**3GPP TSG-RAN WG2 Meeting #121 *R2-230xxxx***

**Athens, Greece 27th Feb - 3rd Mar 2023**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.300** | **CR** | **0637** | **rev** | **1** | **Current version:** | **15.13.0** |  |
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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:*** | Clarification on the PDCCH Ordered RACH for SCell in 38.300 | | | | | | | | | |
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| ***Source to WG:*** | ZTE Corporation, Nokia(Rapporteur), Sanechips | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2023-02-28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | In the current TS 38.300, the performance of the PDCCH ordered RACH in CA is defined as below:  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 38.300 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  CFRA on SCell can only be initiated by the gNB to establish timing advance for a secondary TAG: the procedure is initiated by the gNB with a PDCCH order (step 0) that is sent on a scheduling cell of an activated SCell of the secondary TAG, preamble transmission (step 1) takes place on the indicated SCell, and Random Access Response (step 2) takes place on PCell.  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 38.300 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  According to the yellow highlighted wording in TS 38.300, it indicates PDCCH ordered RACH support cross-scheduling, however, in TS 38.212, only DCI 1-0 can be used for initiating RACH and there is no cell indication field present in it which implies that the PDCCH ordered RACH is not supported from stage 3 specification perspective. Therefore, there is a mis-alignment between TS 38.300 and TS 38.212..  By considering RAN1 have concluded the following conclusion on the support of the cross scheduling in PDCCH order:  R1-1902240 Draft CR on PDCCH order for cross-carrier scheduling Samsung  = >Not to be considered in Rel-15  It is crystal clear that the PDCCH order RACH does not support cross scheduling. Hence, it shall be modified the TS 38.300 spec in order to align with the stage 3 specification. | | | | | | | | |
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| ***Summary of change:*** | | 1: Clarify that the PDCCH ordered RACH does not support cross carrier scheduling in the case of CA | | | | | | | | |
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| ***Consequences if not approved:*** | | Stage-2 description is not aligned with the stage-3 specification where the PDCCH ordered RACH can not be cross-scheduled. | | | | | | | | |
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| ***Clauses affected:*** | | 9.2.6 | | | | | | | | |
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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:*** | | . | | | | | | | | |

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| ***Start of the change*** |

### 9.2.6 Random Access Procedure

The random access procedure is triggered by a number of events:

- Initial access from RRC\_IDLE;

- RRC Connection Re-establishment procedure;

- DL or UL data arrival during RRC\_CONNECTED when UL synchronisation status is "non-synchronised";

- UL data arrival during RRC\_CONNECTED when there are no PUCCH resources for SR available;

- SR failure;

- Request by RRC upon synchronous reconfiguration (e.g. handover);

- Transition from RRC\_INACTIVE;

- To establish time alignment for a secondary TAG;

- Request for Other SI (see clause 7.3);

- Beam failure recovery.

Furthermore, the random access procedure takes two distinct forms: contention-based random access (CBRA) and contention-free random access (CFRA) as shown on Figure 9.2.6-1 below:

 

(a) Contention-Based (b) Contention-Free

Figure 9.2.6-1: Random Access Procedures

For random access in a cell configured with SUL, the network can explicitly signal which carrier to use (UL or SUL). Otherwise, the UE selects the SUL carrier if and only if the measured quality of the DL is lower than a broadcast threshold. Once started, all uplink transmissions of the random access procedure remain on the selected carrier.

When CA is configured, the first three steps of CBRA always occur on the PCell while contention resolution (step 4) can be cross-scheduled by the PCell. The three steps of a CFRA started on the PCell remain on the PCell. CFRA on SCell can only be initiated by the gNB to establish timing advance for a secondary TAG: the procedure is initiated by the gNB with a PDCCH order (step 0) that is sent on an activated SCell of the secondary TAG, preamble transmission (step 1) takes place on the SCell, and Random Access Response (step 2) takes place on PCell.

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| ***End of the change*** |