**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. |
|  |  |  |
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|  |  |  |
|  |  |  |
|  |  |  |

**Summary**

# Proposals

# References

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