**3GPP TSG-RAN WG1 Meeting #109-eR1-220xxxx**

**e-Meeting, May 9th – 20th, 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.214** | **CR** |  | **rev** |  | **Current version:** | **16.9.0** |  |
|  | | | | | | | | |
| *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:*** | Clarification of PUSCH with SP-CSI overlapping with PUSCH with data | | | | | | | | | |
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| ***Source to WG:*** | Moderator () | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2022-05-11 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | |  |
|  | *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)* | |
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| ***Reason for change:*** | | CR in R1-1908566 was discussed in RAN1#98 with agreed CR in R1- 1909886. In the second last paragraph in Clause 5.2.5, “on the same carrier” is added to clarify that only SP-CSI on PUSCH overlapping with PUSCH with data on the same carrier is dropped. The same addition is needed for the last paragraph in Clause 5.2.5. | | | | | | | | |
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| ***Summary of change:*** | | The following addition is added to the last paragraph in Clause 5.2.5.  “If a UE would transmit a first PUSCH that includes semi-persistent CSI reports and a second PUSCH that includes an UL-SCH on the same carrier and the first PUSCH transmission would overlap in time with the second PUSCH transmission, the UE does not transmit the first PUSCH and transmits the second PUSCH.” | | | | | | | | |
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| ***Consequences if not approved:*** | | PUSCH with SP-CSI overlapping with PUSCH with UL-SCH on a different carrier would be dropped according the the current specification. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.5 | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | | **Isolated impact analysis**  The proposed change is the common understanding in RAN1 and it is not expected to impact the existing gNB/UE implementation. | | | | | | | | |

5.2.5 Priority rules for CSI reports

CSI reports are associated with a priority value where

-  for aperiodic CSI reports to be carried on PUSCH  for semi-persistent CSI reports to be carried on PUSCH,  for semi-persistent CSI reports to be carried on PUCCH and  for periodic CSI reports to be carried on PUCCH;

-  for CSI reports carrying L1-RSRP or L1-SINR and  for CSI reports not carrying L1-RSRP or L1-SINR;

- *c* is the serving cell index and is the value of the higher layer parameter *maxNrofServingCells*;

- *s* is the *reportConfigID* andis the value of the higher layer parameter *maxNrofCSI-ReportConfigurations.*

A first CSI report is said to have priority over second CSI report if the associated  value is lower for the first report than for the second report.

Two CSI reports are said to collide if the time occupancy of the physical channels scheduled to carry the CSI reports overlap in at least one OFDM symbol and are transmitted on the same carrier. When a UE is configured to transmit two colliding CSI reports,

- if *y* values are different between the two CSI reports, the following rules apply except for the case when one of the *y* value is 2 and the other *y* value is 3 (for CSI reports transmitted on PUSCH, as described in Clause 5.2.3; for CSI reports transmitted on PUCCH, as described in Clause 5.2.4):

- The CSI report with higher  value shall not be sent by the UE.

- otherwise, the two CSI reports are multiplexed or either is dropped based on the priority values, as described in Clause 9.2.5.2 in [6, TS 38.213].

If a semi-persistent CSI report to be carried on PUSCH overlaps in time with PUSCH data transmission in one or more symbols on the same carrier, and if the earliest symbol of these PUSCH channels starts no earlier than N2+d2,1 symbols after the last symbol of the DCI scheduling the PUSCH where d2,1 is the maximum of the d2,1 associated with the PUSCH carrying semi-persistent CSI report and the PUSCH with data transmission, the CSI report shall not be transmitted by the UE. Otherwise, if the timeline requirement is not satisfied this is an error case.

If a UE would transmit a first PUSCH that includes semi-persistent CSI reports and a second PUSCH that includes an UL-SCH on the same carrier and the first PUSCH transmission would overlap in time with the second PUSCH transmission, the UE does not transmit the first PUSCH and transmits the second PUSCH. The UE expects that the first and second PUSCH transmissions satisfy the above timing conditions for PUSCH transmissions that overlap in time when at least one of the first or second PUSCH transmissions is in response to a DCI format detection by the UE.