**3GPP TSG-RAN Meeting #110R1-22xxxxx**

**Toulouse, France, August 22 – 26, 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.211** | **CR** | **xxx** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Corrections to NR support of multicast and broadcast services | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_MBS-Core | | | | |  | ***Date:*** | | | 2022-08-26 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***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:*** | | VRB-to-PRB mapping for MBS broadcast is undefined (R1-2205978) | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Defining VRB-to-PRB mapping for broadcast transmissions | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incomplete MBS support | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3.1.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

#### 7.3.1.6 Mapping from virtual to physical resource blocks

The UE shall assume the virtual resource blocks are mapped to physical resource blocks according to the indicated mapping scheme, non-interleaved or interleaved mapping. If no mapping scheme is indicated, the UE shall assume non-interleaved mapping.

For non-interleaved VRB-to-PRB mapping, virtual resource block is mapped to physical resource block , except for PDSCH transmissions scheduled with DCI format 1\_0 in a common search space in which case virtual resource block is mapped to physical resource block where is the lowest-numbered physical resource block in the control resource set where the corresponding DCI was received. When two PDCCH candidates from two linked common search space sets as indicated by the higher-layer parameter *searchSpaceLinking* are detected, and the two linked common search space sets are associated with different control resource sets, the control resource set with the lowest number among the two linked control resource sets is used to determine .

For interleaved VRB-to-PRB mapping, the mapping process is defined by:

- Resource block bundles are defined as

- for PDSCH transmissions scheduled with DCI format 1\_0 with the CRC scrambled by SI-RNTI in Type0-PDCCH common search space in CORESET 0, the set of resource blocks in CORESET 0 are divided into resource-block bundles in increasing order of the resource-block number and bundle number where is the bundle size and is the size of CORESET 0.

- resource block bundle consists of resource blocks if and resource blocks otherwise,

- all other resource block bundles consists of resource blocks.

- for PDSCH transmissions scheduled with DCI format 1\_0 in any common search space in bandwidth part with starting position , other than Type0-PDCCH common search space in CORESET 0, the set of virtual resource blocks , where is the size of CORESET 0 if CORESET 0 is configured for the cell and the size of initial downlink bandwidth part if CORESET 0 is not configured for the cell, are divided into virtual resource-block bundles in increasing order of the virtual resource-block number and virtual bundle number and the set of physical resource blocks are divided into physical resource-block bundles in increasing order of the physical resource-block number and physical bundle number, where , is the bundle size, and is the lowest-numbered physical resource block in the control resource set where the corresponding DCI was received. When two PDCCH candidates from two linked search space sets as indicated by the higher-layer parameter *searchSpaceLinking* are detected, and the two linked search space sets are associated with different control resource sets, the control resource set with the lowest number among the two linked control resource sets is used to determine .

- resource block bundle 0 consists of resource blocks,

- resource block bundle consists of resource blocks if and resource blocks otherwise,

- all other resource block bundles consists of resource blocks.

- for all other PDSCH transmissions, the set of resource blocks in bandwidth part  with starting position are divided into resource-block bundles in increasing order of the resource-block number and bundle number where  is the bundle size for bandwidth part  provided by the higher-layer parameter *vrb-ToPRB-Interleaver* for DCI formats 1\_0 and 1\_1 in a UE-specific search space, or *vrb-ToPRB-InterleaverDCI-1-2* for DCI format 1\_2, and

- resource block bundle 0 consists of  resource blocks,

- resource block bundle  consists of  resource blocks if  and  resource blocks otherwise,

- all other resource block bundles consists of  resource blocks.

- Virtual resource blocks in the interval  are mapped to physical resource blocks according to

- virtual resource block bundle  is mapped to physical resource block bundle 

- virtual resource block bundle  is mapped to physical resource block bundle  where



- The UE is not expected to be configured with simultaneously with a PRG size of 4 as defined in [6, TS 38.214]

The UE may assume that the same precoding in the frequency domain is used within a PRB bundle and the bundle size is determined by clause 5.1.2.3 in [6, TS 38.214]. The UE shall not make any assumption that the same precoding is used for different bundles of common resource blocks.

For PDSCH transmissions scheduled by DCI format 4\_1 or 4\_2, and using G-RNTI or G-CS-RNTI, the quantities and in this clause are replaced by and , respectively, and is the bundle size for the common MBS frequency resource provided by the higher-layer parameter vrb-ToPRB-Interleaver in PDSCH-Config-Multicast.

For PDSCH transmissions scheduled by DCI format 4\_0, and using G-RNTI or MCCH-RNTI, the quantities and in this clause are replaced by and , respectively, and .