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

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

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.211** | **CR** | **DRAFT** | **rev** |  | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *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:*** | Correction for hop counting in SRS for positioning with tx hopping | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator (Ericsson), [Huawei/HiSilicon, Ericsson] | | | | | | | | | |
| ***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 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The hop counter description in 38.211 for SRS with tx hopping is not clear and points to the wrong parameter name | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clarifies that the the hop counter order should follow the one given by the parameter *slotOffsetForRemainingHops in*  *slotOffsetForRemainingHopsList* | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | * Incomplete description of the value range of , so how to derive the SRS frequency hopping pattern is unclear.   Lack of clarity in terms of which parameter is configured for the overlapped resources for SRS frequency hopping. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.4.1.4.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

6.4.1.4.3 Mapping to physical resources

Throughout this clause, when the higher layer parameter *SRShoppingNrofHops* is provided for *SRS-PosResource*, the sounding reference signal sequence definitions applies to a given hop.

When SRS is transmitted on a given SRS resource, the sequence for each OFDM symbol and for each of the antenna ports of the SRS resource shall be multiplied with the amplitude scaling factor  in order to conform to the transmit power specified in [5, 38.213] and mapped in sequence starting with  to resource elements  in a slot for each of the antenna ports  according to

The length of the sounding reference signal sequence is given by

where is given by a selected row of Table 6.4.1.4.3-1 with  where  is given by the field *b-SRS* contained in the higher-layer parameter *freqHopping* if configured, otherwise . The row of the table is selected according to the index  given by the field *c-SRS* contained in the higher-layer parameter *freqHopping*. The quantity is given by the higher-layer parameter *FreqScalingFactor* if configured, otherwise . When *FreqScalingFactor* is configured, the UE expects the length of the SRS sequence to be a multiple of 6.

The frequency-domain starting position is defined by

where

and

and

- is given by the higher-layer parameter *StartRBIndex* if configured, otherwise ;

- is given by Table 6.4.1.4.3-3 with

if the higher-layer parameter *EnableStartRBHopping* is configured, otherwise .

- is given by the higher-layer parameter YYY.

- is the hop transmission counter in the time domain, , where corresponds to the order of the higher-layer parameter *SlotOffsetForRemainingHops* in *slotOffsetForRemainingHopsList*.

<--------------------------unchanged text ommited------------------------------>