**3GPP TSG-RAN WG1 Meeting #110bis-e *R1-22xxxxx***

**e-Meeting, October 10-19, 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.212** | **CR** |  | **rev** | **-** | **Current version:** | **17.3.0** |  |
|  | | | | | | | | |
| *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:*** | Rel-17 editorial corrections for TS 38.212 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IIOT\_URLLC\_enh-Core,  NR\_ext\_to\_71GHz-Core,  NR\_MBS-Core,  NR\_SL\_enh-Core | | | | |  | ***Date:*** | | | 2022-10-20 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | 1. Correction on a clause number cited in clause 6.3.2.4.2.6 per the outcome of agenda 8.3 in RAN1#110bis-e meeting. In TS 38.212, the coding scheme for HARQ-ACK with small block length is defined in clause 6.3.2.4.2.1. However, when defining the multiplex of UCI with small block length and corresponding to different priority indexes in clause 6.3.2.4.2.6, incorrect clause number 6.3.2.4.1.1 is used for the HARQ-ACK. 2. Correction on higher-layer parameter per the outcome of agenda 8.3 in RAN1#110bis-e meeting. Misalignment of parameter name between TS 38.212 and TS 38.331. 3. Correction on higher-layer parameter per the outcome of agenda 8.2 in RAN1#110bis-e meeting. Misalignment of parameter name between TS 38.212 and TS 38.331. 4. Correction on higher-layer parameter per the outcome of agenda 8.12 in RAN1#110bis-e meeting. Misalignment of parameter name between TS 38.212 and TS 38.331. 5. Correction on DCI format 0\_1 and 0\_2 per the outcome of agenda 8.12 in RAN1#110bis-e meeting. There are some redundant descriptions for HARQ-ACK codebook types in these DCI formats. 6. Correction on FDRA determination in DCI format 4\_0, 4\_1 and 4\_2 per the outcome of agenda 8.12 in RAN1#110bis-e meeting. A bracket is incomplete in the formulas to determine the number of bits. 7. Correction on higher-layer parameter per the outcome of agenda 8.11 in RAN1#110bis-e meeting. Misalignment of parameter name between TS 38.212 and TS 38.331. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Capture the corrections as shown in R1-2210028. To correct that the coding scheme for HARQ-ACK with small block length is defined in clause 6.3.2.4.2.1 but not in clause 6.3.2.4.1.1. 2. Capture the corrections on higher-layer parameter as shown in R1-2208599. 3. Capture the corrections on higher-layer parameter as shown in TP#G in section 11.7 of R1-2210457. 4. Capture the corrections on higher-layer parameter as shown in R1-2210570 and R1-2209316. 5. Capture the corretions as shown in R1-2210504. Delete ‘*pdsch-HARQ-ACK-Codebook-Multicast = semiStatic* is configured and’ and ‘if the higher layer parameter *pdsch-HARQ-ACK-Codebook-Multicast = dynamic* is configured’ for 1st DAI and 3rd DAI respectively in DCI format 0\_1 and DCI format 0\_2. 6. Capture the corrections on the field of frequency domain resource assignment in DCI format 4\_0, 4\_1 and 4\_2 as shown in R1-2210450. 7. Capture the corrections on higher-layer parameter as shown in TP#6 in section 4.2.6 of R1-2210335. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Specification is incorrect or unclear. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.2.1, 6.3.2.4.2.6, 7.3.1.1.2, 7.3.1.1.3, 7.3.1.2.2, 7.3.1.2.3, 7.3.1.5.1, 7.3.1.5.2, 7.3.1.5.3, 8.3.1.1, 8.4.1.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

#### 5.4.2.1 Bit selection

The bit sequence after encoding  from Clause 5.3.2 is written into a circular buffer of length  for the -th coded block, where  is defined in Clause 5.3.2.

For the -th code block, let  if  and  otherwise, where, ,  is determined according to Clause 6.1.4.2 in [6, TS 38.214] for UL-SCH and Clause 5.1.3.2 in [6, TS 38.214] for DL-SCH/PCH, assuming the following:

For one TB for DL-SCH with PDSCH scheduled by DCI format 4\_0/4\_1/4\_2,

- if the PDSCH is scheduled by DCI format 4\_1/4\_2,

- maximum number of layers is given by X, where

- if the higher layer parameter *maxMIMO-Layers* of *pdsch-ConfigMulticast* is configured*,* X is given by that parameter;

- otherwise, X equals to 1;

- if the higher layer parameter *mcs-Table* given bya *pdsch-ConfigMulticast* for at least one common frequency resource (CFR) is set to 'qam256', maximum modulation orderis assumed for DL-SCH; otherwise a maximum modulation orderis assumed for DL-SCH;

- if the PDSCH is scheduled by DCI format 4\_0,

- maximum number of layers is 1;

- if the higher layer parameter *mcs-Table* given by a *pdsch-ConfigMCCH* is set to 'qam256', maximum modulation order is assumed for DL-SCH; otherwise a maximum modulation order is assumed for DL-SCH;

- if the higher layer parameter *mcs-Table* given by a *pdsch-ConfigMTCH* is set to 'qam256', maximum modulation orderis assumed for DL-SCH; otherwise a maximum modulation order is assumed for DL-SCH;

- is given by Table 5.4.2.1-1, where the value of for DL-SCH is determined according to the size of the CFR if only one CFR is configured to the UE;

- maximum coding rate of 948/1024;

- ;

- is the number of code blocks of the transport block determined according to Clause 5.2.2.

< Unchanged parts are omitted >

###### 6.3.2.4.2.6 UCI with different priority indexes

In this clause, is equal to defined in [5, TS38.213] in case of PUSCH associated with priority index 1, and equal to defined in [5, TS38.213] in case of PUSCH associated with priority index 0. is equal to defined in [5, TS38.213] in case of PUSCH associated with priority index 0, and equal to defined in [5, TS38.213] in case of PUSCH associated with priority index 1.

< Unchanged parts are omitted >

If *uci-MuxWithDiffPrio* is configured, and CG-UCI associated with priority index 0 and HARQ-ACK bits associated with priority index 0 if any, HARQ-ACK bits associated with priority index 1, and CSI part 1 if any are transmitted on a PUSCH associated with priority index 0:

- Perform rate matching for HARQ-ACK with priority index 1 according to clause 6.3.2.4.2.1, by taking HARQ-ACK with priority index 1 as HARQ-ACK and replacing by .

- Perform rate matching for CG-UCI associated with priority index 0 according to clause 6.3.2.4.2.2, if CG-UCI associated with priority index 0 is transmitted without HARQ-ACK bits associated with priority index 0, by taking CG-UCI associated with priority index 0 as CSI-part 1 and replacing by and taking HARQ-ACK with priority index 1 as HARQ-ACK.

- Perform rate matching for CG-UCI associated with priority index 0 and HARQ-ACK bits associated with priority index 0 according to clause 6.3.2.4.2.2, if both CG-UCI associated with priority index 0 and HARQ-ACK bits associated with priority index 0 are transmitted, by taking CG-UCI associated with priority index 0 and HARQ-ACK bits associated with priority index 0 as CSI-part 1 and replacing by and taking HARQ-ACK with priority index 1 as HARQ-ACK.

- Perform rate matching for CSI part 1 according to clause 6.3.2.4.2.3, by taking CSI part 1 as CSI part 2 and replacing by , taking CG-UCI associated with priority index 0 and HARQ-ACK bits associated with priority index 0 if any as CSI-part 1 and taking HARQ-ACK with priority index 1 as HARQ-ACK, if CSI part 1 is also transmitted on the PUSCH and the PUSCH is associated with priority index 0.

< Unchanged parts are omitted >

##### 7.3.1.1.2 Format 0\_1

DCI format 0\_1 is used for the scheduling of one or multiple PUSCH in one cell, or indicating CG downlink feedback information (CG-DFI) to a UE.

< Unchanged parts are omitted >

- 1st downlink assignment index – 1, 2 or 4 bits:

- 1 bit for semi-static HARQ-ACK codebook for unicast and multicast if *pdsch-HARQ-ACK-Codebook = semiStatic* is configured for both unicast and multicast and the higher layer parameter *fdmed-ReceptionMulticast* is not configured; otherwise for semi-static HARQ-ACK codebook for unicast;

- 2 bits for dynamic HARQ-ACK codebook for unicast, or for enhanced dynamic HARQ-ACK codebook without *UL-TotalDAI-Included* configured;

- 4 bits for enhanced dynamic HARQ-ACK codebook and with *UL-TotalDAI-Included = true*.

When two HARQ-ACK codebooks are configured for the same serving cell and if higher layer parameter *priorityIndicatorDCI-0-1* is configured, if the bit width of the 1st downlink assignment index in DCI format 0\_1 for one HARQ-ACK codebook is not equal to that of the 1st downlink assignment index in DCI format 0\_1 for the other HARQ-ACK codebook, a number of most significant bits with value set to '0' are inserted to smaller 1st downlink assignment index until the bit width of the 1st downlink assignment index in DCI format 0\_1 for the two HARQ-ACK codebooks are the same.

- 2nd downlink assignment index – 0, 2 or 4 bits:

- 2 bits for dynamic HARQ-ACK codebook with two HARQ-ACK sub-codebooks for unicast, or for enhanced dynamic HARQ-ACK codebook with two HARQ-ACK sub-codebooks and without *UL-TotalDAI-Included* configured;

- 4 bits for enhanced dynamic HARQ-ACK codebook with two HARQ-ACK sub-codebooks and with *UL-TotalDAI-Included = true*;

- 0 bit otherwise.

When two HARQ-ACK codebooks are configured for the same serving cell and if higher layer parameter *priorityIndicatorDCI-0-1* is configured, if the bit width of the 2nd downlink assignment index in DCI format 0\_1 for one HARQ-ACK codebook is not equal to that of the 2nd downlink assignment index in DCI format 0\_1 for the other HARQ-ACK codebook, a number of most significant bits with value set to '0' are inserted to smaller 2nd downlink assignment index until the bit width of the 2nd downlink assignment index in DCI format 0\_1 for the two HARQ-ACK codebooks are the same.

- 3rd downlink assignment index – 0, 1 or 2 bits:

- 1 bit for semi-static HARQ-ACK codebook for multicast if the higher layer parameter *fdmed-ReceptionMulticast* is configured;

- 2 bits for the dynamic HARQ-ACK codebook for multicast;

- 0 bit otherwise.

- TPC command for scheduled PUSCH – 2 bits as defined in Clause 7.1.1 of [5, TS38.213]

< Unchanged parts are omitted >

##### 7.3.1.1.3 Format 0\_2

DCI format 0\_2 is used for the scheduling of PUSCH in one cell.

< Unchanged parts are omitted >

- Downlink assignment index – 0, 1, 2 or 4 bits

- 0 bit if the higher layer parameter *downlinkAssignmentIndexDCI-0-2* is not configured;

- 1, 2, 3, 4, 5 or 6 bits otherwise,

- 1st downlink assignment index – 1 or 2 bits:

- 1 bit for semi-static HARQ-ACK codebook for unicast and multicast if *pdsch-HARQ-ACK-Codebook = semiStatic* is configured for both unicast and multicast and the higher layer parameter *fdmed-ReceptionMulticast* is not configured; otherwise for semi-static HARQ-ACK codebook for unicast;

- 2 bits for dynamic HARQ-ACK codebook for unicast.

- 2nd downlink assignment index – 0 or 2 bits

- 2 bits for dynamic HARQ-ACK codebook with two HARQ-ACK sub-codebooks for unicast;

- 0 bit otherwise.

- 3rd downlink assignment index – 0, 1 or 2 bits

- 1 bit for semi-static HARQ-ACK codebook for multicast if the higher layer parameter *fdmed-ReceptionMulticast* is configured;

- 2 bits for the dynamic HARQ-ACK codebook for multicast;

- 0 bit otherwise.

< Unchanged parts are omitted >

##### 7.3.1.2.2 Format 1\_1

DCI format 1\_1 is used for the scheduling of one or multiple PDSCH in one cell.

< Unchanged parts are omitted >

- Time domain resource assignment – 0, 1, 2, 3, 4, 5 or 6 bits

- If the higher layer parameter *pdsch-TimeDomainAllocationListForMultiPDSCH* is not configured and if the higher layer parameter *pdsch-TimeDomainAllocationList* is configured, 0, 1, 2, 3 or 4 bits as defined in Clause 5.1.2.1 of [6, TS 38.214]. The bitwidth for this field is determined as bits, where *I* is the number of entries in the higher layer parameter *pdsch-TimeDomainAllocationList* if the higher layer parameter is configured;

- if the higher layer parameter *pdsch-TimeDomainAllocationListForMultiPDSCH* is configured, 0, 1, 2, 3, 4, 5 or 6 bits as defined in Clause 5.1.2.1 of [6, TS38.214]. The bitwidth for this field is determined as bits, where *I* is the number of entries in the higher layer parameter *pdsch-TimeDomainAllocationListForMultiPDSCH*;

- otherwise *I* is the number of entries in the default table.

< Unchanged parts are omitted >

- One-shot HARQ-ACK request – 0 or 1 bit.

- 1 bit if higher layer parameter *pdsch-HARQ-ACK-OneShotFeedback-r16* or *pdsch-HARQ-ACK-EnhType3ToAddModList* is configured;

- 0 bit otherwise.

If the UE is configured with a PUCCH-SCell, *pdsch-HARQ-ACK-EnhType3ToAddModList* is replaced by *pdsch-HARQ-ACK-EnhType3SecondaryToAddModList* for the secondary PUCCH group*.*

- Enhanced Type 3 codebook indicator - 0, 1, 2, or 3 bits.

- 0 bit if *pdsch-HARQ-ACK-EnhType3DCI-Field* is not configured;

- bits otherwise, where is the number of entries in the higher layer parameter *pdsch-HARQ-ACK-EnhType3ToAddModList.*

If the UE is configured with a PUCCH-SCell, *pdsch-HARQ-ACK-EnhType3DCI-Field* is replaced by *pdsch-HARQ-ACK-EnhType3DCI-FieldSecondaryPUCCHgroup* for the secondary PUCCH group, and *pdsch-HARQ-ACK-EnhType3ToAddModList* is replaced by *pdsch-HARQ-ACK-EnhType3SecondaryList* for the secondary PUCCH group*.*

< Unchanged parts are omitted >

##### 7.3.1.2.3 Format 1\_2

DCI format 1\_2 is used for the scheduling of PDSCH in one cell.

< Unchanged parts are omitted >

- Enhanced Type 3 codebook indicator - 0, 1, 2, or 3 bits.

- 0 bit if *pdsch-HARQ-ACK-EnhType3DCI-Field-1-2* is not configured;

- bits otherwise, where is the number of entries in the higher layer parameter *pdsch-HARQ-ACK-EnhType3ToAddModList.*

If the UE is configured with a PUCCH-SCell, *pdsch-HARQ-ACK-EnhType3ToAddModList* is replaced by *pdsch-HARQ-ACK-EnhType3SecondaryToAddModList* for the secondary PUCCH group.

< Unchanged parts are omitted >

##### 7.3.1.5.1 Format 4\_0

DCI format 4\_0 is used for the scheduling of PDSCH for broadcast in DL cell.

< Unchanged parts are omitted >

- Frequency domain resource assignment – bits where equals to

- the size of CORESET 0 if CORESET 0 is configured for the cell; and

- the size of initial DL bandwidth part if CORESET 0 is not configured for the cell.

- Time domain resource assignment – 4 bits as defined in Clause 5.1.2.1 of [6, TS38.214]

< Unchanged parts are omitted >

##### 7.3.1.5.2 Format 4\_1

DCI format 4\_1 is used for the scheduling of PDSCH for multicast in DL cell.

The following information is transmitted by means of the DCI format 4\_1 with CRC scrambled by G-RNTI or G-CS-RNTI configured by *MBS-RNTI-SpecificConfig*:

- Frequency domain resource assignment – bits where equals to

- the size of CORESET 0 if CORESET 0 is configured for the cell; and

- the size of initial DL bandwidth part if CORESET 0 is not configured for the cell.

- Time domain resource assignment – 4 bits as defined in Clause 5.1.2.1 of [6, TS38.214]

< Unchanged parts are omitted >

##### 7.3.1.5.3 Format 4\_2

DCI format 4\_2 is used for the scheduling of PDSCH in DL cell.

The following information is transmitted by means of the DCI format 4\_2 with CRC scrambled by G-RNTI or G-CS-RNTI configured by *MBS-RNTI-SpecificConfig*:

- Frequency domain resource assignment – number of bits determined by the following, where is the size of the common frequency resource as configured by higher layer parameter *locationAndBandwidthMulticast*:

- bits if only resource allocation type 0 is configured, where is defined in Clause 5.1.2.2.1 of [6, TS38.214],

- bits if only resource allocation type 1 is configured, or

- bits if *resourceAllocation* in *pdsch-ConfigMulticast* is configured as '*dynamicSwitch'*.

- If *resourceAllocation* in *pdsch-ConfigMulticast* is configured as '*dynamicSwitch'*, the MSB bit is used to indicate resource allocation type 0 or resource allocation type 1, where the bit value of 0 indicates resource allocation type 0 and the bit value of 1 indicates resource allocation type 1.

- For resource allocation type 0, the LSBs provide the resource allocation as defined in Clause 5.1.2.2.1 of [6, TS 38.214].

- For resource allocation type 1, the LSBs provide the resource allocation as defined in Clause 5.1.2.2.2 of [6, TS 38.214]

- Time domain resource assignment – 0, 1, 2, 3, or 4 bits as defined in Clause 5.1.2.1 of [6, TS 38.214]. The bitwidth for this field is determined as bits, where *I* is the number of entries in the higher layer parameter *pdsch-TimeDomainAllocationList* if the higher layer parameter is configured; otherwise *I* is the number of entries in the default table.

- VRB-to-PRB mapping – 0 or 1 bit:

- 0 bit if only resource allocation type 0 is configured or if *vrb-ToPRB-Interleaver* in *pdsch-ConfigMulticast* is not configured;

- 1 bit according to Table 7.3.1.2.2-5 otherwise, only applicable to resource allocation type 1, as defined in Clause 7.3.1.6 of [4, TS 38.211].

- PRB bundling size indicator – 0 bit if the higher layer parameter *prb-BundlingType* is not configured in *pdsch-ConfigMulticast* or is set to 'staticBundling', or 1 bit if the higher layer parameter *prb-BundlingType* in *pdsch-ConfigMulticast* is set to 'dynamicBundling' according to Clause 5.1.2.3 of [6, TS 38.214].

- Rate matching indicator – 0, 1, or 2 bits according to higher layer parameters *rateMatchPatternGroup1* and *rateMatchPatternGroup2* in *pdsch-ConfigMulticast*, where the MSB is used to indicate *rateMatchPatternGroup1* and the LSB is used to indicate *rateMatchPatternGroup2* when there are two groups.

- ZP CSI-RS trigger – 0, 1, or 2 bits as defined in Clause 5.1.4.2 of [6, TS 38.214]. The bitwidth for this field is determined as bits, where is the number of aperiodic ZP CSI-RS resource sets configured in *pdsch-ConfigMulticast*.

For transport block 1:

- Modulation and coding scheme – 5 bits as defined in Clause 5.1.3.1 of [6, TS 38.214]

- New data indicator – 1 bit

- Redundancy version – 2 bits as defined in Table 7.3.1.1.1-2

For transport block 2 (only present if *maxNrofCodeWordsScheduledByDCI* equals 2):

- Modulation and coding scheme – 5 bits as defined in Clause 5.1.3.1 of [6, TS 38.214]

- New data indicator – 1 bit

- Redundancy version – 2 bits as defined in Table 7.3.1.1.1-2

- HARQ process number – 4 bits

- Downlink assignment index – number of bits as defined in the following

- 2 bits if the higher layer parameter *pdsch-HARQ-ACK-Codebook =dynamic* is configured for multicast, where the 2 bits are the counter DAI;

- 0 bits otherwise.

If higher layer parameter *priorityIndicatorDCI-4-2* is configured in *pdsch-ConfigMulticast*, if the bit width of the Downlink assignment index in DCI format 4\_2 for one HARQ-ACK codebook is not equal to that of the Downlink assignment index in DCI format 4\_2 for the other HARQ-ACK codebook, a number of most significant bits with value set to '0' are inserted to smaller Downlink assignment index until the bit width of the Downlink assignment index in DCI format 4\_2 for the two HARQ-ACK codebooks are the same.

- PUCCH resource indicator – 3 bits as defined in Clause 9.2.3 of [5, TS 38.213]

- PDSCH-to-HARQ\_feedback timing indicator – 0, 1, 2, or 3 bits as defined in Clause 9.2.3 of [5, TS 38.213]. The bitwidth for this field is determined as bits, where *I* is the number of entries in the higher layer parameter *dl-DataToUL-ACK* in *pucch-ConfigMulticast1* if configured or *pucch-ConfigMulticast2* if configured; otherwise, *I* is the number of entries in the higher layer parameter *dl-DataToUL-ACK* in *PUCCH-Config.*

If higher layer parameter *priorityIndicatorDCI-4-2* is configured in *pdsch-ConfigMulticast*, if the bit width of the PDSCH-to-HARQ\_feedback timing indicator in DCI format 4\_2 for one HARQ-ACK codebook is not equal to that of the PDSCH-to-HARQ\_feedback timing indicator in DCI format 4\_2 for the other HARQ-ACK codebook, a number of most significant bits with value set to '0' are inserted to smaller PDSCH-to-HARQ\_feedback timing indicator until the bit width of the PDSCH-to-HARQ\_feedback timing indicator in DCI format 4\_2 for the two HARQ-ACK codebooks are the same.

- Antenna port(s) – 4, 5, or 6 bits as defined by Tables 7.3.1.2.2-1/2/3/4, where the number of CDM groups without data of values 1, 2, and 3 refers to CDM groups {0}, {0,1}, and {0, 1,2} respectively. The antenna ports shall be determined according to the ordering of DMRS port(s) given by Tables 7.3.1.2.2-1/2/3/4.

If a UE is configured with both *dmrs-DownlinkForPDSCH-MappingTypeA* and *dmrs-DownlinkForPDSCH-MappingTypeB*, the bitwidth of this field equals , where is the "Antenna ports" bitwidth derived according to *dmrs-DownlinkForPDSCH-MappingTypeA* and is the "Antenna ports" bitwidthderived according to *dmrs-DownlinkForPDSCH-MappingTypeB*. A number of zeros are padded in the MSB of this field, if the mapping type of the PDSCH corresponds to the smaller value of and .

- Transmission configuration indication – 0 bit if higher layer parameter *tci-PresentInDCI* in *pdcch-ConfigMulticast* is not enabled; otherwise 3 bits as defined in Clause 5.1.5 of [6, TS38.214].

- DMRS sequence initialization – 1 bit.

- Priority indicator – 0 bit if higher layer parameter *priorityIndicatorDCI-4-2* is not configured in *pdsch-ConfigMulticast*; otherwise 1 bit as defined in Clause 9 in [5, TS 38.213].

- Enabling/disabling HARQ-ACK feedback indication –1 bit if higher layer parameter *harq-FeedbackEnablerMulticast* indicates *dci-enabler*, where value 1 indicates enabling HARQ-ACK feedback and value 0 indicates disabling HARQ-ACK feedback; 0 bit, otherwise.

The size of DCI format 4\_2 is configurable by higher layer parameter *sizeDCI-4-2* from 20 bits and up to 140 bits.

< Unchanged parts are omitted >

#### 8.3.1.1 SCI format 1-A

SCI format 1-A is used for the scheduling of PSSCH and 2nd-stage-SCI on PSSCH

< Unchanged parts are omitted >

- Reserved – a number of bits as determined by the following:

- bits as configured by higher layer parameter *sl-NumReservedBits,* with value set to zero, if higher layer parameter *sl-IndicationUE-B* is not configured, or if higher layer parameter *sl-IndicationUE-B* is configured to 'disabled';

- bits otherwise, with value set to zero.

- Conflict information receiver flag – 0 or 1 bit

- 1 bit if higher layer parameter *sl-IndicationUE-B* is configured to 'enabled', where the bit value of 0 indicates that the UE cannot be a UE to receive conflict information and the bit value of 1 indicates that the UE can be a UE to receive conflict information as defined in Clause 16.3.0 of [5, TS 38.213];

- 0 bit otherwise.

< Unchanged parts are omitted >

#### 8.4.1.3 SCI format 2-C

SCI format 2-C is used for the decoding of PSSCH, and providing inter-UE coordination information or requesting inter-UE coordination information. SCI format 2-C can be used only for unicast.

< Unchanged parts are omitted >

If the 'Providing/Requesting indicator' field is set to 1, all the remaining fields are set as follows:

- Priority – 3 bits as specified in clause 5.4.3.3 of [12, TS 23.287] and clause 5.22.1.3.1 of [8, TS 38.321]. Value '000' of Priority field corresponds to priority value '1', value '001' of Priority field corresponds to priority value '2', and so on.

- Number of subchannels – bits as defined in Clause 8.1.4A of [6, TS 38.214].

- Resource reservation period – bits as defined in Clause 8.1.4A of [6, TS 38.214], where is the number of entries in the higher layer parameter *sl-ResourceReservePeriodList*, if higher layer parameter *sl-MultiReserveResource* is configured; 0 bit otherwise.

- Resource selection window location – bits as defined in Clause 8.1.4A of [6, TS 38.214], where is defined in Table 4.2-1 of Clause 4.2 of [4, TS 38.211].

- Resource set type – 1 bit, where value 0 indicates a request for inter-UE coordination information providing preferred resource set and value 1 indicates a request for inter-UE coordination information providing non-preferred resource set, if higher layer parameter *sl-DetermineResourceType* is configured to 'ueb'; otherwise, 0 bit.

- Padding bits.

For operation in a same resource pool, zeros shall be appended to SCI format 2-C of which 'Providing/Requesting indicator' field is set to 1 until the payload size equals that of SCI format 2-C of which 'Providing/Requesting indicator' field is set to 0.