**3GPP TSG RAN WG1 #116-bis R1-24xxxxx**

**Changsha, Hunan Province, China, April 15th – 19th**

Source: Moderator (CMCC)

Title: FL summary on R18 MBS maintenance

Agenda item: 8.4

Document for: Discussion & Decision

# Introduction

This summary is about maintenance of R18 MBS submitted in AI 8.4 as [1].

# Discussion

**Reason for change**

Type0/0B CSS is supported for multicast MCCH/MTCH PDCCH in RRC\_INACTIVE state as specified in TS 38.213. However, multicast MCCH/MTCH in RRC\_INACTIVE state using the same entries as broadcast MCCH/MTCH in the definition of applicable resource allocation table used for PDSCH in TS 38.214, which may cause the ambiguity that Type 3 CSS is also supported for multicast MCCH/MTCH PDCCH in RRC\_INACTIVE state.

- a Type0-PDCCH CSS set on the primary cell of the MCG configured by

- *pdcch-ConfigSIB1* in MIB or by *searchSpaceSIB1* in *PDCCH-ConfigCommon* or by *searchSpaceZero* in *PDCCH-ConfigCommon* for a DCI format 1\_0 with CRC scrambled by a SI-RNTI, or

- *searchSpaceZero* by providing *searchSpaceID*=0 for *searchSpaceMCCH* or *searchSpaceMTCH* for a DCI format 4\_0 with CRC scrambled by a MCCH-RNTI or a G-RNTI for broadcast, or

- *searchSpaceZero* by providing *searchSpaceID*=0 for *searchspaceMulticastMCCH* for a DCI format 4\_0 with CRC scrambled by a multicast-MCCH-RNTI, or by *searchSpaceMulticastMTCH* for a DCI format 4\_1 with CRC scrambled by a G-RNTI for multicast in RRC\_INACTIVE state

- a Type0B-PDCCH CSS set configured by

- *searchSpaceMCCH* and *searchSpaceMTCH* for a DCI format 4\_0 with CRC scrambled by a MCCH-RNTI or a G-RNTI for broadcast, on the primary cell of the MCG

- *searchspaceMulticastMCC*H for a DCI format 4\_0 with CRC scrambled by a multicast-MCCH-RNTI, or by *searchSpaceMulticastMTCH* for a DCI format 4\_1 with CRC scrambled by a G-RNTI for PDCCH receptions in RRC\_INACTIVE state

- a Type3-PDCCH CSS set configured by

- *SearchSpace* in *PDCCH-Config* with *searchSpaceType* = *common* for DCI formats with CRC scrambled by INT-RNTI, SFI-RNTI, TPC-PUSCH-RNTI, TPC-PUCCH-RNTI, TPC-SRS-RNTI, CI-RNTI, or cellDTRX-RNTI and, only for the primary cell, C-RNTI, MCS-C-RNTI, CS-RNTI(s), or PS-RNTI, or

- *SearchSpace* in *pdcch-ConfigMulticast* for DCI formats with CRC scrambled by G-RNTI, or G-CS-RNTI, or

- *searchSpaceMCCH* and *searchSpaceMTCH* on a secondary cell for a DCI format 4\_0 with CRC scrambled by a MCCH-RNTI or a G-RNTI for broadcast, and

**Proposed TP**

##### **5.1.2.1.1 Determination of the resource allocation table to be used for PDSCH**

< Unchanged parts are omitted >

Table 5.1.2.1.1-1: Applicable PDSCH time domain resource allocation for DCI formats 1\_0, 1\_1, 1\_3, 4\_0, 4\_1 and 4\_2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **RNTI** | **PDCCH search space** | **SS/PBCH block and CORESET multiplexing pattern** | ***PDSCH-ConfigCommon* includes *pdsch-TimeDomainAllocationList*** | ***PDSCH-Config* includes *pdsch-TimeDomainAllocationList*** | ***pdsch-ConfigMCCH / pdsch-ConfigMTCH*  includes *pdsch-TimeDomainAllocationList***  ***Or***  ***pdsch-ConfigMulticast* includes *pdsch-TimeDomainAllocationList*** | ***PDSCH-Config* includes *pdsch-TimeDomainAllocationListForMultiPDSCH*** | **PDSCH time domain resource allocation to apply** |
| SI-RNTI | Type0 common | 1 | - | - | - | - | Default A for normal CP |
| 2 | - | - | - | - | Default B |
| 3 | - | - | - | - | Default C |
| SI-RNTI | Type0A common | 1 | No | - | - | - | Default A |
| 2 | No | - | - | - | Default B |
| 3 | No | - | - | - | Default C |
| 1,2,3 | Yes | - | - | - | *Pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| RA-RNTI, MSGB-RNTI, TC-RNTI | Type1 common | 1,2,3 | No | - | - | - | Default A |
| 1,2,3 | Yes | - | - | - | *Pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| P-RNTI | Type2 common | 1 | No | - | - | - | Default A |
| 2 | No | - | - | - | Default B |
| 3 | No | - | - | - | Default C |
| 1,2,3 | Yes | - | - | - | *Pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| MCCH-RNTI | Type 0/0B/3 common for broadcast | 1 | No | - | No | *-* | Default A |
| 2 | No | - | No | *-* | Default B |
| 3 | No | - | No | *-* | Default C |
| 1,2,3 | Yes | - | No | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| 1,2,3 | No/Yes | - | Yes | *-* | *pdsch-TimeDomainAllocationList provided in pdsch-ConfigMCCH* |
| multicast-MCCH-RNTI | Type 0/0B common for multicast | 1 | No | - | No | *-* | Default A |
| 2 | No | - | No | *-* | Default B |
| 3 | No | - | No | *-* | Default C |
| 1,2,3 | Yes | - | No | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| 1,2,3 | No/Yes | - | Yes | *-* | *pdsch-TimeDomainAllocationList provided in pdsch-ConfigMCCH* |
| G-RNTI for broadcast | Type 0/0B/3 common for broadcast | 1 | No | - | No | *-* | Default A |
| 2 | No | - | No | *-* | Default B |
| 3 | No | - | No | *-* | Default C |
| 1,2,3 | Yes | - | No | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| 1,2,3 | No/Yes | - | Yes | *-* | *pdsch-TimeDomainAllocationList* provided in *pdsch-ConfigMTCH,* if configured, otherwise *pdsch-TimeDomainAllocationList* provided in *pdsch-ConfigMCCH* |
| G-RNTI for multicast in RRC\_INACTIVE | Type 0/0B common for multicast | 1 | No | - | No | *-* | Default A |
| 2 | No | - | No | *-* | Default B |
| 3 | No | - | No | *-* | Default C |
| 1,2,3 | Yes | - | No | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| 1,2,3 | No/Yes | - | Yes | *-* | *pdsch-TimeDomainAllocationList* provided in *pdsch-ConfigMTCH,* if configured, otherwise *pdsch-TimeDomainAllocationList* provided in *pdsch-ConfigMCCH* |
| C-RNTI, MCS-C-RNTI, CS-RNTI | Any common search space associated with CORESET 0 | 1, 2, 3 | No | - | - | - | Default A |
| 1, 2, 3 | Yes | - | - | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| C-RNTI, MCS-C-RNTI, CS-RNTI | Any common search space not associated with CORESET 0  UE specific search space | 1,2,3 | No | No | - | - | Default A |
| 1,2,3 | Yes | No | - | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon* |
| 1,2,3 | No/Yes | Yes | - | *-* | *pdsch-TimeDomainAllocationList* provided in *PDSCH-Config* |
| 1,2,3 | No/Yes | - | - | Yes | *pdsch-TimeDomainAllocationListForMultiPDSCH* provided in *PDSCH-Config (Note 2)* |
| G-RNTI for multicast, G-CS-RNTI | Type 3 common search space for multicast | 1,2,3 | No | - | No | - | *Default A* |
| 1,2,3 | Yes | - | No | - | *pdsch-TimeDomainAllocationList* provided in *PDSCH-ConfigCommon (Note 1)* |
| 1,2,3 | No/Yes | - | Yes | - | *pdsch-TimeDomainAllocationList* provided in *pdsch-ConfigMulticast*  *(Note 1)* |
| Note 1: For a UE that supports multicast, the same TDRA table applies to all G-RNTIs and G-CS-RNTIs (configured for multicast) if configured on a given serving cell.  Note 2: If *pdsch-TimeDomainAllocationListForMultiPDSCH* is provided, it is applicable to DCI format 1\_1 only. | | | | | | | |

< Unchanged parts are omitted >

**Discussion**

Companies provide your views in the following table:

|  |  |  |
| --- | --- | --- |
| **Company** | **Whether this CR needs discussion** | **Comments on the TP** |
| Huawei, HiSilicon |  | If the issue comes from Type3 for multicast in inactive state, the change can be simplified into spell the ‘Type 0/0B/3 common for broadcast or muticast’ to ‘Type 0/0B common for broadcast or multicast, Type3 common for broadcast’ instead of creating a new row.  In addition, it should be an alignment CR I suppose. |
| Qualcomm |  | We are fine with the CR, which can be alignment CR as Jinhuan pointed out.  It may be cleaner to separate the rows for broadcast and multicast in RRC\_INACTIVE.  The current spec does not say G-RNTI is for multicast in RRC\_INACTIVE, which is confusing with the lost row for multicast in RRC\_CONNECTED. |
| ZTE |  | Our understanding is that this is to only specify which PDSCH resource configuration is used. As long as the same PDSCH time domain configuration is used under the same configuration, they can use the same row. Regarding the search space for multicast in RRC\_INACTIVE, it can refer to TS 38.213. But we agree the change can make the spec clearer. We can accept the change. |
| CATT |  | We are ok with the intention of the CR. And we prefer HW’s version for not creating new rows for multicast MCCH/MTCH PDCCH in RRC\_INACTIVE state. |
|  |  |  |
|  |  |  |
|  |  |  |

**Summary**

# Proposals

# References

1. R1-2402551 Draft CR on TDRA table of multicast PDSCH in RRC INACTIVE state CMCC