3GPP TSG RAN WG1 #105-e R1-210xxxx

e-Meeting, May 10th – 27th, 2021

Source: Moderator (OPPO), Huawei, HiSilicon

Title: Text Proposal of [105-e-NR-eMIMO-03]

Agenda Item: 7.2.6

Document for: Discussion and Decision

Introduction

In this contribution, we provide a text proposal based on email discussion 105-e-NR-eMIMO-03.

Text Proposal

|  |  |
| --- | --- |
| ***Reason for change:*** | 1. A few RRC names in 38.214, e.g. “*enableDefaultTCIStatePerCoresetPoolIndex”* and “*enableTwoDefaultTCI-States”* (note that “-” is missed), are not aligned with the RRC parameters in 38.331. 2. There is ambiguity for the interpretation on the same *coresetPoolIndex*,it should be the same value of *coresetPoolIndex*, but not the same RRC name. |
|  |  |
| ***Summary of change:*** | 1. Correction of RRC names of   *“enableDefaultTCIStatePerCoresetPoolIndex”* as “*enableDefaultTCI-StatePerCoresetPoolIndex”*, and “*enableTwoDefaultTCIStates”* as *“enableTwoDefaultTCI-States”*.   1. When referring to PDSCH and PDCCH DMRS, they are associated with same value of *coresetPoolIndex,* instead ofsame *coresetPoolIndex.* |
|  |  |
| ***Consequences if not approved:*** | There may have a certain ambiguity in terms of interpretation of RRC parameters which are either wrong in names or be ambiguous for enabling Multi-TRP. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Clauses affected:*** | 5.1.5, 5.2.1.5 | | | |
|  |  | | | |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** | Other core specifications | TS/TR ... CR ... |
| ***affected:*** |  | **X** | Test specifications | TS/TR ... CR ... |
| ***(show related CRs)*** |  | **X** | O&M Specifications | TS/TR ... CR ... |
|  |  | | | |
| ***Other comments:*** | Isolated impact analysis: The changes are the common understandings on the RRC parameter names and enabling multi-DCI multi-TRP feature by the same value of *coresetPoolIndex*, hence there is no impact on current implementation. | | | |

***Text proposal for TS 38.214:***

|  |
| --- |
| < Start of the text proposal > 5.1.5 Antenna ports quasi co-location < Unchanged part omitted>  Independent of the configuration of *tci-PresentInDCI* and *tci-PresentDCI-1-2* in RRC connected mode, if the offset between the reception of the DL DCI and the corresponding PDSCH is less than the threshold *timeDurationForQCL* and at least one configured TCI state for the serving cell of scheduled PDSCH contains *qcl-Type* set to 'typeD',  - the UE may assume that the DM-RS ports of PDSCH(s) of a serving cell are quasi co-located with the RS(s) with respect to the QCL parameter(s) used for PDCCH quasi co-location indication of the CORESET associated with a monitored search space with the lowest *controlResourceSetId* in the latest slot in which one or more CORESETs within the active BWP of the serving cell are monitored by the UE. In this case, if the *qcl-Type* is set to 'typeD' of the PDSCH DM-RS is different from that of the PDCCH DM-RS with which they overlap in at least one symbol, the UE is expected to prioritize the reception of PDCCH associated with that CORESET. This also applies to the intra-band CA case (when PDSCH and the CORESET are in different component carriers).  - If a UE is configured with *enableDefaultTCI-StatePerCoresetPoolIndex* and the UE is configured by higher layer parameter *PDCCH-Config* that contains two different values of *coresetPoolIndex* in different *ControlResourceSets,*  - the UE may assume that the DM-RS ports of PDSCH associated with a value of *coresetPoolIndex* of a serving cell are quasi co-located with the RS(s) with respect to the QCL parameter(s) used for PDCCH quasi co-location indication of the CORESET associated with a monitored search space with the lowest *controlResourceSetId* among CORESETs, which are configured with the same value of *coresetPoolIndex* as the PDCCH scheduling that PDSCH, in the latest slot in which one or more CORESETs associated with the same value of *coresetPoolIndex* as the PDCCH scheduling that PDSCH within the active BWP of the serving cell are monitored by the UE. In this case, if the 'QCL-TypeD' of the PDSCH DM-RS is different from that of the PDCCH DM-RS with which they overlap in at least one symbol and they are associated with same value of *coresetPoolIndex*, the UE is expected to prioritize the reception of PDCCH associated with that CORESET. This also applies to the intra-band CA case (when PDSCH and the CORESET are in different component carriers).  - If a UE is configured with *enableTwoDefaultTCI-States*, and at least one TCI codepoint indicates two TCI states, the UE may assume that the DM-RS ports of PDSCH or PDSCH transmission occasions of a serving cell are quasi co-located with the RS(s) with respect to the QCL parameter(s) associated with the TCI states corresponding to the lowest codepoint among the TCI codepoints containing two different TCI states. When the UE is configured by higher layer parameter *repetitionScheme* set to 'tdmSchemeA' or is configured with higher layer parameter *repetitionNumber*, and the offset between the reception of the DL DCI and the first PDSCH transmission occasion is less than the threshold *timeDurationForQCL,* the mapping of the TCI states to PDSCH transmission occasions is determined according to clause 5.1.2.1 by replacing the indicated TCI states with the TCI states corresponding to the lowest codepoint among the TCI codepoints containing two different TCI states based on the activated TCI states in the slot with the first PDSCH transmission occasion. In this case, if the 'QCL-TypeD' in both of the TCI states corresponding to the lowest codepoint among the TCI codepoints containing two different TCI states is different from that of the PDCCH DM-RS with which they overlap in at least one symbol, the UE is expected to prioritize the reception of PDCCH associated with that CORESET. This also applies to the intra-band CA case (when PDSCH and the CORESET are in different component carriers)  - In all cases above, if none of configured TCI states for the serving cell of scheduled PDSCH is configured with *qcl-Type* set to 'typeD', the UE shall obtain the other QCL assumptions from the indicated TCI states for its scheduled PDSCH irrespective of the time offset between the reception of the DL DCI and the corresponding PDSCH.  < Unchanged part omitted> 5.2.1.5 Triggering/activation of CSI Reports and CSI-RS < Unchanged part omitted>  - If the scheduling offset between the last symbol of the PDCCH carrying the triggering DCI and the first symbol of the aperiodic CSI-RS resources in a *NZP-CSI-RS-ResourceSet* configured without higher layer parameter *trs-Info* is smaller than the UE reported threshold *beamSwitchTiming,* as defined in [13, TS 38.306], when the reported value is one of the values of {14, 28, 48} and *enableBeamSwitchTiming* is not provided, or is smaller than 48 when the UE provides *beamSwitchTiming-r16*, *enableBeamSwitchTiming* is provided and the *NZP-CSI-RS-ResourceSet* is configured with the higher layer parameter *repetition* set to 'off' or configured without the higher layer parameter *repetition,* or is smaller than the UE reported threshold *beamSwitchTiming-r16,* when *enableBeamSwitchTiming* is provided and the *NZP-CSI-RS-ResourceSet* is configured with the higher layer parameter *repetition* set to 'on'.  - If a UE is configured with *enableDefaultTCI-StatePerCoresetPoolIndex*and the UE is configured by higher layer parameter *PDCCH-Config* that contains two different values of *coresetPoolIndex* in *ControlResourceSet*  - if there is any other DL signal with an indicated TCI state in the same symbols as the CSI-RS, the UE applies the QCL assumption of the other DL signal also when receiving the aperiodic CSI-RS. The other DL signal refers to PDSCH scheduled by a PDCCH associated with the same *coresetPoolIndex* as the PDCCH triggering the aperiodic CSI-RS and scheduled with offset larger than or equal to the threshold *timeDurationForQCL,* as defined in [13, TS 38.306], aperiodic CSI-RS triggered by a PDCCH associated with the same *coresetPoolIndex* as the PDCCH triggering the aperiodic CSI-RS and scheduled with offset larger than or equal to the UE reported threshold *beamSwitchTiming* when the reported value is one of the values {14,28,48} and *enableBeamSwitchTiming* is not provided, aperiodic CSI-RS triggered by a PDCCH associated with the same *coresetPoolIndex* as the PDCCH triggering the aperiodic CSI-RS and scheduled with offset larger than or equal to 48 when the reported value of *beamSwitchTiming-r16* is one of the values {224, 336} and *enableBeamSwitchTiming* is provided, periodic CSI-RS, semi-persistent CSI-RS;  - else, the UE applies the QCL parameter(s) of the CORESET associated with a monitored search space with the lowest *controlResourceSetId* among CORESETs, which are configured with the same value of *coresetPoolIndex* as the PDCCH triggering that aperiodic CSI-RS, in the latest slot in which one or more CORESETs are associated with the same value of *coresetPoolIndex* as the PDCCH triggering that aperiodic CSI-RS  - else if a UE is configured with *enableTwoDefaultTCI-States* and at least one TCI codepoint is mapped to two TCI states  - if there is any other DL signal with an indicated TCI state in the same symbols as the CSI-RS, the UE applies the QCL assumption of the other DL signal also when receiving the aperiodic CSI-RS. The other DL signal refers to PDSCH scheduled with offset larger than or equal to the threshold *timeDurationForQCL,* as defined in [13, TS 38.306], aperiodic CSI-RS scheduled with offset larger than or equal to the UE reported threshold *beamSwitchTiming* when the reported value is one of the values {14,28,48} and *enableBeamSwitchTiming* is not provided, aperiodic CSI-RS scheduled with offset larger than or equal to 48 when the reported value of *beamSwitchTiming-r16* is one of the values {224, 336} and *enableBeamSwitchTiming* is provided, periodic CSI-RS, semi-persistent CSI-RS. If there is a PDSCH indicated with two TCI states in the same symbols as the CSI-RS, the UE applies the first TCI state of the two TCI states when receiving the aperiodic CSI-RS.  < End of the text proposal > |