**3GPP TSG-RAN WG3 Meeting #125 *R3-244190***

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

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0140** | **rev** | **3** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:*** | Support of the pre-Configured SRS activation | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Xiaomi, Ericsson, Nokia, Qualcomm Incorporated | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_pos\_enh2-Core | | | | |  | ***Date:*** | | | 2024-08-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | |  |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to TS 38.331 and TS 38.305, the SRS for positioning configuration in RRC\_INACTIVE state may be pre-configured in the target device. The target device may send an "RRC Resume Request" message with a new specific resume cause to the receiving gNB when a configured periodic or triggered location event has been detected to request activation of the pre-configured SRS for positioning.  In this case, the LMF needs to know the activation of the preconfigured SRS so that it can send the measurement request to other gNBs. To support it, it’s proposed to indicate the activation in Positioning Information Update message. As for the preconfigured multiple SRS configurations, the UE is configured with only one SRS for positioning configuration for each validity area, if using Positioning Information Update message with one activation indication, LMF knows the validity area that the UE’s current serving cell belongs, then it can know which preconfigured SRS is activated.  **Impact Analysis:**  Impact assessment towards the previous version of the specification (same release):  This CR has an impact from protocol and functional point of view.  The impact can be considered isolated because it only impacts the procedure to the support of preconfigured SRS | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add a new codepoint “preconfigured SRS activated” in *SRS Transmission Status* IE in Positioning Information Update message. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | LMF does not know the preconfigured SRS is the activated. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.7, 9.3.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS38.305 draft CR  TS38.423 CR1333 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev#1: Resubmission to RAN3#124 meeting.  Rev#2: Resubmission to RAN3#125 meeting.  Rev#3: update the procedure text and cover page. | | | | | | | | |

<<<<<<<<<<<<<<<<<<<< First Change >>>>>>>>>>>>>>>>>>>>

### 8.2.7 Positioning Information Update

#### 8.2.7.1 General

The Positioning Information Update procedure is initiated by the NG-RAN node to indicate to the LMF that a change has occurred in the SRS configuration or in the UE Tx TEG association. This procedure applies only if the NG-RAN node is a gNB.

#### 8.2.7.2 Successful Operation



Figure 8.2.7.2-1: Positioning Information Update procedure, successful operation

The NG-RAN node initiates the procedure by sending a POSITIONING INFORMATION UPDATE message to the LMF. If the *SRS Configuration* IE is included in the POSITIONING INFORMATION UPDATE message, the LMF shall consider this information as the updated SRS Configuration for the UE. If the *SFN Initialisation Time* IE is included in the POSITIONING INFORMATION UPDATE message, the LMF shall consider this information as the SFN Initialisation Time associated to the SRS Configuration.

If the *UE Tx TEG Association* *List* IE is included in the POSITIONING INFORMATION UPDATE message, the LMF shall consider it as the UE Tx TEG association for the SRS resources that have changed their TEG association during the latest reporting interval.

If the *SRS Transmission Status* IE is included in the POSITIONING INFORMATION UPDATE message and set to "stopped", the LMF shall consider that the SRS transmission has stopped. If the *SRS Transmission Status* IE is set to "preconfigured SRS activated", the LMF shall consider the preconfigured area specific SRS is activated in the current serving cell.

If the *New Cell Identity* IE is included in the POSITIONING INFORMATION UPDATE message, the LMF shall consider that as the new cell information of the UE.

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

#### 9.1.1.13 POSITIONING INFORMATION UPDATE

This message is sent by the NG-RAN node to indicate that a change in the SRS configuration or UE Tx TEG association has occurred.

Direction: NG-RAN node → LMF.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3 |  | YES | ignore |
| NRPPa Transaction ID | M |  | 9.2.4 |  | - |  |
| SRS Configuration | O |  | 9.2.28 |  | YES | ignore |
| SFN Initialisation Time | O |  | Relative Time 1900  9.2.36 |  | YES | ignore |
| UE Tx TEG Association List | O |  | 9.2.78 |  | YES | ignore |
| SRS Transmission Status | O |  | ENUMERATED (stopped, ..., preconfigured SRS activated) |  | YES | ignore |
| New Cell Identity | O |  | NR CGI  9.2.9 |  | YES | ignore |

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

9.3.5 Information Element definitions

<<<<<<<<<<<<<<<<<<<< the unchanged parts are sikpped >>>>>>>>>>>>>>>>>>>>

SRSInfo ::= SEQUENCE {

sRSResource SRSResourceID,

...

}

SRSTransmissionStatus ::= ENUMERATED {stopped,...,preconfigured-SRS-activated}

PosSRSInfo ::= SEQUENCE {

posSRSResourceID SRSPosResourceID,

...

}

<<<<<<<<<<<<<<<<<<<< End of Change >>>>>>>>>>>>>>>>>>>>