**3GPP TSG-RAN WG1 Meeting #104-e *R1-210xxxx***

**E-meeting, January 25 – February 5, 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.213** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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 PUCCH power control for enhanced Type-2 HARQ-ACK codebook and for Type-3 HARQ-ACK codebook | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator (Huawei), [CATT] | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_unlic-Core | | | | |  | ***Date:*** | | | 2021-01-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **D** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | The definitions of the number of HARQ-ACK bits for enhanced Type-2 HARQ-ACK codebook and Type-3 HARQ-ACK codebook are missing in Clause 7.2.1 when such HARQ-ACK codebook is configured | | | | | | | | |
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| ***Summary of change:*** | | Add to clause 7.2.1 the references to the clauses that provide the number of HARQ-ACK bits for enhanced Type-2 HARQ-ACK codebook and Type-3 HARQ-ACK codebook when such HARQ-ACK codebook is configured | | | | | | | | |
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| ***Consequences if not approved:*** | | Possible ambiguity in the specification | | | | | | | | |
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| ***Clauses affected:*** | | 7.2.1 | | | | | | | | |
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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:*** | | **Impact Analysis:** | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Unchanged parts are omitted>

### 7.2.1 UE behaviour

If a UE transmits a PUCCH on active UL BWP  of carrier  in the primary cell  using PUCCH power control adjustment state with index , the UE determines the PUCCH transmission power  in PUCCH transmission occasion  as

 [dBm]

where

-  is the UE configured maximum output power defined in [8-1, TS 38.101-1], [8-2, TS38.101-2] and [8-3, TS38.101-3] for carrier  of primary cell  in PUCCH transmission occasion 

<Unchanged parts are omitted>

-  is a PUCCH transmission power adjustment component on active UL BWP  of carrier  of primary cell 

- For a PUCCH transmission using PUCCH format 0 or PUCCH format 1,  where

-  is a number of PUCCH format 0 symbols or PUCCH format 1 symbols for the PUCCH transmission as described in Clause 9.2.

-  for PUCCH format 0

-  for PUCCH format 1

-  for PUCCH format 0

-  for PUCCH format 1, where  is a number of UCI bits in PUCCH transmission occasion 

- For a PUCCH transmission using PUCCH format 2 or PUCCH format 3 or PUCCH format 4 and for a number of UCI bits smaller than or equal to 11, , where

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-  is a number of HARQ-ACK information bits that the UE determines as described in Clause 9.1.2.1 for Type-1 HARQ-ACK codebook and as described in Clause 9.1.3.1 or 9.1.3.3 for Type-2 HARQ-ACK codebook.is the same as  as described in Clause 9.1.4 for Type-3 HARQ-ACK codebook. If the UE is not provided any of *pdsch-HARQ-ACK-Codebook*, *pdsch-HARQ-ACK-Codebook-r16*, or *pdsch-HARQ-ACK-OneShotFeedback*,  if the UE includes a HARQ-ACK information bit in the PUCCH transmission; otherwise, 

-  is a number of SR information bits that the UE determines as described in Clause 9.2.5.1

-  is a number of CSI information bits that the UE determines as described in Clause 9.2.5.2

-  is a number of resource elements determined as , where  is a number of subcarriers per resource block excluding subcarriers used for DM-RS transmission, and  is a number of symbols excluding symbols used for DM-RS transmission, as defined in Clause 9.2.5.2, for PUCCH transmission occasion on active UL BWP  of carrier  of primary cell

- For a PUCCH transmission using PUCCH format 2 or PUCCH format 3 or PUCCH format 4 and for a number of UCI bits larger than 11, , where

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-  is a number of HARQ-ACK information bits that the UE determines as described in Clause 9.1.2.1 for Type-1 HARQ-ACK codebook and as described in Clause 9.1.3.1 or 9.1.3.3 for Type-2 HARQ-ACK codebook, or as described in Clause 9.1.4 for Type-3 HARQ-ACK codebook. If the UE is not provided any of *pdsch-HARQ-ACK-Codebook*, *pdsch-HARQ-ACK-Codebook-r16*, or *pdsch-HARQ-ACK-OneShotFeedback*,  if the UE includes a HARQ-ACK information bit in the PUCCH transmission; otherwise, 

-  is a number of SR information bits that the UE determines as described in Clause 9.2.5.1

-  is a number of CSI information bits that the UE determines as described in Clause 9.2.5.2

-  is a number of CRC bits that the UE determines as described in Clause 9.2

-  is a number of resource elements that the UE determines as , where  is a number of subcarriers per resource block excluding subcarriers used for DM-RS transmission, and  is a number of symbols excluding symbols used for DM-RS transmission, as defined in Clause 9.2.5.2, for PUCCH transmission occasion on active UL BWP  of carrier  of primary cell.

<Unchanged parts are omitted>