**3GPP TSG RAN WG1 #112bis-e R1-2303213**

**e-Meeting, April 17th – April 26th, 2023**

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| *CR-Form-v12.2* |
| **[DRAFT] CHANGE REQUEST** |
|  |
|  | **38.213** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **17.5.0** |  |
|  |
| *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:***  | Draft CR on PDCCH validation for multicast SPS |
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| ***Source to WG:*** | Moderator (CMCC), Huawei, HiSilicon, CBN, CATT, MediaTek, ASUSTeK |
| ***Source to TSG:*** | R1 |
|  |  |
| ***Work item code:*** | NR\_MBS-Core |  | ***Date:*** | 2023-04-17 |
|  |  |  |  |  |
| ***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 canbe 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)* |
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| ***Reason for change:*** | A non-zero *sps-ConfigIndex* value can be configured to a single multicast SPS to UE. However, in current specification, if only one SPS is configured to UE, the “HPN” field value should be set to all zeros in SPS activation/release PDCCH and if multiple SPS configurations are configured, the “HPN” field value is used to indicate the activation/release SPS index(es). The current SPS activation/release PDCCH valiadition methods will cause the SPS cannot be activated/release to some UEs when different UEs configured with different numbers of SPS configurations. To solve this issue, the way is that the “HPN” field is also used to indicate the SPS index in multicast SPS activation/release DCI when only single multicast SPS is configured. |
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| ***Summary of change:*** | Clarify that the HARQ process number field in SPS activation/release DCI format 4\_1/4\_2 is used to indicate the SPS index according to Table 10.2-3 and Table 10.2-4 when only a single configuration for multicast SPS PDSCH with sps-ConfigIndex different than zero is configured to UE. |
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| ***Consequences if not approved:*** | Mis-alignment between different UEs about the multicast SPS configuration activation/release PDCCH validation in DCI format 4\_1/4\_2. |
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| ***Clauses affected:*** | 10.2 |
|  |  |
|  | **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:*** |  |

## 10.2 PDCCH validation for DL SPS and UL grant Type 2

========================= Unchanged parts =========================

If a UE is provided a single configuration for UL grant Type 2 PUSCH or for unicast SPS PDSCH or a single configuration for multicast SPS PDSCH with *sps-ConfigIndex* equals to zero, validation of the DCI format is achieved if all fields for the DCI format are set according to Table 10.2-1 or Table 10.2-2.

If a UE is provided more than one configuration for UL grant Type 2 PUSCH or for SPS PDSCH or only a single configuration for multicast SPS PDSCH with *sps-ConfigIndex* different than zero, a value of the HARQ process number field in a DCI format indicates an activation for a corresponding UL grant Type 2 PUSCH or for a SPS PDSCH configuration with a same value as provided by *ConfiguredGrantConfigIndex* or by *sps-ConfigIndex*, respectively. Validation of the DCI format is achieved if the RV field for the DCI format is set as in Table 10.2-3.

If a UE is provided more than one configuration for UL grant Type 2 PUSCH or for SPS PDSCH or only a single configuration for multicast SPS PDSCH with *sps-ConfigIndex* different than zero

- if the UE is provided *ConfiguredGrantConfigType2DeactivationStateList* or *sps-ConfigDeactivationStateList*, a value of the HARQ process number field in a DCI format indicates a corresponding entry for scheduling release of one or more UL grant Type 2 PUSCH or SPS PDSCH configurations

- if the UE is not provided *ConfiguredGrantConfigType2DeactivationStateList* or *sps-ConfigDeactivationStateList*, a value of the HARQ process number field in a DCI format indicates a release for a corresponding UL grant Type 2 PUSCH or for a SPS PDSCH configuration with a same value as provided by *ConfiguredGrantConfigIndex* or by *sps-ConfigIndex*, respectively

Validation of the DCI format is achieved if all fields for the DCI format are set according to Table 10.2-4.

If validation is achieved, the UE considers the information in the DCI format as a valid activation or valid release of DL SPS or configured UL grant Type 2. If validation is not achieved, the UE discards all the information in the DCI format.

Table 10.2-1: Special fields for single DL SPS or single UL grant Type 2 scheduling activation PDCCH validation when a UE is provided a single unicast SPS PDSCH or single multicast SPS with *sps-ConfigIndex* equals to zero or UL grant Type 2 configuration in the active DL/UL BWP of the scheduled cell

|  |  |  |  |
| --- | --- | --- | --- |
|  | DCI format 0\_0/0\_1/0\_2  | DCI format 1\_0/1\_2/4\_1 | DCI format 1\_1/4\_2 |
| HARQ process number(if present) | set to all '0's | set to all '0's | set to all '0's |
| Redundancy version(if present) | set to all '0's | set to all '0's | For the enabled transport block: set to all '0's |

Table 10.2-2: Special fields for single DL SPS or single UL grant Type 2 scheduling release PDCCH validation when a UE is provided a single unicast SPS PDSCH or single multicast SPS with *sps-ConfigIndex* equals to zero or UL grant Type 2 configuration in the active DL/UL BWP of the scheduled cell

|  |  |  |
| --- | --- | --- |
|  | DCI format 0\_0/0\_1/0\_2  | DCI format 1\_0/1\_1/1\_2/4\_1/4\_2 |
| HARQ process number(if present) | set to all '0's | set to all '0's |
| Redundancy version(if present) | set to all '0's | set to all '0's |
| Modulation and coding scheme | set to all '1's | set to all '1's |
| Frequency domain resource assignment | set to all '0's for FDRA Type 2 with $μ=1$set to all '1's, otherwise | set to all '0's for FDRA Type 0 or for *dynamicSwitch*set to all '1's for FDRA Type 1 |

Table 10.2-3: Special fields for a single DL SPS or single UL grant Type 2 scheduling activation PDCCH validation when a UE is provided multiple DL SPS or UL grant Type 2 configurations or only a single multicast SPS configuration with *sps-ConfigIndex* different than zero in the active DL/UL BWP of the scheduled cell

|  |  |  |  |
| --- | --- | --- | --- |
|  | DCI format 0\_0/0\_1/0\_2  | DCI format 1\_0/1\_2/4\_1 | DCI format 1\_1/4\_2 |
| Redundancy version(if present) | set to all '0's | set to all '0's | For the enabled transport block: set to all '0's |

Table 10.2-4: Special fields for a single or multiple DL SPS and UL grant Type 2 scheduling release PDCCH validation when a UE is provided multiple DL SPS or UL grant Type 2 configurations or only a single multicast SPS configuration with *sps-ConfigIndex* different than zero in the active DL/UL BWP of the scheduled cell

|  |  |  |
| --- | --- | --- |
|  | DCI format 0\_0/0\_1/0\_2  | DCI format 1\_0/1\_1/1\_2/4\_1/4\_2 |
| Redundancy version(if present) | set to all '0's | set to all '0's |
| Modulation and coding scheme | set to all '1's | set to all '1's |
| Frequency domain resource assignment | set to all '0's for FDRA Type 2 with $μ=1$set to all '1's, otherwise | set to all '0's for FDRA Type 0 or for *dynamicSwitch*set to all '1's for FDRA Type 1 |

========================= Unchanged parts =========================