**3GPP TSG RAN WG1 #117R1-24XXXX\_D**

**Fukuoka City, Fukuoka, Japan, May 20th – 24th, 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.214** | **CR** | **DRAFT** | **rev** |  | **Current version:** | **18.2.0** |  |
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| *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:***  | Correction for collision rules of SRS with tx hopping in TDD. |
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| ***Source to WG:*** | Moderator (Ericsson), [Intel, ZTE] |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_pos\_enh2-Core |  | ***Date:*** | 2024-05-04 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | At the RAN1#114b meeting, the following agreement was made regarding collision handling between positioning SRS with frequency hopping and PUSCH or PUCCH. However, in case of TDD system, collision handling between DL channels/signals and positioning SRS with frequency hopping also needs to be considered.**Agreement**For the collision rules of the SRS with Tx hopping (option2)* If the SRS symbol(s), including the retuning time to/from the active BWP, collides with PUSCH or PUCCH, when UE determines that SRS with Tx hopping is to be dropped, the colliding SRS symbol(s) are dropped.
	+ FFS: timeline for determination of colliding channels/signals

FFS: collisions with MIMO SRS |
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| ***Summary of change:*** | Collision handling for positioning SRS with frequency hopping with other channels/signals for Option 2 can be updated as follows:* If the SRS symbol(s), including the retuning time to/from the active BWP, collides with PUSCH or PUCCH, when UE determines that SRS with Tx hopping is to be dropped, the colliding SRS symbol(s) are dropped.
* In unpaired spectrum, if the SRS symbol(s), including the switching time to and from the active bandwidth part, of the transmit frequency hopping collides with other DL signals or channels, and if the UE determines the SRS to be dropped, the colliding SRS symbol(s) are dropped.
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| ***Consequences if not approved:*** | Collision handling for positioning SRS with frequency hopping with other DL channels/signals in TDD system for Option 2 is incomplete.  |
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| ***Clauses affected:*** | 6.2.1.4.1 |
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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 ...  |
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| ***Other comments:*** |  |

6.2.1.4.1 SRS frequency hopping for positioning

**<Unchanged parts are omitted>**

In RRC\_CONNECTED mode, for a transmission of a hop for an SRS resource for positioning with frequency hopping starting in symbol $N\_{c\_{1}}$ and a colliding PUSCH or PUCCH transmission$ $starting in symbol $N\_{S} $, the UE shall apply the dropping rules taking into account:

- DCI(s) for which the time interval between the last symbol of PDCCH and the SRS symbol $N\_{c\_{1}}$is at least $N\_{2}$ symbols and additional time duration $T\_{SRS\_{h}}$, where $T\_{SRS\_{h}}$ is the switching time to/from the active BWP.

- DCI(s) for which the time interval between the last symbol of PDCCH and the colliding PUSCH/PUCCH symbol $N\_{S} $is at least $N\_{2}$ symbols, where calculation of $N\_{2}$ is based on the smallest SCS between the SCS configured for positioning SRS with the frequency hopping, the SCS of the PUSCH/PUCCH, and the SCS of the PDCCH.

- semi-persistent CSI reports or SRS considered active at least $N\_{2}$ symbols and an additional time duration $T\_{SRS\_{h}}$ before $N\_{c\_{1}}$, and considered active at least $N\_{2}$ symbols before $N\_{S}$.

If the SRS symbol(s), including the switching time to and from the active bandwidth part, of the transmit frequency hopping collides with PUSCH or PUCCH, and if the UE determines the SRS to be dropped, the colliding SRS symbol(s) are dropped. In unpaired spectrum, if the SRS symbol(s), including the switching time to and from the active bandwidth part, of the transmit frequency hopping collides with other DL signals or channels, and if the UE determines the SRS to be dropped, the colliding SRS symbol(s) are dropped.

When the reduced capability UE is configured by the higher layer parameter *txFHRedCapSrs-PosResource*, including a switching time to and from the active bandwidth part, the UE shall use the same priority rules as defined in Clause 6.2.1.

**<Unchanged parts are omitted>**