**3GPP TSG RAN WG1 #107-e R1-21xxxxx**

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

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| *CR-Form-v11.2* |
| **DRAFT CHANGE REQUEST** |
|  |
|  | **TS38.212** | **CR** | **0211** | **rev** | **-** | **Current version:** | **16.7.0** |  |
|  |
| *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:***  | CR to 38.212 clarification on KNZ to codepoint mapping for eType II CSI |
|  |  |
| ***Source to WG:*** | Moderator (Qualcomm Incorporated), Huawei/HiSilicon |
| ***Source to TSG:*** | R1 |
|  |  |
| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2021-11-15 |
|  |  |  |  |  |
| ***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 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 current 214 spec, section 5.2.2.2.5 and section 5.2.2.2.6, is defined as following: “ is the number of nonzero coefficients for layer and is the total number of nonzero coefficients”. Given this definition, it is clear that takes the value between 1 and . In current 212 spec, it further specified that the bitwidth to report is if maximum configured rank is rank-1 or otherwise. However, the spec is unclear of whether UE should encode values starting from codepoint “0” or codepoint “1”. * For instance, if , UE will use 3-bit to encode , but only 6 out of 8 codepoints are valid. The first option is mapping the candidate values to codepoint {000, 001, 010, 011, 100, 101}, the second option is mapping values directly to binary bits meaning that the candidate values are mapped to codepoint {001, 010, 011, 100, 101, 110}.
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| ***Summary of change:*** | In 38.212, clarify that the KNZ indicator field is mapped to KNZ values in increasing order where ‘0’ is mapped to KNZ=1. |
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| ***Consequences if not approved:*** | Ambiguity on number of non-zero coefficients reporting for eType II CSI. |
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| ***Clauses affected:*** | 6.3.2.1.2 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **N** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **N** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **N** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** | * It is an alignment of UE and BS behavior based on common understanding among companies.
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### 6.3.2 Uplink control information non PUCSH

### 6.3.2.1.2 CSI only

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Table 6.3.2.1.2-8: RI and CQI of *codebookType=typeII-r16 or typeII-PortSelection-r16*

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| --- | --- |
| Field | Bitwidth |
| Rank Indicator |  |
| Wide-band CQI | 4 |
| Subband differential CQI | 2 |
| Indicator of the total number of non-zero coefficients summed across all layers  |  if max allowed rank is 1; otherwise |

where is the number of allowed rank indicator values according to Clauses 5.2.2.2.5 and 5.2.2.2.6 [6, TS 38.214],, where , , , and are given by Clause 5.2.2.2.5 and 5.2.2.2.6 in [6, TS 38.214]. The values of the rank indicator field are mapped to allowed rank indicator values with increasing order, where '0' is mapped to the smallest allowed rank indicator value. The values of the indicator field are mapped to the allowed values of , according to Clauses 5.2.2.2.5 and 5.2.2.2.6 [6, TS 38.214], with increasing order, where ‘0’ is mapped to .

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