**3GPP TSG-RAN WG1 Meeting #112bis-e *R1-230xxxx***

**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 the HARQ-ACK CB for multicast SPS repetition | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator (Huawei), Samsung | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_MBS-Core | | | | |  | ***Date:*** | | | 2023-04-17 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Regarding the pseudo-code of SPS PDSCH HARQ-ACK codebook generation,   * Correct the parameters * Split the case for unicast and multicast wrt the parameter of *pdsch-AggregationFactor* | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | a UE is configured to receive SPS PDSCHs from slot to slot for SPS PDSCH configuration on serving cell , excluding SPS PDSCHs that are not required to be received in any slot among overlapping SPS PDSCHs, if any according to [6, TS 38.214], or based on a UE capability for a number of PDSCH receptions in a slot according to [6, TS 38.214], or due to overlapping with a set of symbols indicated as uplink by *tdd-UL-DL-ConfigurationCommon* or by *tdd-UL-DL-ConfigurationDedicated* where,  **for unicast SPS PDSCHs**, is provided by *pdsch-AggregationFactor-r16* in ***SPS****-Config* or, if *pdsch-AggregationFactor-r16* is not included in ***SPS****-Config*, by *pdsch-AggregationFactor* in ***PDSCH-Config; otherwise, if is not provided, =1*,**  **for multicast SPS PDSCHs, is provided by *pdsch-AggregationFactor-r16* in *SPS-Config,* or, if *pdsch-AggregationFactor-r16* is not included in *SPS-Config, =1,*** and  HARQ-ACK information for the SPS PDSCH is associated with the PUCCH  } | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Regarding the pseudo-code of SPS PDSCH HARQ-ACK codebook generation,   * The parameters are not aligned with TS38.331. * The defalut repetition number is different when *pdsch-AggregationFactor-r16* is not included in *SPS-Config,* UE behavioris unclear per the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.1.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

9.1.2 Type-1 HARQ-ACK codebook determination

< Unchanged parts are omitted >

In the following pseudo-code, SPS PDSCH receptions associated with a SPS PDSCH configuration are activated by a DCI format with CRC scrambled by a CS-RNTI or by a DCI format with CRC scrambled by a G-CS-RNTI.

Set to the number of serving cells configured to the UE

Set to the number of SPS PDSCH configurations configured to the UE for serving cell

Set to the number of DL slots for SPS PDSCH receptions on serving cell with HARQ-ACK information multiplexed on the PUCCH

Set – HARQ-ACK information bit index

Set – serving cell index: lower indexes correspond to lower RRC indexes of corresponding cell

while

Set – SPS PDSCH configuration index: lower indexes correspond to lower RRC indexes of corresponding SPS configurations

while

Set – slot index

while

if {

a UE is configured to receive SPS PDSCHs from slot to slot for SPS PDSCH configuration on serving cell , excluding SPS PDSCHs that are not required to be received in any slot among overlapping SPS PDSCHs, if any according to [6, TS 38.214], or based on a UE capability for a number of PDSCH receptions in a slot according to [6, TS 38.214], or due to overlapping with a set of symbols indicated as uplink by *tdd-UL-DL-ConfigurationCommon* or by *tdd-UL-DL-ConfigurationDedicated* where,

for unicast SPS PDSCHs, is provided by *pdsch-AggregationFactor-r16* in *SPS-Config* or, if *pdsch-AggregationFactor-r16* is not included in *SPS-Config*, by *pdsch-AggregationFactor* in*PDSCH-Config; otherwise, if is not provided, =1*,

for multicast SPS PDSCHs, is provided by *pdsch-AggregationFactor-r16* in *SPS-Config,* or, if *pdsch-AggregationFactor-r16* is not included in *SPS-Config, =1,* and

HARQ-ACK information for the SPS PDSCH is associated with the PUCCH

}

= HARQ-ACK information bit for this SPS PDSCH reception

;

end if

;

end while

;

end while

;

end while

< Unchanged parts are omitted >