**3GPP TSG-RAN Meeting # 116-e *R3-223099***

**9th May - 19th May 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.413** | **CR** | **0776** | **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:*** | Adding serving PLMN information in ULI for NTN | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated, Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_NTN\_solutions | | | | |  | ***Date:*** | | | 2022-04-01 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The newly defined *NR NTN TAI Information* IE is structured assuming knowledge of the UE’s serving PLMN (so the TAIs can be derived and/or the AMF is informed of the serving PLMN at NGAP level). However since the legacy *TAI* IE in the *User Location Information* IE is ignored, such information is not available to the AMF.  The AMF is aware of, or can infer, the UE’s serving PLMN in most cases, however there are certain special cases (e.g. initial registration in case of AMF supporting multi PLMNs, mobility to EPLMN, etc) where the information may need to be explicit, also for consistency with legacy handling.  There seem to be two options to solve the issue:   1. Add a serving PLMN IE to the new *NR NTN TAI Information* IE. 2. Modify semantics of the legacy *TAI* IE such that the PLMN information is not ignored.   This CR implements option #1, to avoid partial use of the legacy IE which may be confusing. | | | | | | | | |
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| ***Summary of change:*** | | A *Serving PLMN* IE is added to the *NR NTN TAI Information* IE.  In addition, the *UE location derived TAI in NR NTN* IE is changed to a TAC, both in reference and its name (as the TAI can be derived using the newly signalled serving PLMN).  **This CR is strictly non-backward compatible as it introduces a new mandatory IE, and changes the reference of an existing IE.**  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has limited impact on the previous version of the specification, as it changes only an NTN specific IE within the *User Location Information* IE. | | | | | | | | |
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| ***Consequences if not approved:*** | | Lack of PLMN information in the *User Location Information* IE and ambiguity in case of network sharing. | | | | | | | | |
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| ***Clauses affected:*** | | 9.3.3.53, 9.4.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

#### 9.3.3.53 NR NTN TAI Information

This IE contains the broadcast TAC(s), the serving PLMN, and the TAC information derived from the actual UE location if available.

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| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **TAC List in NR NTN** |  | *1..<maxnoofTACsinNTN>* |  | Includes all TAC(s) broadcast in the cell, for the UE’s serving PLMN. |
| >TAC | M |  | 9.3.3.10 |  |
| Serving PLMN | M |  | PLMN Identity  9.3.3.5 | Indicates the UE’s serving PLMN. |
| UE location derived TAC in NR NTN | O |  | TAC  9.3.3.10 | For NR NTN, this IE contains TAC information derived from the actual UE location, if available. |

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| Range bound | Explanation |
| maxnoofTACsinNTN | Maximum no. of TACs broadcast per cell. Value is 12. |

**>>> NEXT CHANGE <<<**

### 9.4.5 Information Element Definitions

-- ASN1START

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**\*\*\* skip text in same section \*\*\*\***

NRNTNTAIInformation ::= SEQUENCE {

tACListIn-NRNTN TACListIn-NRNTN,

pLMNIdentity PLMNIdentity,

uELocationDerivedTACIn-NRNTN TAC OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NRNTNTAIInformation-ExtIEs} } OPTIONAL,

...

}

NRNTNTAIInformation-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

...

}

**>>> END OF CHANGES <<<**