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(54) **Title:** DMRS CONFIGURATION

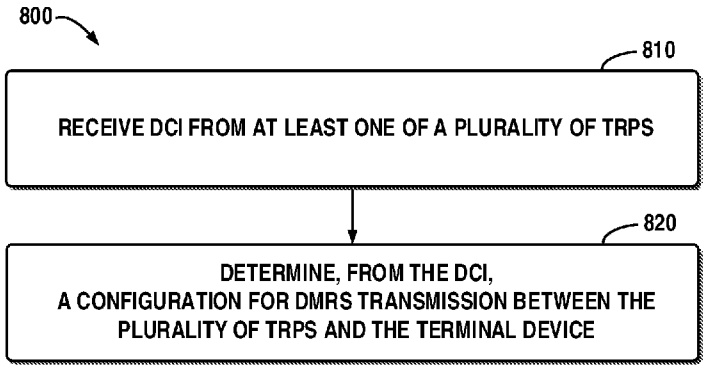

FIG. 8

(57) **Abstract:** Embodiments of the present disclosure provide methods, devices and computer readable media for Demodulation Reference Signal (DMRS) configuration. In example embodiments, a method implemented at a terminal device is provided. The method comprises receiving downlink control information (DCI) from at least one of a plurality of Transmission and Reception Points (TRPs) in communication with the terminal device, the plurality of TRPs being associated with different reference signal (RS) sets. The method further comprises determining, from the DCI, a configuration for Demodulation Reference Signal (DMRS) transmission between the plurality of TRPs and the terminal device. The configuration at least indicates one or more DMRS ports from a first number of DMRS CDM groups to be used for the DMRS transmission and respective numbers of DMRS CDM groups associated with the different RS sets. In this way, multi-user scheduling is enabled for multi-TRP transmission. Moreover, interference cancellation can be achieved more accurately.

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DMRS CONFIGURATION

TECHNICAL FIELD

[0001] Embodiments of the present disclosure generally relate to wireless communication, and in particular, to methods, devices and computer readable media for Demodulation Reference Signal (DMRS) configuration.

BACKGROUND

[0002] With the development of communication technologies, multiple types of services or traffic have been proposed, for example, enhanced mobile broadband (eMBB) generally requiring high data rate, massive machine type communication (mMTC) typically requiring long battery lifetime, and ultra-reliable and low latency communication (URLLC). Meanwhile, multi-antenna schemes, such as multi-Transmission and Reception Point (multi-TRP) transmission and/or multi-panel transmission, are studied for new radio access (NR).

[0003] Conventionally, a network device (for example, an eNB or a gNB) transmits a downlink DMRS to a terminal device (for example, a user equipment) in the system for channel demodulation. The terminal device may receive the downlink DMRS on allocated resources. The terminal device may also transmit an uplink DMRS to the network device on corresponding allocated resources. For indicating the allocated resources and other necessary information for the DMRS transmission, the network device may transmit DMRS configurations to the terminal device prior to the transmissions of the DMRSs. One or more DMRS tables used for indication of different DMRS configurations have been specified in current 3GPP specifications. However, there tables are typically designed for single TRP transmission, in which the support for multi-user scheduling or interference cancelling is insufficient.

SUMMARY

[0004] In general, example embodiments of the present disclosure provide methods, devices and computer readable media for DMRS configuration.

[0005] In a first aspect, there is provided a method implemented at a terminal device. The method comprises: receiving downlink control information (DCI) from at least one of a

plurality of Transmission and Reception Points (TRPs) in communication with the terminal device, the plurality of TRPs being associated with different reference signal (RS) sets; and determining, from the DCI, a configuration for Demodulation Reference Signal (DMRS) transmission between the plurality of TRPs and the terminal device, wherein the configuration at least indicates one or more DMRS ports from a first number of DMRS CDM groups to be used for the DMRS transmission and respective numbers of DMRS CDM groups associated with the different RS sets.

[0006] In a second aspect, there is provided a method implemented at a network device. The method comprises: determining a configuration for Demodulation Reference Signal (DMRS) transmission between a terminal device served by the network device and a plurality of Transmission and Reception Points (TRPs) in communication with the terminal device, wherein the plurality of TRPs are associated with different reference signal (RS) sets, and the configuration at least indicates one or more DMRS ports from a first number of DMRS CDM groups to be used for the DMRS transmission and respective numbers of DMRS CDM groups associated with the different RS sets; generating downlink control information (DCI) indicating the configuration; and transmitting the DCI to the terminal device via at least one of the plurality of TRPs.

[0007] In a third aspect, there is provided a terminal device. The terminal device comprises a processor and a memory coupled to the processor. The memory stores instructions that when executed by the processor, cause the terminal device to perform actions. The actions comprise: receiving downlink control information (DCI) from at least one of a plurality of Transmission and Reception Points (TRPs) in communication with the terminal device, the plurality of TRPs being associated with different reference signal (RS) sets; and determining, from the DCI, a configuration for Demodulation Reference Signal (DMRS) transmission between the plurality of TRPs and the terminal device, wherein the configuration at least indicates one or more DMRS ports from a first number of DMRS CDM groups to be used for the DMRS transmission and respective numbers of DMRS CDM groups associated with the different RS sets.

[0008] In a fourth aspect, there is provided a network device. The network device comprises a processor and a memory coupled to the processor. The memory stores instructions that when executed by the processor, cause the network device to perform actions. The actions comprise: determining a configuration for Demodulation Reference Signal (DMRS) transmission between a terminal device served by the network device and a

plurality of Transmission and Reception Points (TRPs) in communication with the terminal device, wherein the plurality of TRPs are associated with different reference signal (RS) sets, and the configuration at least indicates one or more DMRS ports from a first number of DMRS CDM groups to be used for the DMRS transmission and respective numbers of DMRS CDM groups associated with the different RS sets; generating downlink control information (DCI) indicating the configuration; and transmitting the DCI to the terminal device via at least one of the plurality of TRPs.

[0009] In a fifth aspect, there is provided a computer readable medium having instructions stored thereon. The instructions, when executed on at least one processor, cause the at least one processor to carry out the method according to the first aspect of the present disclosure.

[0010] In a sixth aspect, there is provided a computer readable medium having instructions stored thereon. The instructions, when executed on at least one processor, cause the at least one processor to carry out the method according to the second aspect of the present disclosure.

[0011] In a seventh aspect, there is provided a computer program product that is tangibly stored on a computer readable storage medium. The computer program product includes instructions which, when executed on at least one processor, cause the at least one processor to carry out the method according to the first aspect or the second aspect of the present disclosure.

[0012] Other features of the present disclosure will become easily comprehensible through the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Through the more detailed description of some embodiments of the present disclosure in the accompanying drawings, the above and other objects, features and advantages of the present disclosure will become more apparent, wherein:

[0014] FIGs. 1A-1B show an example communication network in which embodiments of the present disclosure can be implemented;

[0015] FIGs. 2A-2D shows diagrams of configuration patterns for different DMRS types according to some embodiments of the present disclosure;

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