**3GPP TSG RAN WG1 #108-e R1-220xxxx**

**e-Meeting, February 21st – March 3rd, 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.214** | **CR** | **-** | **rev** | **-** | **Current version:** | **V17.0.0** |  |
|  | | | | | | | | |
| *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:*** | Correction on frequency hopping for PUSCH with a configured grant | | | | | | | | | |
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| ***Source to WG:*** | Moderator(vivo), Huawei, HiSilicon, Ericsson, Samsung, Intel, Lenovo, Motorola Mobility, LG Electronics, ZTE, Sanechips | | | | | | | | | |
| ***Source to TSG:*** | TSG RAN WG1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_unlic-Core | | | | |  | ***Date:*** | | | 2022-02-25 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***Release:*** | | | Release 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RAN1 specified the support of multiple configured grant PUSCH transmissions in a configuration in NR-U Rel-16 together with repetition *K* and specified the NR-U CG-PUSCH repetition included in PUSCH repetition type A.  38.214 Section 6.3.1 specifies that intra-slot and inter-slot frequency hopping is applicable for PUSCH repetition type A as follows:  - Intra-slot frequency hopping, applicable to single slot and multi-slot PUSCH transmission and each of multiple PUSCH transmissions scheduled by a DCI if the higher layer parameter *pusch-TimeDomainAllocationListForMultiPUSCH* is configured.  - Inter-slot frequency hopping, applicable to multi-slot PUSCH transmission.  In the above frequency hopping, it is not clear if PUSCH transmission due to multiple configured grant PUSCH transmissions in a configuration is classified as "single-slot" or "multi-slot." As a consequence, it is not clear whether only intra-slot frequency hopping applies, or both intra-slot and inter-slot frequency hopping applies. | | | | | | | | |
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| ***Summary of change:*** | | Clarification that only intra-slot frequency hopping applies to each of multiple for NR-U Rel-16 configured grant PUSCH transmissions in a configuration. | | | | | | | | |
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| ***Consequences if not approved:*** | | The frequency hopping procedure for NR-U Rel-16 configured grant PUSCH transmissions in a configuration is undefined. | | | | | | | | |
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| ***Clauses affected:*** | | 6.3.1 | | | | | | | | |
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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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | This is the first version for this CR. | | | | | | | | |

\*\*\* Unchanged text omitted \*\*\*

6.3 UE PUSCH frequency hopping procedure

6.3.1 Frequency hopping for PUSCH repetition Type A and for TB processing over multiple slots

For PUSCH repetition Type A scheduled by DCI format 0\_1 or 0\_2 and for TB processing over multiple slots (as determined according to procedures defined in Clause 6.1.2.1 for scheduled PUSCH, or Clause 6.1.2.3 for configured PUSCH), a UE is configured for frequency hopping by the higher layer parameter *frequencyHoppingDCI-0-2* in *pusch-Config* for PUSCH transmission scheduled by DCI format 0\_2, and by *frequencyHopping* provided in *pusch-Config* for PUSCH transmission scheduled by a DCI format other than 0\_2*,* and by *frequencyHopping* provided in *configuredGrantConfig* for configured PUSCH transmission. For PUSCH repetition Type A scheduled by RAR UL grant or by DCI format 0\_0 with CRC scrambled by TC-RNTI, a UE is configured for frequency hopping by the frequency hopping flag information field of the RAR UL grant, and by the frequency hopping flag information field of DCI format 0\_0 with CRC scrambled by TC-RNTI, respectively. One of two frequency hopping modes can be configured:

- Intra-slot frequency hopping, applicable to single slot and multi-slot configured PUSCH transmission, multi-slot PUSCH transmission scheduled by DCI format 0\_1 or 0\_2, each of multiple PUSCH transmissions scheduled by a DCI if the higher layer parameter *pusch-TimeDomainAllocationListForMultiPUSCH* is configured and each of multiple configured grant PUSCH transmissions in a configuration where the higher layer parameters *cg-nrofSlots* and *cg-nrofPUSCH-InSlot* are provided.

- Inter-slot frequency hopping, applicable to multi-slot PUSCH transmission.

For operation with shared spectrum channel access, the UE does not expect that two hops of a PUSCH transmission are in different RB sets.

\*\*\* Unchanged text omitted \*\*\*