**3GPP TSG RAN WG1 #118R1-2407451**

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

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.211** | **CR** | **0137** | **rev** | **-** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *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 on determination of restricted type for candidate cell PRACH transmission in LTM | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator (Fujitsu), Ericsson, Nokia, ZTE, Huawei, Lenovo, Apple | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_Mob\_enh2-Core | | | | |  | ***Date:*** | | | 2024-08-21 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | According to the current version of specification, the type of restricted set for PRACH is determined from *RestrictedSetConfig* or *msgA-RestrictedSetConfig*. However, these perameter are configured for the serving cell, and hence the configuration for early UL sync should be provided for each candidate cell. | | | | | | | | |
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| ***Summary of change:*** | | For the PRACH transmission for early UL sync to candidate cells, the type of restricted set is determined from the RRC parameter *ltm-RestrictedSetConfig.* | | | | | | | | |
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| ***Consequences if not approved:*** | | UE cannot determine the type of restricted set for PRACH transmitted to candidate cells for early UL sync. | | | | | | | | |
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| ***Clauses affected:*** | | 6.3.3.1 | | | | | | | | |
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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:*** | | **Isolated Impact Analysis:**  This CR has no isolated impact on network and UE behavior. | | | | | | | | |
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| ***This CR's revision history:*** | | This is the first version of this CR | | | | | | | | |

#### 6.3.3.1 Sequence generation

The set of random-access preambles  shall be generated according to



from which the frequency-domain representation shall be generated according to



where , , , or depending on the PRACH preamble format as given by Tables 6.3.3.1-1 and 6.3.3.1-2.

There are 64 preambles defined in each time-frequency PRACH occasion, enumerated in increasing order of first increasing cyclic shift  of a logical root sequence, and then in increasing order of the logical root sequence index, starting with the index obtained from the higher-layer parameter *prach-RootSequenceIndex* or *rootSequenceIndex-BFR* or by *msgA-PRACH-RootSequenceIndex* if configured and a type-2 random-access procedure is initiated as described in clause 8.1 of [5, TS 38.213]. Additional preamble sequences, in case 64 preambles cannot be generated from a single root Zadoff-Chu sequence, are obtained from the root sequences with the consecutive logical indexes until all the 64 sequences are found. The logical root sequence order is cyclic; the logical index 0 is consecutive to . The sequence number  is obtained from the logical root sequence index according to Tables 6.3.3.1-3 to 6.3.3.1-4B.

The cyclic shift  is given by



where  is given by Tables 6.3.3.1-5 to 6.3.3.1-7, the higher-layer parameter *msgA-RestrictedSetConfig*, if provided, determines the type of restricted sets (unrestricted, restricted type A, restricted type B), or the higher-layer parameter *ltm-RestrictedSetConfig* associated with a candidate cell indicated in Cell indicator field of a PDCCH order, if provided, determines the type of restricted sets (unrestricted, restricted type A, restricted type B) ; otherwise, the higher-layer parameter *restrictedSetConfig* determines the type of restricted sets (unrestricted, restricted type A, restricted type B), and Tables 6.3.3.1-1 and 6.3.3.1-2 indicate the type of restricted sets supported for the different preamble formats.

<unchanged part omitted>