**3GPP TSG RAN WG1 Meeting #100bis-e *R1-2002598***

**E-Meeting, April 20 - April 30, 2020**

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| *CR-Form-v12.0* |
| **DRAFT CHANGE REQUEST** |
|  |
|  | **36.213** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **V15.9.0** |  |
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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 Msg3 NPUSCH retransmission for NB-IoT EDT |
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| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | R1 |
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| ***Work item code:*** | NB\_IOTenh2-Core |  | ***Date:*** | 2020-04-20 |
|  |  |  |  |  |
| ***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 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-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:*** | In Rel-15 EDT for NB-IoT, the following agreements on Msg3 NPUSCH retransmission for EDT were made in RAN1#93. RAN1#93 agreements:* For a retransmission of msg3 carrying early data transmission, the UE uses the same TBS as previous transmission of Msg3 scheduled by RAR.
* DCI format for scheduling retransmission of Msg3 can be used to indicate UE to transmit a legacy Msg3 to fallback to non-EDT Msg3 transmission when the indicated TBS is 88 bits;
	+ Note: it is up to spec. editor which state to choose for EDT retransmission

Based on these agreements, is chosen by editor finally for EDT retransmission.  is used to indicate UE to fallback to non-EDT Msg3 transmission. 3 ≤ *I*MCS ≤ 14 should not used for EDT case. In current spec, EDT retransmission with 3≤ *I*MCS ≤ 14 will fall into “otherwise” clause. And “otherwise” clause can use any TBS within the TBS table(Table 16.5.1.2-2). But the TBS for initial EDT transmission scheduled by RAR can only use the TBS in Table 16.3.3-2, which is a subset of Table 16.5.1.2-2. Thus the TBS for EDT retransmission may be different from the TBS in initial EDT retransmission. The HARQ combination cannot be used. And it is inconsistent with the agreement that “For a retransmission of msg3 carrying early data transmission, the UE uses the same TBS as previous transmission of Msg3 scheduled by RAR.”Besides, there is no TBS values when *I*MCS = 14. |
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| ***Summary of change:*** | 1. Specify that 3 ≤ *I*MCS ≤ 14 is not scheduled for EDT Msg3 NPUSCH retransmission
2. One editorial change, change “PUSCH” to “NPUSCH”.
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| ***Consequences if not approved:*** | For EDT Msg3 NPUSCH, the retransmission with a TB size different from TB size for initial transmission may happen if 3≤ *I*MCS ≤ 14 is not precluded to schedule EDT retransmission. |
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| ***Clauses affected:*** | 16.5.1.2 |
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|  | **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:*** |  |

< Unchanged parts are omitted >

16.5.1.2 Modulation order, redundancy version and transport block size determination

To determine the modulation order, redundancy version and transport block size for the NPUSCH, the UE shall first

- read the "modulation and coding scheme" field () in the DCI, and

- read the "redundancy version" field () in the DCI, and

- read the "resource assignment" field () in the DCI, and

- compute the total number of allocated subcarriers (), number of resource units (), and repetition number () according to Subclause 16.5.1.1.

If the UE is configured with higher layer parameter *edt-Parameters* and the most recent NPUSCH transmission including a transport block with EDT, the UE is not expected to receive a DCI indicating a NPUSCH retransmission as part of the contention based random access procedure with 3 ≤ *I*MCS ≤ 14.

If the UE is configured with higher layer parameter *edt-Parameters*, and for a NPUSCH retransmission of the same transport block including EDT as part of the contention based random access procedure with  in the DCI,

- the modulation order is set to ****.

- if the UE is configured with higher layer parameter *edt-SmallTBS-Enabled* set to ‘true’, the repetition number for the NPUSCH retransmission is the smallest integer multiple of  value that is equal to or larger than where  is the TBS corresponding to the NPUSCH transmission scheduled by the Narrowband Random Access Response Grant, and  is given by the higher layer parameter *edt-TBS*.

elseif the UE is configured with higher layer parameter *edt-Parameters*, and if the DCI indicates a retransmission as part of the contention based random access procedure with  and the most recent PUSCH transmission including a transport block with EDT,

- the TBS and modulation are determined according to Table 16.3.3-1 in Subclause 16.3.3, for  and the transport block does not include EDT

otherwise, the UE shall use modulation order, **=** 2 if . The UE shall useand Table 16.5.1.2-1 to determine the modulation order to use for NPUSCH if .

< Unchanged parts are omitted >