**3GPP TSG-RAN WG1 Meeting #108-eR1-22xxxxx**

**e-Meeting, February 21 – March 3, 2022**

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| *CR-Form-v12.1* |
| **[DRAFT] CHANGE REQUEST** |
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|  | **38.212** | **CR** |  | **rev** | **-** | **Current version:** | **16.8.0** |  |
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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:***  | Correction on Rel-16 UE dormancy adaptation |
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| ***Source to WG:*** | Moderator(Huawei), HiSilicon |
| ***Source to TSG:*** | RAN1 |
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| ***Work item code:*** | LTE\_NR\_DC\_CA\_enh-Core, NR\_UE\_pow\_sav-Core |  | ***Date:*** | 2022-02-21 |
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| ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | 1. RAN2 changed the configuration structure regarding dormancy cell groups from *DormancySCellGroups,* which explicitly includes a list of dormancy groups*,* in v16.0.0 to *dormancyGroupWithinActiveTime* in v16.7.0. TS 38.331 v16.7.0 specifies *dormancyGroupWithinActiveTime* as dormancy group ID for each configured SCell. Under this new configuration structure of *dormancyGroupWithinActiveTime*, it is not clear how to determine the number of bits for PDCCH dormancy indication field by the description of “according to higher layer parameter *dormancyGroupWithinActiveTime*”.
2. Similar issues exists for the determination of the number of bits for PDCCH dormancy indication field by the description of “according to higher layer parameter *dormancyGroupOutsideActiveTime*”.
3. The description of “with MSB to LSB of the bitmap corresponding to the first to last configured SCell group” is also not clear.
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| ***Summary of change:*** | 1. Update the description for dormancy indication field to capture that the field size is according to “the number of different *DormancyGroupIDs* provided by higher layer parameter *dormancyGroupWithinActiveTime* for SCells ”.
2. Similar changes are applied for the case when *dormancyGroupOutsideActiveTime is configured.*
3. Capture the the following conclusion made in RAN1#103 to update the description to “with MSB to LSB of the bitmap corresponding to the first to last configured SCell group in ascending order of *DormancyGroupID*”.

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| Conclusion: (for Dormancy Topic 5)In description of SCell dormancy indication in 38.212, “…MSB to LSB of the bitmap corresponding to the first to last configured SCell group...” implies that the MSB to LSB of the bitmap correspond to the first to last configured SCell group in ascending order of *DormancyGroupID*. |

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| ***Consequences if not approved:*** | 1. The specification is not clear. E.g. if gNB configures *DormancyGroupID* of 0 or 4 for the configured SCells but does not configure *DormancyGroupID* with value 1, 2 or 3 for any configured SCell, there can be two understanding on the field size, one is 2 bits and the other one is 5 bits.
2. The parameter *dormancyGroupOutsideActiveTime* and  *dormancyGroupWithinActiveTime* in TS 38.331 v16.7.0 cannot support the description of “the first to last configured SCell group” in TS38.212.
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| ***Clauses affected:*** | 7.3.1.1.2, 7.3.1.2.2, 7.3.1.3.7 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
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| ***Other comments:*** | Isolated impact analysis:This CR aligns with RAN1 common understanding. |
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| ***This CR's revision history:*** |  |

##### 7.3.1.1.2 Format 0\_1

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

- SCell dormancy indication – 0 bit if higher layer parameter *dormancyGroupWithinActiveTime* is not configured; otherwise 1, 2, 3, 4 or 5 bits bitmap determined according to the number of different *DormancyGroupID(s)* provided by higher layer parameter *dormancyGroupWithinActiveTime,* where each bit corresponds to one of the SCell group(s) configured by higher layers parameter *dormancyGroupWithinActiveTime,* with MSB to LSB of the bitmap corresponding to the first to last configured SCell group in ascending order of *DormancyGroupID*. The field is only present when this format is carried by PDCCH on the primary cell within DRX Active Time and the UE is configured with at least two DL BWPs for an SCell.

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

##### 7.3.1.2.2 Format 1\_1

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

- SCell dormancy indication – 0 bit if higher layer parameter *dormancyGroupWithinActiveTime* is not configured; otherwise 1, 2, 3, 4 or 5 bits bitmap determined according to the number of different *DormancyGroupID(s)* provided by higher layer parameter *dormancyGroupWithinActiveTime,* where each bit corresponds to one of the SCell group(s) configured by higher layers parameter *dormancyGroupWithinActiveTime,* with MSB to LSB of the bitmap corresponding to the first to last configured SCell group in ascending order of *DormancyGroupID*. The field is only present when this format is carried by PDCCH on the primary cell within DRX Active Time and the UE is configured with at least two DL BWPs for an SCell.

If one-shot HARQ-ACK request is not present or set to '0', and all bits of frequency domain resource assignment are set to 0 for resource allocation type 0 or set to 1 for resource allocation type 1 or set to 0 or 1 for dynamic switch resource allocation type, this field is reserved and the following fields among the fields above are used for SCell dormancy indication, where each bit corresponds to one of the configured SCell(s), with MSB to LSB of the following fields concatenated in the order below corresponding to the SCell with lowest to highest SCell index

- Modulation and coding scheme of transport block 1

- New data indicator of transport block 1

- Redundancy version of transport block 1

- HARQ process number

- Antenna port(s)

- DMRS sequence initialization

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

##### 7.3.1.3.7 Format 2\_6

DCI format 2\_6 is used for notifying the power saving information outside DRX Active Time for one or more UEs.

The following information is transmitted by means of the DCI format 2\_6 with CRC scrambled by PS-RNTI:

- block number 1, block number 2,…, block number *N*

 where the starting position of a block is determined by the parameter *ps-PositionDCI-2-6* provided by higher layers for the UE configured with the block.

If the UE is configured with higher layer parameter *ps-RNTI* and *dci-Format2-6*, one block is configured for the UE by higher layers, with the following fields defined for the block:

- Wake-up indication - 1 bit

- SCell dormancy indication – 0 bit if higher layer parameter *dormancyGroupOutsideActiveTime* is not configured; otherwise 1, 2, 3, 4 or 5 bits bitmap determined according to the number of different *DormancyGroupID(s)* provided by higher layer parameter *dormancyGroupOutsideActiveTime,* where each bit corresponds to one of the SCell group(s) configured by higher layers parameter *dormancyGroupOutsideActiveTime,* with MSB to LSB of the bitmap corresponding to the first to last configured SCell group in ascending order of *DormancyGroupID*.

The size of DCI format 2\_6 is indicated by the higher layer parameter *sizeDCI-2-6*, according to Clause 10.3 of [5, TS 38.213].