**3GPP TSG-RAN WG1 Meeting #106-e *R1-2108418***

**E-meeting, 16th – 27th August 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
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|  | **38.213** | **CR** | **XXX** | **rev** | **-** | **Current version:** | **16.6.0** |  |
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| *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 on SCell dormancy indication | | | | | | | | | |
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| ***Source to WG:*** | Huawei, OPPO, Ericsson, Intel | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_NR\_DC\_CA\_enh-Core, NR\_unlic-Core | | | | |  | ***Date:*** | | | 2021-08-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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 e?planations 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | **Change#1**:  With the description “*UE has not received any PDCCH within the monitoring occasions for DCI formats scheduling PDSCH receptions, or SPS PDSCH release, or DCI format 1\_1 indicating SCell dormancy on any serving cell*  in section 9.1.3.2, it is not possible for UE to have HARQ-ACK information in response to a non-detected DCI format 1\_1 indicating SCell dormancy.  **Change#2**:  It is not clear how to determine PDSCH-to-HARQ\_feedback timing indicator field values for DCI indicating SCell dormancy.  It is straightforward to reuse the same solution as DCI scheduling a PDSCH reception or a SPS PDSCH release, i.e. configured by high layer signaling. Also considering Type3 HARQ-ACK triggering without PDSCH, the two additional cases can be implicitly covered by not explicitly mentioning each of the cases.  **Change#3:**  The interpretation of the bitmap values for SCell dormancy indication in case of absence or value of 0 for carrier indicator field in DCI format 0\_1 or a DCI format 1\_1 is unclear, due to incorrect indentations.  **Change#4:**  Considering a SPS PDSCH release indication is carried by a DCI with CRC scrambled by a CS-RNTI, and a PDCCH is considered as a Case 2 PDCCH only if the CRC of DCI format 1\_1 is scrambled by a RNTI which includes C-RNTI and MCS-C-RNTI, therefore, the description of “the UE considers the DCI format 1\_1 as not indicating a SPS PDSCH release” should be removed to avoid confusion on the understanding. | | | | | | | | |
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| ***Summary of change:*** | | **Change#1**:  Delete “in response to a detection of a DCI format 1\_1 indicating SCell dormancy”.  **Change#2:**  Delete “scheduling a PDSCH reception or a SPS PDSCH release,” to also cover SCell dormancy indication and Type 3 codebook.  **Change#3:**  Correct the indentation such that the apprppriate subbullets are under the condition related to the carrier indicator field.  **Change#4:**  Delete the description that Case 2 PDCCH does not indicate a SPS PDSCH release. | | | | | | | | |
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| ***Consequences if not approved:*** | | **Change#1**:  The descrption of specification impose unnecessary conditions for UE to check for codebook generation and is redundant.  **Change#2:**  PDSCH-to-HARQ\_feedback timing indicator field value for DCI indicating SCell dormancy and Type 3 codebook is undefined.  **Change#3:**  Incorrect/unclear bit value interpretion.  **Change#4:**  Description in the specification causes confusion. | | | | | | | | |
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| ***Clauses affected:*** | | 9.1.3.2, 9.2.3, 10.3 | | | | | | | | |
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|  | | **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:*** | | Initial version | | | | | | | | |

#### 9.1.3.2 Type-2 HARQ-ACK codebook in physical uplink shared channel

If a UE would multiplex HARQ-ACK information in a PUSCH transmission that is not scheduled by a DCI format or is scheduled by a DCI format that does not include a DAI field, then

- if the UE has not received any PDCCH within the monitoring occasions for DCI formats scheduling PDSCH receptions, or SPS PDSCH release, or DCI format 1\_1 indicating SCell dormancy on any serving cell and the UE does not have HARQ-ACK information in response to a SPS PDSCH reception to multiplex in the PUSCH, as described in clause 9.1.3.1, the UE does not multiplex HARQ-ACK information in the PUSCH transmission;

- else, the UE generates the HARQ-ACK codebook as described in clause 9.1.3.1, except that *harq-ACK-SpatialBundlingPUCCH* is replaced by *harq-ACK-SpatialBundlingPUSCH*.

<Unchanged part omitted>

### 9.2.3 UE procedure for reporting HARQ-ACK

<Unchanged part omitted>

For DCI format 1\_0, the PDSCH-to-HARQ\_feedback timing indicator field values map to {1, 2, 3, 4, 5, 6, 7, 8}. For a DCI format, other than DCI format 1\_0, the PDSCH-to-HARQ\_feedback timing indicator field values, if present, map to values for a set of number of slots provided by *dl-DataToUL-ACK*, *dl-DataToUL-ACK-r16*, or *dl-DataToUL-ACKForDCIFormat1\_2*, as defined in Table 9.2.3-1.

<Unchanged part omitted>

10.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells

<Unchanged part omitted>

If a UE is provided search space sets to monitor PDCCH for detection of DCI format 0\_1 and DCI format 1\_1 and if one or both of DCI format 0\_1 and DCI format 1\_1 include a Scell dormancy indication field,

- the Scell dormancy indication field is a bitmap with size equal to a number of groups of configured Scells, provided by *dormancyGroupWithinActiveTime*,

- each bit of the bitmap corresponds to a group of configured Scells from the number of groups of configured Scells

- if the UE detects a DCI format 0\_1 or a DCI format 1\_1 that does not include a carrier indicator field, or detects a DCI format 0\_1 or DCI format 1\_1 that includes a carrier indicator field with value equal to 0

- a ‘0’ value for a bit of the bitmap indicates an active DL BWP, provided by *dormantBWP-Id*, for the UE for each activated Scell in the corresponding group of configured Scells

- a ‘1’ value for a bit of the bitmap indicates

- an active DL BWP, provided by *firstWithinActiveTimeBWP-Id*, for the UE for each activated Scell in the corresponding group of configured Scells, if a current active DL BWP is the dormant DL BWP

- a current active DL BWP, for the UE for each activated Scell in the corresponding group of configured Scells, if the current active DL BWP is not the dormant DL BWP

- the UE sets the active DL BWP to the indicated active DL BWP

If a UE is provided search space sets to monitor PDCCH for detection of DCI format 1\_1, and if

- the CRC of DCI format 1\_1 is scrambled by a C-RNTI or a MCS-C-RNTI, and if

- a one-shot HARQ-ACK request field is not present or has a '0' value, and if

- the UE detects a DCI format 1\_1 on the primary cell that does not include a carrier indicator field, or detects a DCI format 1\_1 on the primary cell that includes a carrier indicator field with value equal to 0, and if

- *resourceAllocation* = *resourceAllocationType0* and all bits of the frequency domain resource assignment field in DCI format 1\_1 are equal to 0, or

- *resourceAllocation* = *resourceAllocationType1* and all bits of the frequency domain resource assignment field in DCI format 1\_1 are equal to 1, or

- *resourceAllocation = dynamicSwitch* and all bits of the frequency domain resource assignment field in DCI format 1\_1 are equal to 0 or 1

the UE considers the DCI format 1\_1 as indicating SCell dormancy, not scheduling a PDSCH reception, and for transport block 1 interprets the sequence of fields of

- modulation and coding scheme

- new data indicator

- redundancy version

and of

- HARQ process number

- antenna port(s)

- DMRS sequence initialization

as providing a bitmap to each configured SCell, in an ascending order of the SCell index, where

- a '0' value for a bit of the bitmap indicates an active DL BWP, provided by *dormantBWP-Id*, for the UE for a corresponding activated SCell

- a '1' value for a bit of the bitmap indicates

- an active DL BWP, provided by *firstWithinActiveTimeBWP-Id*, for the UE for a corresponding activated SCell, if a current active DL BWP is the dormant DL BWP

- a current active DL BWP, for the UE for a corresponding activated SCell, if the current active DL BWP is not the dormant DL BWP

- the UE sets the active DL BWP to the indicated active DL BWP

<Unchanged part omitted>