

WHAT IS CLAIMED IS:

CLAIMS

1.- ____ A method of wireless communication performed by a user equipment (UE), comprising:

receiving a downlink control information (DCI) message that includes a frequency domain resource allocation (FDRA) field to indicate allocated resource blocks (RBs) across multiple transmission configuration indication (TCI) states;

identifying, based at least in part on one or more of the DCI message or a radio resource control (RRC) configuration, at least one parameter that indicates a unit of contiguous RBs over which ~~the~~ same precoding is used,

wherein the at least one parameter includes one or more of a precoding RB group (PRG) size or a physical RB (PRB) bundle size; and

assigning the allocated RBs to individual TCI states among the multiple TCI states based at least in part on the at least one parameter that indicates the unit of contiguous RBs over which the same precoding is used;

wherein the allocated RBs include allocated PRGs that are assigned to the individual TCI states according to a scheme that is determined based at least in part on one or more of a dynamic indicator included in the DCI message or the RRC configuration when the unit of contiguous RBs over which the same precoding is used is determined to be a value other than wideband, and

wherein a first set of PRGs or PRBs are assigned to a first TCI state and a second set of PRGs or PRBs are assigned to a second TCI state.

2.- ____ The method of claim 1, wherein assigning the allocated RBs to the individual TCI states includes:

dividing the allocated RBs into n sets that include an equal ~~or approximately equal~~ number of the allocated RBs based at least in part on determining that the allocated RBs are contiguous and when the unit of contiguous RBs over which the same precoding is used is determined to be wideband, where n is a quantity of the individual TCI states; and

assigning each of the n sets to a respective one of the individual TCI states.

3.-____~~The method of claim 2, wherein the equal or approximately equal number of the allocated RBs to include in the n sets is determined using one or more ceiling operations and one or more floor operations based at least in part on a total quantity of the allocated RBs and the quantity of the individual TCI states.~~

4.-____The method of claim 2, wherein the unit of contiguous RBs with the same precoding is wideband per TCI state for a frequency division multiplexing (FDM) scheme with the multiple TCI states.

5.-____The method of claim 2, wherein the allocated RBs are contiguous within the n sets.

6.-____The method of claim 1, wherein assigning the allocated RBs to the individual TCI states includes:

determining that the allocated RBs are not contiguous but include n contiguous parts and that the unit of contiguous RBs over which the same precoding is used is wideband, where n is a quantity of the individual TCI states; and

assigning each of the n contiguous parts to a respective one of the individual TCI states.

~~7. The method of claim 1, wherein the allocated RBs include allocated PRGs that are assigned to the individual TCI states according to a scheme that is determined based at least in part on one or more of a dynamic indicator included in the DCI message or the RRC configuration based at least in part on determining that the unit of contiguous RBs over which the same precoding is used is a value other than wideband.~~

~~8. The method of claim 7~~____The method of claim 1, wherein the scheme includes:

assigning an index to each individual PRG among the allocated PRGs based at least in part on an indication in the FDRA field, wherein the index assigned to each individual PRG is mapped to a respective one of the individual TCI states according to a function that is based at least in part on a quantity of the individual TCI states.

~~9-8.~~ 8. The method of claim ~~87~~, wherein the function causes ~~a~~the first set of PRGs, that are assigned even indices, to be mapped to ~~a~~the first TCI state and causes ~~a~~the second set of PRGs, that are assigned odd indices, to be mapped to ~~a~~the second TCI state when the quantity of the individual TCI states is two.

~~10-9.~~ 9. The method of claim ~~87~~, wherein the function is a modulo operator that causes a set of PRGs that are assigned a particular index to be mapped to a particular TCI state when dividing the particular index by the quantity of the individual TCI states results in a remainder that equals the particular index.

~~11-10.~~ 10. The method of claim ~~87~~, wherein the index assigned to each PRG is determined with respect to an entire bandwidth part.

~~12-11.~~ 11. The method of claim ~~87~~, wherein the index assigned to each PRG is determined with respect to only the allocated RBs indicated in the FDRA field.

~~13-12.~~ 12. The method of claim ~~71~~, wherein the scheme includes:
dividing the allocated PRGs into n sets that include an ~~equal or approximately~~ equal number of the allocated PRGs, where n is a quantity of the individual TCI states; and
assigning each of the n sets to a respective one of the individual TCI states.

~~14-13.~~ 13. The method of claim ~~1312~~, wherein the ~~equal or approximately~~ equal number of the allocated RBs to include in the n sets is determined using one or more ceiling operations and one or more floor operations based at least in part on a total quantity of the allocated RBs and the quantity of the individual TCI states.

~~15-14.~~ 14. A user equipment (UE) for wireless communication, comprising:
a memory; and
one or more processors operatively coupled to the memory, the memory and the one or more processors configured to:
receive a downlink control information (DCI) message that includes a frequency

domain resource allocation field to indicate allocated resource blocks (RBs) across multiple transmission configuration indication (TCI) states;

identify, based at least in part on one or more of the DCI message or a radio resource control configuration, at least one parameter that indicates a unit of contiguous RBs over which ~~the~~ same precoding is used,

wherein the at least one parameter includes one or more of a precoding RB group (PRG) size or a physical RB (PRB) bundle size; and

assign the allocated RBs to individual TCI states among the multiple TCI states based at least in part on the at least one parameter that indicates the unit of contiguous RBs over which the same precoding is used,

wherein the allocated RBs include allocated PRGs that are assigned to the individual TCI states according to a scheme that is determined based at least in part on one or more of a dynamic indicator included in the DCI message or the RRC configuration when the unit of contiguous RBs over which the same precoding is used is determined to be a value other than wideband, and

wherein a first set of PRGs or PRBs are assigned to a first TCI state and a second set of PRGs or PRBs are assigned to a second TCI state.

~~16-15.~~ The UE of claim ~~15~~14, wherein the memory and the one or more processors, when assigning the allocated RBs to the individual TCI states, are further configured to:

divide the allocated RBs into n sets that include an equal ~~or approximately equal~~ number of the allocated RBs based at least in part on determining that the allocated RBs are contiguous and when the unit of contiguous RBs over which the same precoding is used is determined to be wideband, where n is a quantity of the individual TCI states; and

assign each of the n sets to a respective one of the individual TCI states.

~~17-16.~~ The UE of claim ~~16~~15, wherein the ~~equal or approximately equal~~ number of the allocated RBs to include in the n sets is determined using one or more ceiling operations and one or more floor operations based at least in part on a total quantity of the allocated RBs and the quantity of the individual TCI states.

~~18.~~17. The UE of claim ~~16~~15, wherein the unit of contiguous RBs with the same precoding is wideband per TCI state for a frequency division multiplexing (FDM) scheme with the multiple TCI states.

~~19.~~18. The UE of claim ~~16~~15, wherein the allocated RBs are contiguous within the n sets.

~~20.~~19. The UE of claim ~~15~~14, wherein the memory and the one or more processors, when assigning the allocated RBs to the individual TCI states, are further configured to:

determine that the allocated RBs are not contiguous but include n contiguous parts and that the unit of contiguous RBs over which the same precoding is used is wideband, where n is a quantity of the individual TCI states; and

assign each of the n contiguous parts to a respective one of the individual TCI states.

~~21. The UE of claim 15, wherein the allocated RBs include allocated PRGs that are assigned to the individual TCI states according to a scheme that is determined based at least in part on one or more of a dynamic indicator included in the DCI message or the RRC configuration based at least in part on determining that the unit of contiguous RBs over which the same precoding is used is a value other than wideband.~~

~~22. The UE of claim 21~~20. The UE of claim 14, wherein the scheme includes:

assigning an index to each individual PRG among the allocated PRGs based at least in part on an indication in the FDRA field, wherein the index assigned to each individual PRG is mapped to a respective one of the individual TCI states according to a function that is based at least in part on a quantity of the individual TCI states.

~~23.~~21. The UE of claim ~~22~~20, wherein the function causes ~~a~~athe first set of PRGs₁ that are assigned even indices₁ to be mapped to ~~a~~athe first TCI state and causes ~~a~~athe second set of PRGs₂ that are assigned odd indices₂ to be mapped to ~~a~~athe second TCI state when the quantity of the individual TCI states is two.

~~24.~~22. The UE of claim ~~22~~20, wherein the function is a modulo operator that causes a set of PRGs that are assigned a particular index to be mapped to a particular TCI state when dividing the particular index by the quantity of the individual TCI states results in a remainder that equals the particular index.

~~25.~~23. The UE of claim ~~22~~20, wherein the index assigned to each PRG is determined with respect to an entire bandwidth part.

~~26.~~24. The UE of claim ~~22~~20, wherein the index assigned to each PRG is determined with respect to only the allocated RBs indicated in the FDRA field.

~~27.~~25. The UE of claim ~~24~~14, wherein the scheme includes:
dividing the allocated PRGs into n sets that include an ~~equal or approximately~~ equal number of the allocated PRGs, where n is a quantity of the individual TCI states; and
assigning each of the n sets to a respective one of the individual TCI states.

~~28.~~26. The UE of claim ~~27~~25, wherein the ~~equal or approximately~~ equal number of the allocated RBs to include in the n sets is determined using one or more ceiling operations and one or more floor operations based at least in part on a total quantity of the allocated RBs and the quantity of the individual TCI states.

~~29.~~27. A non-transitory computer-readable medium storing one or more instructions for wireless communication, the one or more instructions comprising:

one or more instructions that, when executed by one or more processors of a user equipment, cause the one or more processors to:

receive a downlink control information (DCI) message that includes a frequency domain resource allocation field to indicate allocated resource blocks (RBs) across multiple transmission configuration indication (TCI) states;

identify, based at least in part on one or more of the DCI message or a radio resource control configuration, at least one parameter that indicates a unit of contiguous RBs over which ~~the~~a same precoding is used,

wherein the at least one parameter includes one or more of a precoding RB group (PRG) size or a physical RB (PRB) bundle size; and

assign the allocated RBs to individual TCI states among the multiple TCI states based at least in part on the at least one parameter that indicates the unit of contiguous RBs over which the same precoding is used;

wherein the allocated RBs include allocated PRGs that are assigned to the individual TCI states according to a scheme that is determined based at least in part on one or more of a dynamic indicator included in the DCI message or the RRC configuration when the unit of contiguous RBs over which the same precoding is used is determined to be a value other than wideband, and

wherein a first set of PRGs or PRBs are assigned to a first TCI state and a second set of PRGs or PRBs are assigned to a second TCI state.

28. The non-transitory computer-readable medium of claim 27, wherein the one or more instructions, that cause the one or more processors to assign the allocated RBs to the individual TCI states, cause the one or more processor to:

divide the allocated RBs into n sets that include an equal number of the allocated RBs based at least in part on determining that the allocated RBs are contiguous and when the unit of contiguous RBs over which the same precoding is used is determined to be wideband, where n is a quantity of the individual TCI states; and

assign each of the n sets to a respective one of the individual TCI states.

~~30.~~ 29. An apparatus for wireless communication, comprising:

means for receiving a downlink control information (DCI) message that includes a frequency domain resource allocation field to indicate allocated resource blocks (RBs) across multiple transmission configuration indication (TCI) states;

means for identifying, based at least in part on one or more of the DCI message or a radio resource control configuration, at least one parameter that indicates a unit of contiguous RBs over which ~~the~~ same precoding is used, wherein the at least one parameter includes one or more of a precoding RB group (PRG) size or a physical RB (PRB) bundle size; and

means for assigning the allocated RBs to individual TCI states among the multiple TCI

states based at least in part on the at least one parameter that indicates the unit of contiguous RBs over which the same precoding is used;

wherein the allocated RBs include allocated PRGs that are assigned to the individual TCI states according to a scheme that is determined based at least in part on one or more of a dynamic indicator included in the DCI message or the RRC configuration when the unit of contiguous RBs over which the same precoding is used is determined to be a value other than wideband, and

wherein a first set of PRGs or PRBs are assigned to a first TCI state and a second set of PRGs or PRBs are assigned to a second TCI state.

30. The apparatus of claim 29, wherein the means for assigning the allocated RBs to the individual TCI states comprises:

means for dividing the allocated RBs into n sets that include an equal number of the allocated RBs based at least in part on determining that the allocated RBs are contiguous and when the unit of contiguous RBs over which the same precoding is used is determined to be wideband, where n is a quantity of the individual TCI states; and

means for assigning each of the n sets to a respective one of the individual TCI states.