**3GPP TSG-RAN WG1 Meeting #112bis-e *R1-2304089***

 **E-meeting, 17 – 26 April, 2023**

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| *CR-Form-v12.2* |
| **[DRAFT]CHANGE REQUEST** |
|  |
|  | **38.213** | **CR** | **xxx** | **rev** | **-** | **Current version:** | **17.5.0** |  |
|  |
| *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:***  | Draft CR on HARQ-ACK for SPS release |
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| ***Source to WG:*** | Moderator (Huawei), Qualcomm, Samsung |
| ***Source to TSG:*** | R1 |
|  |  |
| ***Work item code:*** | NR\_MBS-Core |  | ***Date:*** | 2023-04-20 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | The current spec is not clear whether/how to apply the HARQ-ACK reporting mode to multicast SPS release. |
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| ***Summary of change:*** | * 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. The UE determines a PUCCH or a PUSCH to provide the HARQ-ACK information as described in clause 9.2.
* For the second HARQ-ACK reporting mode, the UE does not transmit a PUCCH that would include only HARQ-ACK information with ACK values. The second HARQ-ACK reporting mode is not applicable for the first SPS PDSCH reception after activation of SPS PDSCH receptions for a SPS configuration~~, or for DCI formats having associated HARQ-ACK information without scheduling a PDSCH reception~~.
* Add paragraph ‘For a DCI format indicating SPS PDSCH release, the UE provides the associated HARQ-ACK information based on the first HARQ-ACK reporting mode.’
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| ***Consequences if not approved:*** | UE may not know whether/how to feed back the associated HARQ-ACK information for the multicast SPS release. |
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| ***Clauses affected:*** | 18 |
|  |  |
|  | **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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

18 Multicast Broadcast Services

This clause is applicable only for PDCCH receptions, PDSCH receptions, and PUCCH transmissions for MBS on a serving cell. DCI formats with CRC scrambled by G-RNTI for multicast or G-CS-RNTI scheduling PDSCH receptions are referred to as multicast DCI formats and the PDSCH receptions are referred to as multicast PDSCH receptions. DCI formats with CRC scrambled by MCCH-RNTI or G-RNTI for broadcast scheduling PDSCH receptions are referred to as broadcast DCI formats and the PDSCH receptions are referred to as broadcast PDSCH receptions. HARQ-ACK information associated with multicast DCI formats or multicast PDSCH receptions is referred to as multicast HARQ-ACK information.

< Unchanged parts are omitted >

A UE can be configured by *harq-FeedbackOptionMulticast,* for a G-RNTI for multicast or for a G-CS-RNTI, to provide HARQ-ACK information for a transport block reception associated with the G-RNTI for multicast 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; otherwise, the UE generates HARQ-ACK information with NACK value, as described in clauses 9 and 9.1 through 9.3. The UE determines a PUCCH or a PUSCH to provide the HARQ-ACK information as described in clause 9.2.

For the second HARQ-ACK reporting mode, the UE does not transmit a PUCCH that would include only HARQ-ACK information with ACK values. The second HARQ-ACK reporting mode is not applicable for the first SPS PDSCH reception after activation of SPS PDSCH receptions for a SPS configuration.

< Unchanged parts are omitted >

provided only by a multicast DCI format as described in clause 10.2 by replacing CS-RNTI with the G-CS-RNTI. A release for SPS PDSCH receptions using a G-CS-RNTI for a corresponding SPS PDSCH configuration is provided by a multicast DCI format as described in clause 10.2 by replacing CS-RNTI with the G-CS-RNTI, or by a DCI format with CRC scrambled by CS-RNTI. For the first HARQ-ACK reporting mode and for a transport block that a UE received in a SPS PDSCH, a PDSCH reception providing a retransmission of the transport block can be scheduled either by a unicast DCI format using a CS-RNTI or by a multicast DCI format using a same G-CS-RNTI as the G-CS-RNTI of the initial transmission of the transport block [6, TS 38.214].

For a DCI format indicating SPS PDSCH release, the UE provides the associated HARQ-ACK information based on the first HARQ-ACK reporting mode.

A UE can be configured per G-RNTI for multicast or per G-CS-RNTI, by *harq-FeedbackEnablerMulticast* with value set to 'enabled', to provide HARQ-ACK information for PDSCH receptions. When the UE is not provided *harq-FeedbackEnablerMulticast* for a G-RNTI for multicast or G-CS-RNTI and *pdsch-HARQ-ACK-Codebook = dynamic* for multicast HARQ-ACK information, the UE does not provide HARQ-ACK information for respective PDSCH receptions. If a UE is provided *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI for multicast or a G-CS-RNTI, the UE provides HARQ-ACK information for PDSCH receptions scheduled by multicast DCI format 4\_1 associated with the G-RNTI or the G-CS-RNTI, and determines whether or not to provide the HARQ-ACK information for PDSCH receptions scheduled by multicast DCI format 4\_2 based on an indication by the multicast DCI format 4\_2 associated with the G-RNTI for multicast or the G-CS-RNTI [4, TS 38.212]. If a UE is provided *pdsch-HARQ-ACK-Codebook = semi-static* for multicast HARQ-ACK information, the UE does not expect to be provided *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI or a G-CS-RNTI.

< Unchanged parts are omitted >