**3GPP TSG-RAN4 Meeting #102-e *R4-2206944***

**Electronic Meeting, Feb. 21 – Mar. 3, 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** |  | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | draft CR on active DL and UL TCI state list update delay requirements in R17 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | vivo | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_feMIMO-Core | | | | |  | ***Date:*** | | | 2022-02-14 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)  Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduce RRM requirements for active DL and UL TCI state list update delay in R17 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce RRM requirements for active DL and UL TCI state list update delay in R17 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No requirement for for active DL and UL TCI state list update delay is specified in R17 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.15.5, 8.16.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | R4-2204340 | | | | | | | | |

## << Start of change 1>>

### 8.15.5 Active Downlink TCI state list update delay

The requirements specified in this clause apply to

- Separate active TCI list update delay, while the separate TCI list comprises more than one target separate TCIs, and at least one DL TCI is included.

- Joint active TCI list update delay, while the join TCI list comprises more than one target joint TCI.

Upon receiving PDSCH carrying MAC-CE active TCI state list update at slot n, UE shall be able to receive PDCCH to schedule PDSCH with the new target TCI states at the first slot that is after

n + + (THARQ + TO\*(Tfirst-SSB\_List + TSSB-proc)) / *NR slot length*.

Where

- If all TCIs are known, TO is TOk,

- if any target TCI state is not in the active TCI state list, TOk = 1,

- If the number of cells associated with the target TCIs that are not in the active TCI list is larger than 1, and SSBs associated to the TCIs are overlapped,

- Tfirst-SSB\_List = Ncell \* Tfirst-SSB, where Ncell is the number of cells associated with the target TCIs that are not in the active TCI list, whose SSBs are overlapped. Ncell ≤ [Nmax] + 1, where [Nmax] is the number of cells with PCI different from serving cell, and [Nmax] = 1.

*-* Otherwise,

- Tfirst-SSB\_List = Tfirst-SSB.

- THARQ, Tfirst-SSB, TSSB-proc are defined in clause 8.15.3.

When UE receives PDSCH carrying MAC-CE active TCI state list update for

- joint TCI state list update, or

- separate TCI list update, while the separate TCI list comprises at least one DL TCI and one UL TCI,

UE is not expected to recieve on DL before UE completes the DL and UL TCI state switch.

## << End of change 1>>

## << Start of change 2>>

### 8.16.5 Active Uplink TCI state list update delay

The requirements specified in this clause apply to

- Separate active TCI list update delay, while the separate TCI list comprises more than one target separate TCIs, and at least one DL TCI is included.

- Joint active TCI list update delay, while the join TCI list comprises more than one target joint TCI.

Upon receiving PDSCH carrying MAC-CE active TCI state list update at slot n, UE shall be able to transmit PUCCH, PUSCH or SRS with the new target TCI states at the first slot that is after

n+ + (THARQ + NM \* (Tfirst\_target-PL-RS\_List + 4 \* Ttarget\_PL-RS\_List + 2ms))) / *NR slot length*,

Where

- If all TCIs are known,

- if the target PL-RS associated with or included in any UL TCI is not maintained by the UE, NM = 1,

- If the number of cells associated with the target TCIs that are [not in the active TCI list] is larger than 1, and SSBs associated to the TCIs are overlapped,

- Tfirst\_target-PL-RS\_List = Ncell \* Tfirst\_target-PL-RS, Ttarget-PL-RS\_List = Ncell \* Ttarget-PL-RS, where Ncell is the number of cells associated with the target TCIs that are not in the active TCI list, whose SSBs are overlapped. Ncell ≤ [Nmax] + 1, where [Nmax] is the number of cells with PCI different from serving cell, and [Nmax] = 1.

- Otherwise,

- Tfirst\_target-PL-RS\_List = Tfirst\_target-PL-RS, Ttarget-PL-RS\_List = Ttarget-PL-RS.

- THARQ, Tfirst\_target-PL-RS, Ttarget-PL-RS are defined in clause 8.16.3.

When UE receives PDSCH carrying MAC-CE active TCI state list update for

- joint TCI state list update, or

- separate TCI list update, while the separate TCI list comprises at least one DL TCI and one UL TCI,

UE is not expected to transmit on UL before UE completes the DL and UL TCI state switch.

## << End of change 2>>