3GPP TSG RAN WG1 #107-e R1-21XXXXX

e-Meeting, November 11 - 19, 2021

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| *CR-Form-v12.0* |
|  **[DRAFT] CHANGE REQUEST** |
|  |
|  | **38.213** | **CR** |  | **rev** | **-** | **Current version:** | **16.7.0** |  |
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| *For* [***HELP***](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] PUCCH multiplexing with SPS HARQ-ACK or SR within a sub-slot |
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| ***Source to WG:*** |  Moderator (Nokia), Nokia Shanghai Bell, ZTE, Qualcomm, Huawei, HiSilicon |
| ***Source to TSG:*** | R1 |
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| ***Work item code:*** | NR\_ L1enh\_URLLC-Core |  | ***Date:*** | 2021-11-19 |
|  |  |  |  |  |
| ***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:*** | Capture the following agreement from RAN1#106-e (part of [106-e-NR-L1enh-URLLC-10]) in the specification:**Agreement**For the multiplexing among overlapping PUCCH channels with a given priority index, if a UE is provided *subslotLengthForPUCCH* for the HARQ-ACK codebook of the given priority, UE does not expect that the HARQ-ACK corresponding only to SPS PDSCH(s) or SR of the given priority index in one sub-slot is moved to a different sub-slot after multiplexing.* Note: the UE behavior for UL multiplexing with SR and CSI in a slot is maintained if there is no HARQ-ACK in the slot
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| ***Summary of change:*** | Clarify that for the multiplexing among overlapping PUCCHs of a given priority index, if a UE is provided *subslotLengthForPUCCH* for a *PUCCH-Config* of a given priority, UE does not expect that the HARQ-ACK corresponding only to SPS PDSCH(s) or SR in one sub-slot is moved to a different sub-slot after multiplexing. |
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| ***Consequences if not approved:*** | When *multi-CSI-PUCCH-ResourceList* is configured, due to the combined payload size in multiplexing CSI, HARQ-ACK (if any) and SR (if any), the HARQ-ACK CB for SPS PDSCH may move from one PUCCH sub-slot to another PUCCH sub-slot. There is no procedure to handle UCI multiplexing after the move, where two HARQ-ACK CBs may land in the same sub-slot. Both UE and gNB cannot handle such case. |
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| ***Clauses affected:*** | 9 |
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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 ...  |
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| ***Other comments:*** | **Isolated impact analysis:**This CR has no impact. |
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| ***This CR's revision history:*** |  |

9 UE procedure for reporting control information

< Unchanged parts are omitted >

If a UE is provided one *PUCCH-Config*

- if the UE is provided *subslotLengthForPUCCH* in the *PUCCH-Config*, the PUCCH resource for any SR configuration with priority index 0 or any CSI report configuration in the *PUCCH-Config* is within the *subslotLengthForPUCCH* symbols in the *PUCCH-Config*

If a UE is provided two *PUCCH-Config*

- if the UE is provided *subslotLengthForPUCCH* in the first *PUCCH-Config*, the PUCCH resource for any SR configuration with priority index 0 or any CSI report configuration in any *PUCCH-Config* is within the *subslotLengthForPUCCH* symbols in the first *PUCCH-Config*

- if the UE is provided *subslotLengthForPUCCH* in the second *PUCCH-Config*, the PUCCH resource for any SR configuration with priority index 1 in any *PUCCH-Config* is within the *subslotLengthForPUCCH* symbols in the second *PUCCH-Config*

If a UE is provided *subslotLengthForPUCCH* in a *PUCCH-Config* of a given priority index, in a slot of  symbols [4, TS 38.211] with HARQ-ACK, the UE does not expect that HARQ-ACK information in response to SPS PDSCH reception(s) only (if any) or SR (if any) of the given priority index in a slot of *subslotLengthForPUCCH* symbols is moved to a different slot of *subslotLengthForPUCCH* symbols after multiplexing overlapping PUCCHs.

< Unchanged parts are omitted >