**3GPP TSG RAN WG1 #118R1-24NNNN**

**Maastricht, Netherlands, August 19th - 23rd, 2024**

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| *CR-Form-v12.3* |
| **DRAFT CHANGE REQUEST** |
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|  | **38.214** | **CR** | **DRAFT** | **rev** |  | **Current version:** | **18.3.0** |  |
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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 on SRS frequency hopping for positioning |
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| ***Source to WG:*** | Moderator (Ericsson), Nokia |
| ***Source to TSG:*** | RAN1 |
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| ***Work item code:*** | NR\_pos\_enh2-Core |  | ***Date:*** | 2024-08-09 |
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| ***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:*** | RAN1 have not agreed sequence generaton mapping for a part of an SRS resource. The principle of sequence generation and mapping for an SRS resource should be the same for SRS with frequency hopping. In the current description of TS 38.211, the sequence generation is performed for a given hop only for SRS frequency hoppoing, which is not what RAN1 have agreed. Based on the current spec description, the sequence of an received SRS resource is not ZC sequence anymore. In addition, the overlapping REs between SRS frequency hops carry different sequence elements, which may cause unnecessary additional processing to estimate phase drift between frequency hops. |
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| ***Summary of change:*** | In the first paragraph of Clause 6.4.1.4.2, the suggested change is to remove “*or if numberOfHops for SRS-PosResource is provided, for a given hop within an SRS resource*”, |
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| ***Consequences if not approved:*** | The sequence of an SRS resource is not an ZC sequence, so gNBs cannot take advantage of ZC sequence property for the received SRS of a positioning SRS resource for frequency hopping. |
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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:*** |  |

6.4.1.4.2 Sequence generation

The sounding reference signal sequence for an SRS resource shall be generated according to

 $r^{(p\_{i})}\left(n,l'\right)=w\_{TDM}^{(p\_{i})}\left(l'\right)r\_{u,v}^{(α\_{i},δ)}\left(n\right)$

 $0\leq n\leq M\_{sc,b}^{SRS}-1$

 $l'\in \left\{0,1,…,N\_{symb}^{SRS}-1\right\}$

where $M\_{sc,b}^{SRS}$ is given by clause 6.4.1.4.3, $r\_{u,v}^{\left(α,δ\right)}(n)$ is given by clause 5.2.2 with $δ=log\_{2}\left(K\_{TC}\right)$ and the transmission comb number $K\_{TC}\in \left\{2,4,8\right\}$ is contained in the higher-layer parameter *transmissionComb*. The quantity $l'\in \left\{0,1,…,N\_{symb}^{SRS}-1\right\}$ is the OFDM symbol number within the SRS resource.

**<Unchanged parts are omitted>**