**3GPP TSG-RAN Meeting # 111-e *R3-211154***

 **25 January – 5 February 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **38.410** | **CR** |  **0029** | **rev** | **2** | **Current version:** | **16.3.0** |  |
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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 |  | Radio Access Network | **x** | Core Network | **x** |

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| ***Title:***  | Clarification of NAS Node Selection Function for NTN nodes providing access over multiple countries |
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| ***Source to WG:*** | Qualcomm Incorporated |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | NR\_NTN\_solutions |  | ***Date:*** | 2020-01-12 |
|  |  |  |  |  |
| ***Category:*** | **C** |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | SA2 has agreed an optional requirement on the RAN in S2-2009486, according to which the RAN may, if configured, select an AMF based on the UE’s location (i.e. country where the UE is located). In principle this covers two scenarios (i.e., coverage spillover across border, and non-spillover) which are of interest for NTN since (1) RAN nodes may host cells in different countries, and also (2) cells may span large cross-border areas.For the spillover case, the UE location needs to be available to the RAN node. For the non-spillover case, the country where the UE is located is implicitly known by the identity of the access cell and the selected PLMN (which must be one of the broadcast PLMNs). However, according to TS 38.300, it is not precluded that a cell served by a gNB does not broadcast the PLMN ID included in the Global gNB ID. With that statement, it seems possible that different cells in the same gNB broadcast different PLMNs, and the same logical gNB will have connectivity to different CNs. This scenario may happen for NTN where a single gNB provides coverage in multiple countries.Under this arrangement, it is important to ensure that a UE accessing the network via a cell of country A does not use the CN of country B, in any scenario (including when the UE provides a 5G-S-TMSI, or a GUAMI as per S2-2009486). |
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| ***Summary of change:*** | Specify that RAN may optionally take into account UE location information when determining the AMF.Specify that the AMF (as determined by NNSF) shall support the selected PLMN indicated by the UE. |
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| ***Consequences if not approved:*** | No support for determination of serving AMF based on UE location.Unclear that the RAN should check the selected PLMN even when the 5G-S-TMSI or GUAMI of the registered AMF are available, and the AMF can be identified. |
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| ***Clauses affected:*** | 5.7 |
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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:*** |  |
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| ***This CR's revision history:*** |  |

## 5.7 NAS Node Selection function

The interconnection of NG-RAN nodes to multiple AMFs is supported in the 5GS architecture.

Therefore, a NAS node selection function is located in the NG-RAN node to determine the AMF association of the UE, based on the UE's temporary identifier, which was assigned to the UE by the AMF. When the UE's temporary identifier has not been yet assigned or is no longer valid the NG-RAN node may instead take into account slicing information to determine the AMF.

When the NG-RAN node is configured to ensure that RRC connections use an AMF serving the country where the UE is located, as described in TS 23.501 [8], the NG-RAN node shall take into account UE location information, if available, when determining the AMF. After initial access, the NG-RAN node shall trigger suitable handover procedures if the UE location information is not consistent with the serving AMF/PLMN as described in TS 23.502 [6].

Editor’s note: Text may need to be revised depending on RAN2/SA2/RAN3 progress.

This functionality is located in the NG-RAN node and enables proper routing via the NG interface. On NG, no specific procedure corresponds to the NAS Node Selection Function.