**3GPP TSG-RAN3 Meeting #109-e *R3-205575***

**E-meeting, 17 - 28 August 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **38.413** | **CR** | **0445** | **rev** | **1** | **Current version:** | **16.2.0** |  |
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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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:***  | Multiple location reporting requests and report |
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| ***Source to WG:*** | Huawei, Deutsche Telekom, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | RAN3 |
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| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2020-08-05 |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | Currently the Location Reporting Request Type IE can be signalled in multiple NGAP messages, e.g. LOCATION REPORTING CONTROL, INITIAL CONTEXT SETUP REQUEST and HANDOVER REQUEST. Even, the current specification allows the AMF to send multiple LOCATION REPORTING CONTROL messages including different Location Reporting Request Type contents. But it is not clear whether the “change of serving cell” event and “UE presence in the area of interest” event can be supported simultaneously by the NG-RAN node, i.e. whether the NG-RAN performs the replace operation or the addition operation? Also it is not clear the interpretation of the location Reporting Reference IDs in multiple Location Reporting Request TypesAnd the NG-RAN report the UE presence for Area of Interest for inter-NG-RAN handover and intra-NG-RAN handover should be clearer.  |
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| ***Summary of change:*** | 1 Clarify that in case the NG-RAN receives multiple NGAP messages including Area of Interest List, it will* if the Location Reporting Reference ID is not received before, store the received Area of Interest associated with the Location Reporting Reference ID;

2 Clarify that For inter-NG-RAN handover, the NG-RAN report the full set of UE presence per Location Reporting Reference ID, while for intra-NG-RAN handover, it will report the UE presence per Location Reporting Reference ID when any change happens. |
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| ***Consequences if not approved:*** | It is ambiguous for the NG-RAN user location reporting operation. IOT issue between the NG-RAN and AMF.  |
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| ***Clauses affected:*** | 8.12.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS38.423 CR0436  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **Change begins** |

## 8.12 Location Reporting Procedures

### 8.12.1 Location Reporting Control

#### 8.12.1.1 General

The purpose of the Location Reporting Control procedure is to allow the AMF to request the NG-RAN node to report the UE's current location, or the UE's last known location with time stamp, or the UE's presence in the area of interest while in CM-CONNECTED state as specified in TS 23.501 [9] and TS 23.502 [10]. The procedure uses UE-associated signalling.

#### 8.12.1.2 Successful Operation



Figure 8.12.1.2-1: Location reporting control

The AMF initiates the procedure by sending a LOCATION REPORTING CONTROL message to the NG-RAN node. On receipt of the LOCATION REPORTING CONTROL message the NG-RAN node shall perform the requested location reporting control action for the UE.

The *Location Reporting Request Type* IE indicates to the NG-RAN node whether:

- to report directly;

- to report upon change of serving cell;

- to report UE presence in the area of interest;

- to stop reporting at change of serving cell;

- to stop reporting UE presence in the area of interest;

- to cancel location reporting for the UE.

If the *Area Of Interest List* IE is included in the *Location Reporting Request Type* IE in the LOCATION REPORTING CONTROL message and the *Location Reporting Reference ID* IE is not stored before, the NG-RAN node shall store this Area of Interest associated with the Location Reporting Reference ID, and use it to track the UE's presence in the area of interest as defined in TS 23.502 [10].

NOTE: The NG-RAN reports the UE presence for all set of Location Reporting Reference IDs for inter-NG-RAN node handover. And the NG-RAN reports the UE presence only for those Location Reporting Reference IDs when the associated Areas of Interest are changed for intra-NG-RAN node handover.

If the *Additional Location Information* IE is included in the LOCATION REPORTING CONTROL message and set to "Include PSCell” then, if Dual Connectivity is activated, the NG-RAN node shall include the current PSCell in the report. If a report upon change of serving cell is requested, the NG-RAN node shall provide the report also whenever the UE changes the PSCell, and when Dual Connectivity is activated.

If reporting upon change of serving cell is requested, the NG-RAN node shall send a report immediately and shall send a report whenever the UE’s location changes.

#### 8.12.1.3 Abnormal Conditions

If the NG-RAN node receives a LOCATION REPORTING CONTROL message containing several *Location Reporting Reference ID* IE set to the same value, the NG-RAN node shall send the LOCATION REPORTING FAILURE INDICATION message with an appropriate cause value.

<Unchanged Text Omitted>

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| **Change ends** |