**3GPP TSG-RAN WG2 Meeting #109e *R2-2001139***

**Online, 24 February – 6 March 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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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:***  | Inclusion of Maximum Number of PDCP SDUs per TTI for DL Categories 22-26 |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** | 2020-02-28 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | 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 Annex A, Table A-1 provides the maximum values for DL PDCP SDUs per TTI from for each (DL) UE category. R2-1813149 provides CR1628, which introduces UE categories that support 1024QAM. The CR was approved in RP-181947, however the table was not updated accordingly. |
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| ***Summary of change:*** | The following changes are made:* Table A-1 is extended to define maximum number of DL PDCP SDUs per TTI for DL Categories 22-26

The numbers were calculated based on the following assumptions:* For each DL category the max value as specified in the column “Maximum number of DL-SCH transport block bits received within a TTI” is taken
* Max PDCP SDU size of 1500bytes
* Due to the fact that PDCP PDU sizes may be smaller than 1500bytes, take a margin of factor 2 and roundup the result to a reasonable integer value

Based on above, the calculated values has been rounded up to the values given in the brackets:

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| --- | --- |
| DL Category 22 | 428 (430) |
| DL Category 23 | 479 (480) |
| DL Category 24 | 505 (510) |
| DL Category 25 | 553 (560) |
| DL Category 26 | 589 (590) |

**Impact analysis**Impacted functionality: 1024QAMInter-operability: 1. If the network is implemented according to the CR and the UE is not, the UE may be dimensioned assuming too low number of PDCP SDUs per TTI leading to limited SDU rate that the UE can handle and packet discarding by the UE.
2. If the UE is implemented according to the CR and the network is not, the NW will use wrong estimates on PDCP SDU size per TTI, leading to limiting capabilities on packet size handling.
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| ***Consequences if not approved:*** | Unclear L2 layer dimensioning in the UE |
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| ***Clauses affected:*** | Annex A |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

*Modified Subclause*

Annex A (informative):
Guideline on maximum number of DL PDCP SDUs per TTI

In order to help the dimensioning of the UE design, values for the maximum number of DL PDCP SDUs per TTI from Table A-1 may be used. The values are applicable for a TTI length of 1 ms. For other TTI lengths, the table refers to maximum number of DL PDCP SDUs within a 1ms period.

NOTE: Due to the need for the network buffer data for efficient scheduling, values for Category 1, 1bis and 2 are same. It is not expected that category 1 or category 1bis UE has to sustain the same rate of PDCP SDUs per TTI as category 2 for prolonged period of time.

Table A-1: Maximum values for DL PDCP SDUs per TTI

|  |  |
| --- | --- |
| UE Category / ue-CategoryDL | Maximum number of PDCP SDUs per TTI |
| Category 1 | 10 |
| Category 1bis | 10 |
| Category 2 | 10 |
| Category 3 | 20 |
| Category 4 /DL Category 4 | 30 |
| Category 5 | 50 |
| Category 6 /DL Category 6 | 50 |
| Category 7 /DL Category 7 | 50 |
| Category 9 /DL Category 9 | 80 |
| Category 10 /DL Category 10 | 80 |
| Category 11 /DL Category 11 | 100 |
| Category 12 /DL Category 12 | 100 |
| DL Category 13 | 65 |
| DL Category 15 | 130 |
| DL Category 16 | 180 |
| DL Category 18 | 200 |
| DL Category 19 | 280 |
| DL Category 20 | 360 |
| DL Category 21 | 240 |
| DL Category 22 | 430 |
| DL Category 23 | 480 |
| DL Category 24 | 510 |
| DL Category 25 | 560 |
| DL Category 26 | 600 |

*End of Modified Subclause*