

WHAT IS CLAIMED IS:

CLAIMS

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

receiving, from a first transmit receive point (TRP) of a plurality of TRPs, in communication with the UE, in a multi-TRP configuration, a downlink control information (DCI) communication in a particular control resource set (CORESET) or a particular search space set; and

~~identifying one or more quasi co-location (QCL) relationships associated with a control resource set (, based at least in part on the particular CORESET) or at the particular search space set in which the DCI communication is received, a demodulation reference signal (DMRS) port for a scheduled physical downlink shared channel (PDSCH) associated with the particular CORESET or the particular search space set,~~

wherein the DMRS port is associated with one or more quasi co-location (QCL) relationships including a QCL relationship, of the one or more QCL relationships, is associated with one or more physical downlink shared channel (PDSCH) layers that are transmitted from a second TRP in of the multi-TRP configuration plurality of TRPs.

2. _____ The method of claim 1, wherein the DCI communication is a format 1_0 DCI communication; ~~and~~

~~wherein the method further comprises:~~

~~identifying, based at least in part on receiving the DCI communication in the CORESET or the search space, a demodulation reference signal (DMRS) port for a scheduled PDSCH associated with the CORESET or the search space set,~~

~~wherein the DMRS port is a default DMRS port to use for the scheduled PDSCH, and~~

~~wherein the DMRS port is configured for the particular CORESET or the particular search space set.~~

3. _____ The method of claim 2, further comprising:

receiving another DCI communication from the second TRP in another CORESET or another search space set; and

identifying, based at least in part on receiving the other DCI communication in the other CORESET or the other search space set, a second DMRS port for the scheduled PDSCH ~~associated with the CORESET or the search space set,~~

wherein the other DMRS port is a default DMRS port to use for the scheduled PDSCH configured for the other CORESET or the other search space set.

4. _____ The method of claim 1, ~~wherein the DCI communication is a first DCI communication; further comprising:~~

~~wherein the method further comprises:~~

receiving a second DCI communication from the second TRP in another CORESET or another search space set;

receiving a third DCI communication;

identifying, in the third DCI communication, an explicit indication that a ~~first demodulation reference signal (DMRS) port for a PDSCH scheduled by the first DCI communication~~ the DMRS port is a first default DMRS port; and

identifying, in the third DCI communication, an explicit indication that a second DMRS port for a second PDSCH scheduled by the second DCI communication is a second default DMRS port.

5.____ The method of claim 1, wherein another QCL relationship, of the one or more QCL relationships, is associated with one or more other PDSCH layers that are transmitted from the first TRP; and

wherein the other QCL relationship is used for a physical downlink control channel (PDCCH) on which the DCI communication is received.

6.____ The method of claim 1, further comprising:
determining that the DCI communication is for at least one of:

~~multi-TRP~~ the plurality of TRPs, or

~~multi-panel~~ a plurality of panels; and

identifying the one or more QCL relationships based at least in part on determining that the DCI communication is for at least one of ~~multi-TRP or multi-panel~~ the plurality of TRPs or the plurality of panels.

7.____ The method of claim 6, wherein determining that the DCI communication is for at least one of ~~multi-TRP~~ the plurality of TRPs or ~~multi-panel~~ the plurality of panels comprises:

determining, based at least in part on the particular CORESET in which the DCI communication is received, that the DCI communication is for at least one of ~~multi-TRP or multi-panel~~ the plurality of TRPs or the plurality of panels.

8.____ The method of claim 6, wherein determining that the DCI communication is for at least one of ~~multi-TRP~~ the plurality of TRPs or ~~multi-panel~~ the plurality of panels comprises:

determining, based at least in part on the particular search space set in which the DCI communication is received, that the DCI communication is for at least one of ~~multi-TRP or multi-panel~~ the plurality of TRPs or the plurality of panels based at least in part on information included in the DCI communication.

9.____ The method of claim 1, wherein another QCL relationship, of the one or more QCL relationships, is associated with one or more PDSCH layers that are transmitted from a third TRP of the plurality of TRPs.

10.____ The method of claim 1, wherein the QCL relationship is a first QCL relationship; wherein a second QCL relationship, of the one or more QCL relationships, is associated with one or more PDSCH layers that are transmitted from the first TRP; and

wherein a third QCL relationship, of the one or more QCL relationships, is associated with a physical downlink control channel (PDCCH) that is transmitted from the first TRP.

11.____ The method of claim 1, wherein the DCI communication includes an indication that the QCL relationship is associated with the second TRP.

12.____ The method of claim 11, wherein the indication that the QCL relationship is associated with the second TRP comprises:
an explicit indication in a TRP field included in the DCI communication.

13.____ The method of claim 11, wherein the indication that the QCL relationship is associated with the second TRP comprises:
an implicit indication included in the DCI communication comprising:
an indication of a hybrid automatic repeat request (HARQ) process identifier included in a HARQ process identifier field included in the DCI communication.

14.____ The method of claim 1, wherein another QCL relationship, of the one or more QCL relationships, is associated with one or more PDSCH layers that are transmitted from the first TRP; and
wherein the method further comprises:
~~identifying a first demodulation reference signal (DMRS) port associated with the QCL relationship and~~ identifying a second DMRS port associated with the other QCL relationship;
performing, based at least in part on the ~~first~~ DMRS port, a channel estimation of a layer that is transmitted from the second TRP; and
performing, based at least in part on the second DMRS port, a channel estimation of a layer that is transmitted from the first TRP.

15.____ The method of claim 14, wherein the first DMRS port and the second DMRS port are associated with different code division multiplexing (CDM) groups.

16.____ The method of claim 14, wherein at least one of the first DMRS port or the second DMRS port is configurable.

17.____ The method of claim 14, wherein the first DMRS port and the second DMRS port are associated with the particular CORESET or the particular search space set.

18.____ The method of claim 1, further comprising:
identifying a demodulation reference signal (DMRS) port associated with the QCL relationship; and
performing, based at least in part on the DMRS port, a channel estimation of a layer that is transmitted from the second TRP.

19.____ The method of claim 18, wherein identifying the DMRS port associated with the QCL relationship comprises:
determining, based at least in part on information included in the DCI communication, that the DCI communication is for at least one of ~~multi-TRP or multi-panel~~ the plurality of TRPs or a plurality of panels; and
identifying, based at least in part on determining that the DCI communication is for at least one of ~~multi-TRP~~ the plurality of TRPs or ~~multi-panel~~ the plurality of panels, the DMRS port associated with the QCL relationship.

20.____ The method of claim 18, wherein identifying the DMRS port associated with the QCL relationship comprises:

determining that the DMRS port is associated with the second TRP based at least in part on an indication, included in the DCI communication, that the DMRS port is associated with the second TRP; and

identifying the DMRS port, from a plurality of DMRS ports, based at least in part on determining that the DMRS port is associated with the second TRP.

21.____ The method of claim 20, wherein the indication that the DMRS port is associated with the second TRP comprises:

an explicit indication in a TRP field included in the DCI communication.

22.____ The method of claim 20, wherein the indication that the DMRS port is associated with the second TRP comprises:

an implicit indication included in the DCI communication,

wherein the implicit indication comprises:

an indication of a hybrid automatic repeat request (HARQ) process identifier included in a HARQ process identifier field included in the DCI communication.

23.____ A user equipment (UE) for wireless communication, comprising:

a memory; and

one or more processors coupled to the memory, the ~~memory and the~~ one or more processors configured to:

receive, from a first transmit receive point (TRP) of a plurality of TRPs, in

communication with the UE, in a multi-TRP configuration, a downlink control

information (DCI) communication; ~~and~~

~~identify one or more quasi-co-location (QCL) relationships associated with a~~ in a particular control resource set (CORESET) or a particular search space set; and

~~identify, based at least in part on the particular CORESET or the particular search space set in which the DCI communication is received, a demodulation reference signal (DMRS) port for a scheduled physical downlink shared channel (PDSCH) associated with the particular CORESET or the particular search space set,~~

~~wherein the DMRS port is associated with one or more quasi-co-location (QCL) relationships including a QCL relationship, of the one or more QCL relationships, is associated with one or more physical downlink shared channel (PDSCH) layers that are transmitted from a second TRP in of the multi-TRP configuration~~ plurality of TRPs.

24.____ The UE of claim 23, wherein the DCI communication is a format 1_0 DCI communication; and

~~wherein the one or more processors are further configured to:~~

~~identify, based at least in part on receiving the DCI communication in the CORESET or the search space set, a demodulation reference signal (DMRS) port for a scheduled PDSCH associated with the CORESET or the search space set,
wherein the DMRS port is a default DMRS port configured for the scheduled PDSCH the CORESET or the search space set.~~

25.____ The UE of claim 24, wherein the one or more processors are further configured to:

receive another DCI communication from the second TRP in another CORESET or another search space set; and

identify, based at least in part on receiving the other DCI communication in the other DMRS or the other search space set, a second DMRS port for the scheduled PDSCH ~~associated with the CORESET or the search space set,~~

wherein the other DMRS port is a default DMRS port for another scheduled PDSCH configured for the other CORESET or the other search space set.

26.____ The UE of claim 23, ~~wherein the DCI communication is a first DCI communication;~~

wherein the one or more processors are further to:

receive a second DCI communication from the second TRP in another CORESET or another search space set;

receive a third DCI communication;

identify, in the third DCI communication, an explicit indication that ~~a first DMRS port for a first scheduled PDSCH associated with the first DCI communication~~ the DMRS is a first default DMRS port; and

identify, in the third DCI communication, an explicit indication that a second DMRS port for a second scheduled PDSCH associated with the second DCI communication is a second default DMRS port.

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 (UE), cause the one or more processors to:

receive, from a first transmit receive point (TRP) of a plurality of TRPs, in communication with the UE, in a multi-TRP configuration, a downlink control information (DCI) communication in a particular control resource set (CORESET) or a particular search space set; and

identify ~~one or more quasi-co-location (QCL) relationships associated with a control resource set,~~ based at least in part on the particular CORESET) or the particular search space set in which the DCI communication is received, a demodulation reference

signal (DMRS) port for a scheduled physical downlink shared channel (PDSCH) associated with the particular CORESET or the particular search space set,
wherein the DMRS port is associated with one or more quasi co-location (QCL) relationships including a QCL relationship, ~~of the one or more QCL relationships,~~ is associated with one or more physical downlink shared channel (PDSCH) layers that are transmitted from a second TRP ~~in of the multi-TRP configuration~~ plurality of TRPs.

28. ____ The non-transitory computer-readable medium of claim 27, wherein the DCI communication is a format 1_0 DCI communication; ~~and,~~ and wherein the DMRS port is a default DMRS port configured for the scheduled PDSCH.
~~wherein the one or more instructions, when executed by the one or more processors, further cause the one or more processors to:~~

~~identify, based at least in part on receiving the DCI communication in the CORESET or the search space set, a demodulation reference signal (DMRS) port for a scheduled PDSCH associated with the CORESET or the search space set,~~
~~wherein the DMRS port is a default DMRS port configured for the scheduled PDSCH associated with the CORSET or the search space set.~~

29. ____ An apparatus for wireless communication, comprising:
means for receiving, from a first transmit receive point (TRP) of a plurality of TRPs, in communication with the apparatus, in a multi-TRP configuration, a downlink control information (DCI) communication in a particular control resource set (CORESET) or a particular search space set; and
means for identifying ~~one or more quasi co-location (QCL) relationships associated with a control resource set (,~~ based on the particular CORESET} ~~or at the particular search space set in which the DCI communication is received,~~ a demodulation reference signal (DMRS) port for a scheduled physical downlink shared channel (PDSCH) associated with the particular CORESET or the particular search space set,
wherein the DMRS port is associated with one or more quasi co-location (QCL) relationships including a QCL relationship, ~~of the one or more QCL relationships,~~ is associated with one or more physical downlink shared channel (PDSCH) layers that are transmitted from a second TRP ~~in of the multi-TRP configuration~~ plurality of TRPs.

30.____ The apparatus of claim 29, wherein the DCI communication is a format 1_0 DCI communication; and

~~wherein the apparatus further comprises:~~

~~means for identifying, based at least in part on receiving the DCI communication in the CORESET or the search space set, a demodulation reference signal (DMRS) port for a scheduled PDSCH associated with the CORESET or the search space set,~~

~~_wherein the DMRS port is a default DMRS port configured for the scheduled PDSCH associated with the CORESET or the search space set.~~