CLAIMS

~~What is claimed is:~~

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

identifying a capability of the UE to support a number of physical downlink shared channel (PDSCH) transmission configuration indicator (TCI) states and a ~~number~~plurality of control resource set (CORESET) TCI states;

receiving a medium access control (MAC) control element (CE) indicating a first PDSCH TCI state that is an active PDSCH TCI state; selecting ~~a~~the first PDSCH TCI state among a plurality of different PDSCH TCI states based at least in part on the MAC CE, the identified capability~~;~~, and

a number of active CORESET TCI states; and monitoring for a downlink transmission on a downlink data receive beam corresponding to the first PDSCH TCI state.

2. The method of claim 1, wherein the number of PDSCH TCI states comprises a number of PDSCH TCI states active for transmission.

3. The method of claim 1, wherein the capability indicates a downlink beam determined by a random access procedure and the ~~number~~plurality of CORESET TCI states determined in connected mode.

4. The method of claim 1, further comprising:

receiving a configuration message that indicates a plurality of active CORESETs, wherein the first PDSCH TCI state is selected based at least in part on a configured TCI state of a first active CORESET of the plurality of active CORESETs, the first active CORESET having a lowest or highest identifier of a plurality of CORESET identifiers that respectively correspond to the plurality of active CORESETs.

5. The method of claim 1, further comprising:

receiving a configuration message that indicates a plurality of active CORESETs, each of the plurality of active CORESETs having a respective configured TCI state of a plurality of TCI states, wherein the first PDSCH TCI state is selected based at least in part on a first configured TCI state of the plurality of TCI states, the first configured TCI state having a lowest or highest TCI state identifier of a plurality of TCI state identifiers that respectively correspond to the plurality of TCI states.

6. The method of claim 1, ~~wherein selecting the first PDSCH TCI state further comprises:~~

~~receiving a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state of the number of PDSCH TCI states is selected based at least in part on a number of active CORESET TCI states.~~

~~7. The method of claim 6,~~ further comprising:

overwriting a second PDSCH TCI state that conflicts with the first PDSCH TCI state.

~~8.~~ 7. The method of claim ~~6~~1, wherein the first PDSCH TCI state is selected based at least in part on downlink control information that schedules the downlink transmission having a particular format.

~~9.~~ 8. The method of claim 1, wherein selecting the first PDSCH TCI state further comprises:

receiving an indicator of a TCI state of a first CORESET of a plurality of CORESETs, wherein the TCI state of the first CORESET is selected as the first PDSCH TCI state.

~~10.~~ 9. The method of claim ~~9~~8, wherein the indicator indicates an identifier of the first CORESET in a component carrier, an active BWP, in a transmission time interval (TTI) in which the UE is configured to monitor a search space, or any combination thereof.

~~11.~~ 10. The method of claim ~~10~~9, wherein the identifier is received in a radio resource control (RRC) message, a control element, or downlink control information.

~~12.~~ 11. The method of claim ~~9~~8, further comprising:

overwriting a second TCI state that conflicts with the first PDSCH TCI state.

~~13.~~ 12. The method of claim ~~9~~8, wherein selecting the first PDSCH TCI state further comprises:

selecting the TCI state of the first CORESET as the first PDSCH TCI state based at least in part on the first CORESET having a lowest or highest identifier value of a plurality of CORESET identifiers.

~~14.~~ 13. The method of claim 1, wherein the number of PDSCH TCI states comprises at least one ~~activated~~active PDSCH TCI state selected from at least one PDSCH TCI state configured by a radio resource control (RRC) message, wherein the at least one ~~activated~~active PDSCH TCI state is applied to PDSCH transmissions.

~~15.~~ 14. The method of claim 1, wherein the ~~number~~plurality of CORESET TCI states comprises at least one ~~activated~~active CORESET TCI state selected from at least one CORESET TCI state configured by a radio resource control (RRC) message, wherein the at least one ~~activated~~active CORESET TCI state is applied to physical downlink control channel (PDCCH) transmissions.

~~16.~~ 15. The method of claim 1, wherein the plurality of different PDSCH TCI states comprises at least one ~~activated~~active PDSCH TCI state selected from at least one PDSCH TCI state configured by a radio resource control (RRC) message, wherein the at least one ~~activated~~active PDSCH TCI state is applied to PDSCH transmissions.

~~17.~~ 16. The method of claim 1, wherein the number of PDSCH TCI states comprises at least one PDSCH TCI state configured by a radio resource control (RRC) message.

~~18.~~ 17. The method of claim 1, wherein the ~~number~~plurality of CORESET TCI states comprises at least one CORESET TCI state configured by a radio resource control (RRC) message.

~~19.~~ 18. The method of claim 1, wherein the plurality of different PDSCH TCI states comprises at least one PDSCH TCI state configured by a radio resource control (RRC) message.

~~20.~~ 19. The method of claim 1, wherein selecting the first PDSCH TCI state further comprises:
receiving downlink control information indicating the first PDSCH TCI state.

~~21.~~ 20. The method of claim ~~20~~19, further comprising:

receiving a CORESET comprising an indicator that indicates that the first PDSCH TCI state is indicated in the downlink control information.

~~22.~~ 21. The method of claim ~~20~~19, wherein the first PDSCH TCI state is selected based at least in part on downlink control information that schedules the downlink transmission having a particular format.

~~23.~~ 22. The method of claim 1, wherein selecting the first PDSCH TCI state further comprises:

receiving a radio resource control (RRC) message indicating the first PDSCH TCI state.

~~24.~~ 23. The method of claim ~~23~~22, further comprising:

receiving a configuration message configuring the UE with the plurality of different TCI states, wherein the RRC message indicates that the first PDSCH TCI state is ~~activated.~~the active PDSCH TCI state.

~~25. The method of claim~~ 24~~,~~. The method of claim 23, wherein the RRC message is the configuration message.

~~26.~~ 25. The method of claim ~~23~~22, further comprising:

receiving a configuration message configuring the UE with the first PDSCH TCI state, wherein the RRC message indicates that the first PDSCH TCI state is ~~activated~~the active PDSCH TCI state.

~~27.~~ 26. The method of claim ~~23~~22, further comprising:

overwriting a second TCI state that conflicts with the first PDSCH TCI state, wherein the RRC message indicates that the first PDSCH TCI state is ~~activated~~the active PDSCH TCI state.

~~28.~~ 27. The method of claim ~~23~~22, wherein the first PDSCH TCI state is selected based at least in part on downlink control information that schedules the downlink transmission having a particular format, and wherein the RRC message indicates that the first PDSCH TCI state is ~~activated~~the active PDSCH TCI state.

~~29.~~ 28. The method of claim 1, wherein the capability of the UE indicates that the UE is capable of supporting a first TCI state for communication of a PDCCH transmission over a CORESET and a PDCCH transmission, and a second TCI state for communication of a PDCCH transmission over the CORESET.

~~30.~~ 29. The method of claim 1, further comprising:

receiving, in a CORESET communicated on a control receive beam, an indication that downlink control information does not include a TCI state indicator; and receiving a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state.

~~receiving a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state.~~

~~31.~~ 30. The method of claim 1, further comprising:

receiving, in a CORESET communicated on a control receive beam, an indication that downlink control information does not include a TCI state indicator; and

receiving an indicator of a TCI state of a first CORESET of a plurality of CORESETs, wherein the TCI state of the first CORESET is selected as the first PDSCH TCI state.

~~32.~~ 31. The method of claim 1, further comprising:

receiving, in a CORESET communicated on a control receive beam, an indication that downlink control information does not include a TCI state indicator; and

receiving a radio resource control (RRC) message indicating the first PDSCH TCI state.

~~33.~~ 32. The method of claim 1, further comprising:

receiving an indication of a TCI state selection rule in a radio resource control (RRC) message, a control element, or downlink control information, wherein the first PDSCH TCI state is selected based at least in part on the TCI state selection rule.

~~34.~~ 33. The method of claim 1, wherein the number of PDSCH TCI states is less than the ~~number~~plurality of CORESET TCI states, the method further comprising:

selecting the first PDSCH TCI state from a subset of the plurality of CORESET TCI states that corresponds to one of the number of PDSCH TCI states.

~~35.~~ 34. The method of claim ~~34~~33, wherein a plurality of scheduling CORESETs respectively correspond to the subset of the plurality of CORESET TCI states.

~~36.~~ 35. The method of claim ~~35~~34, wherein the plurality of scheduling CORESETs respectively have a defined CORESET identifier in a component carrier, in an active BWP, or both.

~~37.~~ 36. The method of claim ~~35~~34, wherein each of the plurality of scheduling CORESETs corresponds to the subset of the plurality of CORESET TCI states.

~~38.~~ 37. The method of claim ~~34~~33, wherein selecting the first PDSCH TCI state further comprises:

selecting the first PDSCH TCI state indicated in downlink control information.

~~39.~~ 38. The method of claim 1, further comprising:

transmitting an indicator of the capability of the UE to support the number of PDSCH TCI states and the ~~number~~plurality of CORESET TCI states.

~~40.~~ 39. The method of claim 1, further comprising:

receiving, via a control receive beam, a CORESET; and

receiving, via the downlink data receive beam, the downlink transmission, wherein at least one beamforming parameter indicated in the first PDSCH TCI state is shared by the downlink data receive beam and the control receive beam.

~~41.~~ 40. A method for wireless communication by a base station, comprising:

receiving a capability indicator of a capability of a user equipment (UE) to support a number of physical downlink shared channel (PDSCH) transmission configuration indicator (TCI) states and a ~~number~~plurality of control resource set (CORESET) TCI states;

selecting a first PDSCH TCI state among a plurality of different PDSCH TCI states based at least in part on the capability~~; and~~

and a number of active CORESET TCI states; transmitting a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state; and transmitting a downlink transmission on a downlink data transmission beam corresponding to the first PDSCH TCI state.

~~42.~~ 41. The method of claim ~~41~~40, wherein the number of PDSCH TCI states comprises a number of PDSCH TCI states active for transmission.

~~43.~~ 42. The method of claim 41, further comprising:

transmitting a configuration message that indicates a plurality of active CORESETs; and

transmitting ~~a~~the medium access control (MAC) control element (CE) indicating the first PDSCH TCI state, wherein the first PDSCH TCI state is a configured TCI state of one of the plurality of active CORESETs.

~~44.~~ 43. The method of claim ~~41, further comprising:~~

~~transmitting a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state.~~

~~45. The method of claim 44~~40, wherein the first PDSCH TCI state is the same as a TCI state indicated in downlink control information.

~~46.~~ 44. The method of claim ~~44~~40, wherein the first PDSCH TCI state is selected based at least in part on downlink control information that schedules the downlink transmission having a particular format.

~~47.~~ 45. The method of claim 41, further comprising:

transmitting, in a CORESET communicated on a control transmission beam, an indication that downlink control information does not include a TCI state indicator; and transmitting the medium access control (MAC) control element (CE) indicating the first PDSCH TCI state.

~~transmitting a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state.~~

~~48.~~ 46. An apparatus for wireless communication by a user equipment (UE), 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 a capability of the UE to support a number of physical downlink shared channel (PDSCH) transmission configuration indicator (TCI) states and a ~~number~~plurality of control resource set (CORESET) TCI states;

receive a medium access control (MAC) control element (CE) indicating a first PDSCH TCI state that is an active PDSCH TCI state; select ~~a~~the first PDSCH TCI state among a plurality of different PDSCH TCI states based at least in part on the MAC CE, the identified capability~~;~~, and a number of active CORESET TCI states; monitor for a downlink transmission on a downlink data receive beam corresponding to the first PDSCH TCI state.

~~49.~~ 47. An apparatus for wireless communication by a base station, 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:

receive a capability indicator of a capability of a user equipment (UE) to support a number of physical downlink shared channel (PDSCH) transmission configuration indicator (TCI) states and a ~~number~~plurality of control resource set (CORESET) TCI states;

select a first PDSCH TCI state among a plurality of different PDSCH TCI states based at least in part on the capability~~; and~~ and a number of active CORESET TCI states; transmit a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state; and transmit a downlink transmission on a downlink data transmission beam corresponding to the first PDSCH TCI state.

~~50.~~ 48. An apparatus for wireless communication by a user equipment (UE), comprising:

means for identifying a capability of the UE to support a number of physical downlink shared channel (PDSCH) transmission configuration indicator (TCI) states and a ~~number~~plurality of control resource set (CORESET) TCI states;

~~means for selecting~~ means for receiving a medium access control (MAC) control element (CE) indicating a first PDSCH TCI state that is an active PDSCH TCI state; means for selecting the first PDSCH TCI state among a plurality of different PDSCH TCI states based at least in part on the MAC CE, the identified capability~~;~~, and a number of active CORESET TCI states; means for monitoring for a downlink transmission on a downlink data receive beam corresponding to the first PDSCH TCI state.

~~51.~~ 49. An apparatus for wireless communication by a base station, comprising:

means for receiving a capability indicator of a capability of a user equipment (UE) to support a number of physical downlink shared channel (PDSCH) transmission configuration indicator (TCI) states and a ~~number~~plurality of control resource set (CORESET) TCI states;

means for selecting a first PDSCH TCI state among a plurality of different PDSCH TCI states based at least in part on the capability~~; and~~

and a number of active CORESET TCI states; means for transmitting a medium access control (MAC) control element (CE) indicating the first PDSCH TCI state; and means for transmitting a downlink transmission on a downlink data transmission beam corresponding to the first PDSCH TCI state.