**3GPP TSG RAN WG1 Meeting #107-e R1-211xxxx**

**e-Meeting, November 11– November 19, 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.213** | **CR** |  | **rev** | **-** | **Current version:** | **V16.7.1** |  |
|  | | | | | | | | |
| *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 HARQ bundling for LTE-M MTB scheduling in FDD | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator(ZTE), Sanechips, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_eMTC5-Core | | | | |  | ***Date:*** | | | 2021-11-11 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | For FDD, if the UE is configured with higher layer parameter harq-AckBundling in ce-PDSCH-MultiTB-Config and multiple TB are scheduled in the corresponding DCI, the number of TBs in a bundle and the number of bundles determined by is not aligned with that in Table 7.3-1 defined in TS36.213 clause 7.3. | | | | | | | | |
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| ***Summary of change:*** | | Modify the bundling rule in TS36.213 clause 10.2 for multiple TB scheduling in FDD   1. Replace the formula as 2. Add the explanation for M as ‘ is determined according to clause 7.3’ 3. Remove the redundant description for NTB and bundling size *M*. | | | | | | | | |
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| ***Consequences if not approved:*** | | Uplink timing determined by the bundling rule in FDD for multiple TBs scheduling is not correct according to the agreement and the current spec in TS36.213 clause 7.3. | | | | | | | | |
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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 Uplink HARQ-ACK timing

**<Unchanged parts are omitted>**

For FDD, if a BL/CE UE is configured with CEModeA, and if the UE is configured with higher layer parameter *harq-AckBundling* in *ce-PDSCH-MultiTB-Config* and multiple TB are scheduled in the corresponding DCI, the BL/CE UE shall upon detection of a PDSCH intended for the UE and for which an HARQ-ACK shall be provided, transmit the HARQ-ACK response using the same  derived according to Clause 10.1.2.1 in subframe(s) with , *i =0,1, …, N-1*, where

-  is the number of TB bundles, determined according to clause 7.3;

- if the UE is not configured with higher layer parameter *interleaving* in *ce-PDSCH-MultiTB-Config* and the UE is not in half-duplex FDD operation

- ,

- otherwise

- subframe **,**

- subframe is the last subframe in which the PDSCH containing TB bundle is transmitted;

- subframe is the last subframe in which the PDSCH is transmitted;

- denotes the number of consecutive subframes including non-BL/CE subframes where the PUCCH with HARQ ACK for TB bundle with repetition number of *N* is transmitted;

and

**<Unchanged parts are omitted>**