|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **3GPP TSG-RAN WG1 Meeting #101-e *R1-200xxxx***  **e-Meeting, May 25 – June 5, 2020**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *CR-Form-v12.0* | | | | | | | | | | **DRAFT CHANGE REQUEST** | | | | | | | | | |  | | | | | | | | | |  | **38.213** | **CR** |  | **rev** | **-** | **Current version:** | **16.1.0** |  | |  | | | | | | | | | | *For* [***HELP***](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:*** | Introduction of UL transmission switching | | | | | | | | | | |  |  | | | | | | | | | | | ***Source to WG:*** | Samsung | | | | | | | | | | | ***Source to TSG:*** | R1 | | | | | | | | | | |  |  | | | | | | | | | | | ***Work item code:*** | NR\_RF\_FR1-Core | | | | |  | ***Date:*** | | | 2020-06-09 | |  |  | | | |  | |  | | |  | | ***Category:*** | **B** |  | | | | | ***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:*** | | Introduction of uplink transmission switching | | | | | | | | | |  | |  | | | | | | | | | | ***Summary of change:*** | | Adjustment of timelines for PRACH transmission by PDCCH order and of UCI multiplexing in case of overlapping PUCCH and PUSCH transmissions | | | | | | | | | |  | |  | | | | | | | | | | ***Consequences if not approved:*** | | Uplink transmission switching is not accounted for those operations | | | | | | | | | |  | |  | | | | | | | | | | ***Clauses affected:*** | | 8.1, 9.2.5 | | | | | | | | | |  | |  | | | | | | | | | |  | | **Y** | **N** |  | | | |  | | | | ***Other specs*** | | **Y** |  | Other core specifications | | | | 38.214, 38.101-1, 38.101-3, 38.133, 38.331 | | | | ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | | | ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | | |  | |  | | | | | | | | | | ***Other comments:*** | | **Isolated Impact Analysis:** | | | | | | | | | |  | |  | | | | | | | | | | ***This CR's revision history:*** | |  | | | | | | | | | |

### 

## 8.1 Random access preamble

## \*\*\* Unchanged text is omitted \*\*\*

If a random access procedure is initiated by a PDCCH order, the UE, if requested by higher layers, transmits a PRACH in the selected PRACH occasion, as described in [11, TS 38.321], for which a time between the last symbol of the PDCCH order reception and the first symbol of the PRACH transmission is larger than or equal to msec, where

- is a time duration of symbols corresponding to a PUSCH preparation time for UE processing capability 1 [6, TS 38.214] assuming corresponds to the smallest SCS configuration between the SCS configuration of the PDCCH order and the SCS configuration of the corresponding PRACH transmission

- if the active UL BWP does not change and is defined in [10, TS 38.133] otherwise

- msec for FR1 and msec for FR2

- is a switching gap duration as defined in [6, TS 38.214]

For a PRACH transmission using 1.25 kHz or 5 kHz SCS, the UE determines assuming SCS configuration .

For single cell operation or for operation with carrier aggregation in a same frequency band, a UE does not transmit PRACH and PUSCH/PUCCH/SRS in a same slot or when a gap between the first or last symbol of a PRACH transmission in a first slot is separated by less than  symbols from the last or first symbol, respectively, of a PUSCH/PUCCH/SRS transmission in a second slot where  for  or ,  for  or , and  is the SCS configuration for the active UL BWP.

## \*\*\* Unchanged text is omitted \*\*\*

### 9.2.5 UE procedure for reporting multiple UCI types

## \*\*\* Unchanged text is omitted \*\*\*

If there is at least one PUSCH in the group of overlapping PUCCHs and PUSCHs, is given by maximum of where for the i-th PUSCH which is in the group of overlapping PUCCHs and PUSCHs, , , and are selected for the i-th PUSCH following [6, TS 38.214], is selected based on the UE PUSCH processing capability of the i-th PUSCH and SCS configuration , where  corresponds to the smallest SCS configuration among the SCS configurations used for the PDCCH scheduling the i-th PUSCH (if any), the PDCCHs scheduling the PDSCHs with corresponding HARQ-ACK transmission on a PUCCH which is in the group of overlapping PUCCHs/PUSCHs, and all PUSCHs in the group of overlapping PUCCHs and PUSCHs.

If there is no PUSCH in the group of overlapping PUCCHs and PUSCHs, is given by maximum of where for the i-th PDSCH with corresponding HARQ-ACK transmission on a PUCCH which is in the group of overlapping PUCCHs, , is selected based on the UE PUSCH processing capability of the PUCCH serving cell if configured.   is selected based on the UE PUSCH processing capability 1, if PUSCH processing capability is not configured for the PUCCH serving cell. is selected based on the smallest SCS configuration between the SCS configuration used for the PDCCH scheduling the i-th PDSCH (if any) with corresponding HARQ-ACK transmission on a PUCCH which is in the group of overlapping PUCCHs, and the SCS configuration for the PUCCH serving cell.

- if there is an aperiodic CSI report multiplexed in a PUSCH in the group of overlapping PUCCHs and PUSCHs,  is not before a symbol with CP starting after after a last symbol of

- any PDCCH with the DCI format scheduling an overlapping PUSCH, and

- any PDCCH scheduling a PDSCH, or SPS PDSCH release, or providing a DCI format 1\_1 indicating SCell dormancy with corresponding HARQ-ACK information in an overlapping PUCCH in the slot

where corresponds to the smallest SCS configuration among the SCS configuration of the PDCCHs, the smallest SCS configuration for the group of the overlapping PUSCHs, and the smallest SCS configuration of CSI-RS associated with the DCI format scheduling the PUSCH with the multiplexed aperiodic CSI report, and for , for and for

- , , , , , and are defined in [6, TS 38.214], and and are defined in [4, TS 38.211].

## \*\*\* Unchanged text is omitted \*\*\*