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

**e-Meeting, May 10th – 27th, 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.213** | **CR** | **DRAFT** | **rev** | **-** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Draft CR on RLM RS Selection for multi-DCI based multi-TRP | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator (OPPO), Apple Inc | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_eMIMO-Core | | | | |  | ***Date:*** | | | 2021-05-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In multi-DCI based multi-TRP system, the maximum number of CORESETs is increased from 3 to 5. However, for FR1, based on current 38.213, the maximum number of RS for RLM is 4 for Lmax = 8. So, when Lmax = 8 and 5 CORESETs are configured to a UE, the UE would have to choose 4 RLM RSs from 5 CORESETs but the specification does not specify how to select those 4 RLM RSs among 5 CORESETs. On the other hand, the UE capability FG16-1g includes the number of RLM RS resource within a slot. Therefore, if there is no clear rule defined for RLM RS selection, there would be some ambiguity for RLM RS counting for this UE FG for the case when the UE is configured with 5 CORESETs and Lmax = 8. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding Lmax = 8 in the part where the rule of selecting RLM RS is specified and the same rule for RLM RS selection for Lmax = 4 that is specified in current specication is also used for Lmax = 8. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UE behavior on RLM RS selection is unclear when Lmax = 8 and 5 CORESETs are configured in multi-DCI based mTRP system and thus how to count the resources in UE FG 16-1g is also unclear. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 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:*** | | Impac analysis:  This is based on common understanding. So no impact on legacy gNB and UE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

# 5 Radio link monitoring

<unrelated part omitted>

If the UE is not provided *RadioLinkMonitoringRS* and the UE is provided for PDCCH receptions TCI states that include one or more of a CSI-RS

- the UE uses for radio link monitoring the RS provided for the active TCI state for PDCCH reception if the active TCI state for PDCCH reception includes only one RS

- if the active TCI state for PDCCH reception includes two RS, the UE expects that one RS is configured with *qcl-Type* set to 'typeD' [6, TS 38.214] and the UE uses the RS configured with *qcl-Type* set to 'typeD' for radio link monitoring; the UE does not expect both RS to be configured with *qcl-Type* set to 'typeD'

- the UE is not required to use for radio link monitoring an aperiodic or semi-persistent RS

- For  and *Lmax* = 8, the UE selects the  RS provided for active TCI states for PDCCH receptions in CORESETs associated with the search space sets in an order from the shortest monitoring periodicity. If more than one CORESETs are associated with search space sets having same monitoring periodicity, the UE determines the order of the CORESET from the highest CORESET index as described in Clause 10.1.

<unrelated part omitted>