**3GPP TSG-RAN3 #116-e R3-223857**

**9 – 19 May 2022**

**Online**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **36.300** | **CR** |  | **rev** |  | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:*** | Clarifications for NB-IOT UE | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Huawei | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_NBIOT\_eMTC\_NTN | | | | |  | ***Date:*** | | | 2022-04-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | There are different types of NB-IOT UEs:  a NB-IoT UE that supports S1-U data transfer or User Plane CIoT EPS optimisation; a NB-IoT UE that only supports Control Plane CIoT EPS optimisation  For “NB-IoT UE that supports S1-U data transfer or User Plane CIoT EPS optimisation”, it should be similar to BL UE which has AS security, and UE location info. But this type of UE is not described in the specification.  The AS security is not used for NB-IoT UE that only supports Control Plane CIoT EPS optimisation. There will be no location information reported from this type of UEs. | | | | | | | | |
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| ***Summary of change:*** | | Add the clarification that the Mapped Cell ID determination, and MME (re-)selection is also applicable to NB-IoT UE that supports S1-U data transfer or User Plane CIoT EPS optimisation  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has limited impact under funtional point of view, since it clarifies the missing functions for NB-IoT UE that supports S1-U data transfer or User Plane CIoT EPS optimisation. | | | | | | | | |
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| ***Consequences if not approved:*** | | Not able to support the NB-IOT UE supports S1-U data transfer or User Plane CIoT EPS optimisation. | | | | | | | | |
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| ***Clauses affected:*** | | 23.21.6, 23.21.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**<<<<<< START OF CHANGE >>>>>>**

### 23.21.6 Signalling

The Cell Identity, as defined in TS 36.413 [25] and TS 36.423 [42], used in following cases corresponds to a Mapped Cell ID, irrespective of the orbit of the NTN payload or the types of service links supported.

- The Cell Identity indicated by the eNB to the Core Network as part of the User Location Information, or as E-UTRAN CGI in the related S1AP messages;

- The Cell Identity used for Paging Optimization in S1 interface;

- The Cell Identity used for PWS.

For a BL UE or a UE in enhanced coverage, the Cell Identity included within the target identification of the handover messages allows identifying the correct target cell.

The mapping between Mapped Cell ID(s) and geographical area(s) is configured in the RAN and Core Network.

For a BL UE or a UE in enhanced coverage or a NB-IoT UE that supports S1-U data transfer or User Plane CIoT EPS optimisation, the eNB is responsible for constructing the Mapped Cell ID based on the UE location info received from the UE, if available. The mapping may be pre-configured (e.g., up to operator’s policy) or up to implementation.

NOTE: As described in TS 23.401 [17], the User Location Information may enable the MME to determine whether the UE is allowed to operate at its present location. Special Mapped Cell IDs may be used to indicate areas outside the serving PLMN’s country.

The eNB reports the broadcasted TAC(s) of the selected PLMN to the MME. In case the eNB knows the UE’s location information, the eNB may determine the TAI the UE is currently located in and provide that TAI to the MME.

### 23.21.7 MME (Re-)Selection by eNB

The eNB implements the NAS Node Selection Function specified in TS 36.410 [95].

For a RRC\_CONNECTED UE, when the eNB is configured to ensure that the BL UE or the UE in enhanced coverage is using an MME that serves the country in which the UE is located. If the eNB detects that a BL UE or a UE in enhanced coverage is in a different country to that served by the serving MME, it should perform an S1 handover to change to an appropriate MME or initiate anUE Context Release Request procedure towards the serving MME (in which case the MME may decide to detach the UE).

For a RRC\_CONNECTED NB-IOT UE, when the eNB is configured to ensure that the NB-IOT UE is using an MME that serves the country in which the UE is located. If the eNB detects that the UE is in a different country to that served by the serving MME, it should initiate anUE Context Release Request procedure towards the serving MME (in which case the MME may decide to detach the UE).

**<<<<<< END OF CHANGE >>>>>>**