**3GPP TSG-RAN2 Meeting #109-e-Bis *R2-200xxxx***

**Online, 20th Apr 2020 - 30th Apr 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **36.302** | **CR** | **1206** | **rev** | **1** | **Current version:** | **15.2.0** |  |
|  | | | | | | | | |
| *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:*** | Correction on reception type combination for eMTC | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE Corporation, Sanechips, Sequans Communications | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_MTCe2\_L1-Core | | | | |  | ***Date:*** | | | 2020-04-30 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In R13, new Table 8.2-1a about Reception Type and new Table 8.2-2a about Reception Type combinations have been introduced for BL UEs and UEs in enhanced coverage.  In the Reception Types for eMTC UE, the part of (J or E or B) can be seen as USS-MPDCCHs for scheduling DL, the part of (I or F) can be seen as USS-MPDCCHs for scheduling UL, K is PDSCH and the Reception Type C and D are in Type 0 CSS. With Reception Type combinations in Table 8.2-2a, it’s possible for UE to receive both C and (I or F) simultaneously or receive both D and (J or E or B) simultaneously.  But according to physical layer specification (TS 36.213 section 9.1.5), Type0-MPDCCH common search space and MPDCCH UE-specific search space share the same narrowband location and the MPDCCH-PRB-set, e.g., share the same resource. Therefore, it’s impossible for the eMTC UE to simultaneously receive “C”/“D”(e.g. MPDCCH in Type 0 CSS) and USS-MPDCCH.  Therefore, the Downlink "Reception Type" combinations for eMTC UE in TS 36.302 are not aligned with possible reception decribed in physical layer specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | In order to keep alignment between Downlink "Reception Type" combinations for eMTC UE in TS 36.302 and physical layer specification, it needs to correct Downlink "Reception Type" combinations for eMTC UE to reflect “or” relationship between “C”/”D” and (J or E or B) / (I or F).  **Impact Analysis**  Impacted functionality:  There are no functional changes due to this CR is just a clarification to align with TS 36.213.  Inter-operability:  The CR reflects the correct Downlink "Reception Type" combinations which are already specified in physical layer specification and thus no inter-operability is foreseen. | | | | | | | | |
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| ***Consequences if not approved:*** | | If CR is not approved, there are no functional impacts. But such misalignment between TS 36.302 and TS 36.213 may cause future confusion. | | | | | | | | |
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| ***Clauses affected:*** | | 8.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

**<Start of the change>**

## 8.2 Downlink

Table 8.2-2a: Downlink "Reception Type" Combinations for BL UEs and UEs in enhanced coverage

The "Reception Type" used in this table refers to the "Reception Type" in Table 8.2-1a.

|  |  |
| --- | --- |
|  | PCell |
| 1. RRC\_IDLE | |
| 1.1 All UEs | A or G or H |
| 1.2 UEs supporting SC-PTM | A or G or H or (D1 + H1) |
| 1.3 UEs supporting MWUS | A or G or H or L |
| 2. RRC\_CONNECTED | |
| 2.1 All UEs | A or ((((J or E or B) + (I or F)) or C or D) + K) or G or H |
| Remarks: The combination for Random Access procedure is only required, related to G and H. |
| 2.2 UEs supporting FS2 | A or ((((J or E or B) + (I or F)) or C or D) + I + K) or G or H |
| Remarks: For TDD UL/DL configuration 0, two MPDCCHs can be received in the same subframe for UL-SCH in two different uplink subframes, which is only applicable for UEs configured with CE mode A with no repetitions.  Remarks: The combination for Random Access procedure is only required, related to G and H. |

NOTE: Any subset of the combinations specified in table 8.2-2 and 8.2-2a are also supported.

**<End of the change>**