**3GPP TSG-RAN WG1 Meeting #110bis-eR1-221xxxx**

**e-Meeting, October 10– 19, 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.212** | **CR** | **xxxx** | **rev** |  | **Current version:** | **17.3.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Draft CR on aligning with TS38331 regarding configuration of *moreThanOneNackOnlyMode* | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator (Huawei), vivo | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_MBS-Core | | | | |  | ***Date:*** | | | 2022-10-12 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TS38.331 and TS38.213 is not aligned in terms of interpretation when UE is or is not provided *moreThanOneNackOnlyMode.* | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | A UE that is indicated the second HARQ-ACK reporting mode for only one G-RNTI can be indicated ~~by~~ *~~moreThanOneNackOnlyMode~~* to provide associated HARQ-ACK information bits in a PUCCH either according to the first HARQ-ACK reporting mode **when UE is not provided *moreThanOneNackOnlyMode*** or by selecting a PUCCH resource from a set of PUCCH resources for the PUCCH transmission based on the values of the HARQ-ACK information bits as described in Table 18-1 **when UE is provided *moreThanOneNackOnlyMode***. The UE generates HARQ-ACK information bits for the second HARQ-ACK reporting mode according to a Type-2 HARQ-ACK codebook as described in clause 9.1.3.1. For a PUCCH resource associated with PUCCH format 0, the UE transmits the PUCCH as described in [4, TS 38.211] by obtaining as described for HARQ-ACK information in clause 9.2.3 and by setting . For a PUCCH resource associated with PUCCH format 1, the UE transmits the PUCCH as described in [4, TS 38.211] by setting . | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UE behaivor is confused when UE is not provided *moreThanOneNackOnlyMode.* | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 18 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

# 18 Multicast Broadcast Services

< Unchanged parts are omitted >

A UE can be configured by *harq-FeedbackOptionMulticast,* for a G-RNTI or for a G-CS-RNTI, to provide HARQ-ACK information for a transport block reception associated with the G-RNTI or with the G-CS-RNTI, according to the first HARQ-ACK reporting mode or according to the second HARQ-ACK reporting mode. The UE determines a priority for a PUCCH transmission with multicast HARQ-ACK information according to any HARQ-ACK reporting mode as described in clause 9 for a PUCCH transmission with unicast HARQ-ACK information.

For the first HARQ-ACK reporting mode, the UE generates HARQ-ACK information with ACK value when a UE correctly decodes a transport block or detects a DCI format indicating an SPS PDSCH release; otherwise, the UE generates HARQ-ACK information with NACK value, as described in clauses 9 and 9.1 through 9.3.

< Unchanged parts are omitted >

A UE that is indicated the second HARQ-ACK reporting mode for only one G-RNTI can be indicated to provide associated HARQ-ACK information bits in a PUCCH either according to the first HARQ-ACK reporting mode when UE is not provided *NackOnlyMode* or according to the second HARQ-ACK reporting mode when UE is provided *NackOnlyMode* [12, TS 38.331].

When a UE would transmit a PUCCH with HARQ-ACK information according to the first HARQ-ACK reporting mode, the UE determines a PUCCH or a PUSCH to provide the HARQ-ACK information as described in clause 9.2.

When a UE would transmit a PUCCH with HARQ-ACK information according to the second HARQ-ACK reporting mode, the UE selects a PUCCH resource from a set of PUCCH resources for the PUCCH transmission based on the values of the HARQ-ACK information bits as described in Table 18-1 when UE is provided *NackOnlyMode*. The UE generates HARQ-ACK information bits for the second HARQ-ACK reporting mode according to a Type-2 HARQ-ACK codebook as described in clause 9.1.3.1. For a PUCCH resource associated with PUCCH format 0, the UE transmits the PUCCH as described in [4, TS 38.211] by obtaining as described for HARQ-ACK information in clause 9.2.3 and by setting . For a PUCCH resource associated with PUCCH format 1, the UE transmits the PUCCH as described in [4, TS 38.211] by setting .

For a UE that is indicated the second HARQ-ACK reporting mode and*NackOnlyMode*, all PUCCH resources associated with the second HARQ-ACK reporting mode have same starting symbol and same number of symbols.

Table 18-1: Mapping of values of HARQ-ACK information bits to PUCCH resources for the second HARQ-ACK reporting mode

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Value of HARQ-ACK information bits | | | | PUCCH resource |
| {0} | {0,0} | {0,0,0} | {0,0,0,0} | 1st PUCCH resource from *resourceList* |
|  | {1,0} | {1,0,0} | {1,0,0,0} | 2nd PUCCH resource from *resourceList* |
|  | {0,1} | {0,1,0} | {0,1,0,0} | 3rd PUCCH resource from *resourceList* |
|  |  | {1,1,0} | {1,1,0,0} | 4th PUCCH resource from *resourceList* |
|  |  | {0,0,1} | {0,0,1,0} | 5th PUCCH resource from *resourceList* |
|  |  | {1,0,1} | {1,0,1,0} | 6th PUCCH resource from *resourceList* |
|  |  | {0,1,1} | {0,1,1,0} | 7th PUCCH resource from *resourceList* |
|  |  |  | {1,1,1,0} | 8th PUCCH resource from *resourceList* |
|  |  |  | {0,0,0,1} | 9th PUCCH resource from *resourceList* |
|  |  |  | {1,0,0,1} | 10th PUCCH resource from *resourceList* |
|  |  |  | {0,1,0,1} | 11th PUCCH resource from *resourceList* |
|  |  |  | {1,1,0,1} | 12th PUCCH resource from *resourceList* |
|  |  |  | {0,0,1,1} | 13th PUCCH resource from *resourceList* |
|  |  |  | {1,0,1,1} | 14th PUCCH resource from *resourceList* |
|  |  |  | {0,1,1,1} | 15th PUCCH resource from *resourceList* |

If a UE is provided *pucch-ConfigurationListMulticast1* or *pucch-ConfigurationListMulticast2* for PUCCH transmissions with a priority value, the UE transmits a PUCCH with the priority value according to *pucch-ConfigurationListMulticast1* or *pucch-ConfigurationListMulticast2* for each G-RNTI or G-CS-RNTI that the UE provides associated HARQ-ACK information according to the first HARQ-ACK reporting mode or the second HARQ-ACK reporting mode, respectively. For HARQ-ACK information associated only with the second HARQ-ACK reporting mode, when the UE is not provided*NackOnlyMode* and the UE provides the HARQ-ACK information according to the first HARQ-ACK reporting mode and in response to at least one DCI format detection, the UE determines a PUCCH resource from *pucch-ConfigurationListMulticast1*, if provided; otherwise, the UE determines a PUCCH resource from *pucch-Config/pucch-ConfigurationList*.

< Unchanged parts are omitted >

If a UE would multiplex multicast HARQ-ACK information according to the second HARQ-ACK reporting mode with multicast HARQ-ACK information according to the first HARQ-ACK reporting mode, or unicast HARQ-ACK information, or CSI reports in a first PUCCH or in a PUSCH, as described in clauses 9 and 9.2.5, the UE provides the HARQ-ACK information according to the first HARQ-ACK reporting mode. For resolving an overlapping among a second PUCCH with HARQ-ACK information according to the second HARQ-ACK reporting mode and other PUCCHs or PUSCHs prior to multiplexing the HARQ-ACK information in a PUCCH or PUSCH when the UE is provided *NackOnlyMode*, the UE considers that the UE would transmit the second PUCCH using any PUCCH resource from the PUCCH resources associated with the second HARQ-ACK reporting mode when all values of the HARQ-ACK information are 'ACK'.

< Unchanged parts are omitted >