation set, a respective set of candidate beam indications for activation, or a respective set of activated beam indications ready for communications.

13. The network node of claim 11, wherein each respective beam indication of the one or more beam indication sets indicates a respective reference signal used to determine one or more beams for a quasi-colocated transmission, and wherein each respective beam indication of the one or more beam indication sets is configured with a respective unspecified or floating BWP identifier (ID) or CC ID.

14. The network node of claim 13, wherein the respective reference signal is located in at least one of: the respective BWP or respective CC to which the respective beam indication set is applied.

15. The network node of claim 11, wherein the multiple BWPs and the multiple CCs comprise quasi co-located BWPs and CCs.

16. The network node of claim 15, wherein the quasi co-located BWPs and CCs share a same analog beam.

17. The network node of claim 15, wherein the at least one processor is further configured to:

determine the quasi co-located BWPs and CCs based on UE feedback.

18. The network node of claim 11, wherein the at least one processor is further configured to:

send the UE downlink control information (DCI) scheduling one or more transmissions, wherein the DCI indicates one or more beam indications of the first beam indication set to use for determining one or more beams for the one or more transmissions.

19. The network node of claim 18, wherein:

the first beam indication set comprises a transmission configuration indication (TCI) state set and the one or more beam indications comprises one or more TCI states;

the one or more transmissions comprises one or more physical downlink shared channel (PDSCH) transmissions; and

the at least one processor is further configured to use one or more transmit beams for sending the one or more PDSCH transmissions based on the indicated one or more TCI states.

20. The network node of claim 18, wherein:

the first beam indication set comprises a spatial relation set and the one or more beam indications comprises one or more TCI states;

the one or more spatial relations are indicated directly via a spatial relation identifiers (IDs) or indirectly via resource IDs associated with the one or more spatial relations;

the one or more transmissions comprises one or more physical uplink shared channel (PUSCH) transmissions; and

the at least one processor is further configured to use one or more receive beams for receiving the one or more PUSCH transmissions based on the indicated one or more spatial relations.

21. The network node of claim 11, wherein the indication of the at least one of multiple BWPs or multiple CCs comprises an indication to apply the first beam indication set to any BWP or CC when a BWP identifier (ID) or CC ID is not indicated for the first beam indication set.

22. A method for wireless communication performed by an apparatus, comprising:

receiving radio resource control (RRC) signaling configuring one or more beam indication sets, wherein the RRC signaling includes, for a first beam indication set of the one or more beam indication sets, an indication of at least one of multiple bandwidth parts (BWPs) or multiple component carriers (CCs); and

applying the first beam indication set of the one or more beam indication sets to the at least one of the multiple BWPs or the multiple CCs based on the indication.

23. A method for wireless communication performed by a network node, comprising:

transmitting radio resource control (RRC) signaling, to a user equipment (UE), configuring one or more beam indication sets wherein the RRC signaling includes, for a first beam indication set of the one or more beam indication sets, an indication of at least one of multiple bandwidth parts (BWPs) or multiple component carriers (CCs); and

applying the first beam indication set of the one or more beam indication sets to the at least one of the multiple BWPs or the multiple CCs.

24. An apparatus for wireless communication, the apparatus comprising:

a memory; and

at least one processor coupled with the memory, wherein the at least one processor is configured to:

receive a configuration of a beam indication set including a reference signal for which a bandwidth part (BWP) identification (ID) is unspecified; and

apply, based on the BWP ID being unspecified, the beam indication set to an active BWP.

25. The apparatus of claim 24, wherein the BWP ID being unspecified is indicative that the beam indication set is available to be reused.

26. The apparatus of claim 24, wherein the beam indication set comprises a transmission configuration indication (TCI) state set.

27. The apparatus of claim 24, wherein the beam indication set comprises a spatial relation set, a set of candidate beam indications for activation, or a set of activated beam indications ready for communications.

28. The apparatus of claim 24, wherein, to receive the configuration, the at least one processor is configured to receive the configuration via radio resource control (RRC) signaling.

29. The apparatus of claim 24, wherein, to receive the configuration, the at least one processor is configured to receive the configuration via a medium access control control element (MAC-CE).

30. The apparatus of claim 24, wherein the reference signal is located in the active BWP or a particular CC to which the beam indication set is applied.

31. The apparatus of claim 24, wherein the at least one processor is further configured to:

apply, based a CC ID being unspecified, the beam indication set to a CC where the beam indication set is configured.

32. A first apparatus for wireless communication, the first apparatus comprising:

a memory; and

at least one processor coupled with the memory, wherein the at least one processor is configured to:

signal a second apparatus to configure the second apparatus with a beam indication set including a reference signal for which a bandwidth part (BWP) identification (ID) is unspecified; and

apply, based on the BWP ID being unspecified, the beam indication set to an active BWP.

33. The first apparatus of claim 32, wherein the BWP ID being unspecified is indicative that the beam indication set is available to be reused.

34. The first apparatus of claim 32, wherein the beam indication set comprises a transmission configuration indication (TCI) state set.

35. The first apparatus of claim 32, wherein the beam indication set comprises a spatial relation set, a set of candidate beam indications for activation, or a set of activated beam indications ready for communications.

36. The first apparatus of claim 32, wherein, to signal the second apparatus to configure the second apparatus with the beam indication set, the at least one processor is configured to signal the second apparatus via radio resource control (RRC) signaling.

37. The first apparatus of claim 32, wherein, to signal the second apparatus to configure the second apparatus with the beam indication set, the at least one processor is configured to signal the second apparatus via a medium access control control element (MAC-CE).

38. The first apparatus of claim 32, wherein the reference signal is located in the active BWP or a particular CC to which the beam indication set is applied.

39. The first apparatus of claim 32, wherein the at least one processor is further configured to:

apply, based a CC ID being unspecified, the beam indication set to a CC where the beam indication set is configured.

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

receiving a configuration of a beam indication set including a reference signal for which a bandwidth part (BWP) identification (ID) is unspecified; and

applying, based on the BWP ID being unspecified, the beam indication set to an active BWP.

41. The method of claim 40, wherein the BWP ID being unspecified is indicative that the beam indication set is available to be reused.

42. The method of claim 40, wherein the reference signal is located in the active BWP or a particular CC to which the beam indication set is applied.

43. The method of claim 40, further comprising:

applying, based a CC ID being unspecified, the beam indication set to a CC where the beam indication set is configured.

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

signaling, from a first apparatus to a second apparatus, to configure the second apparatus with a beam indication set including a reference signal for which a bandwidth part (BWP) identification (ID) is unspecified; and

applying, based on the BWP ID being unspecified, the beam indication set to an active BWP.

45. The method of claim 44, wherein the BWP ID being unspecified is indicative that the beam indication set is available to be reused.

46. The method of claim 44, wherein the reference signal is located in the active BWP or a particular CC to which the beam indication set is applied.

47. The method of claim 44, further comprising:

applying, based a CC ID being unspecified, the beam indication set to a CC where the beam indication set is configured.