**3GPP TSG-WG2 Meeting #120 *R2-2213029***

**November 14 – 18, 2022, Toulouse, France**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **36.306** | **CR** | **1864** | **rev** | **1** | **Current version:** | **17.2.0** |  |
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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 | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Miscellaneous Correction for IoT-NTN Capabilities |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | LTE\_NBIOT\_eMTC\_NTN |  | ***Date:*** | 2022-11-22 |
|  |  |  |  |  |
| ***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 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:*** | Corrections on field names for SR Prohibit timer and NPRACH-segmented transmission for the *ntn-connectivity-EPC* parameter. HARQ-RTT Extension feature description is not provided in NTN-connectivity feature description.The description of pre-compensation information is not correct. |
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| ***Summary of change:*** | In section 4.3.38.1 SR prohibit timer name and NPRACH segmented transmission for format 0 and format 1 is modified to align with RRC specification names.HARQ-RTT extension feature is described in 4.3.38.1Precompensation information is aligned with TS38.306 |
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| ***Consequences if not approved:*** | Inconsistent use of field names in capability description and RRC specification. Missing and incorrect descriptions of mandatory features of IoT-NTN connectivity  |
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| ***Clauses affected:*** | 4.3.38.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** | Changes of R2-22010078 and R2-2210776 from RAN2-119bis-e and agreed changes of R2-2212005 from RAN2-120 are merged in this CR |
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| ***This CR's revision history:*** |  |

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| Beginning of change |

### 4.3.38 IoT NTN parameters

#### 4.3.38.1 *ntn-Connectivity-EPC-r17*

This field indicates whether the UE supports NTN access. This field is only applicable if the UE supports *ce-ModeA-r13* or any *ue-Category-NB*. If the UE indicates this capability the UE shall support the following enhancements:

- General:

- handling of *cellBarred-NTN-r17* and *trackingAreaList-r17* in *SystemInformationBlockType1(-NB)* as specified in TS 36.331 [5];

- reception of *SystemInformationBlockType31(-NB)* as specified in TS 36.331 [5];

- derivation of its position based on its GNSS measurements;

- reporting of the remaining GNSS validity duration as specified in TS 36.331 [5];

- PDCP:

- if the UE supports *ce-ModeA-r13, discardTimerExt-r17* as specified in TS 36.331 [5];

- RLC:

- *t-ReorderingExt-r17* as specified in TS 36.331 [5];

- MAC:

- estimation of UE-gNB RTT as specified in TS 36.321 [4];

- delaying the start of the RA response window as specified in TS 36.321 [4];

*-* delaying the start of the *mac-ContentionResolutionTimer* as specified in TS 36.321 [4];

- if the UE supports *ce-ModeA-r13* orif the UE supports any *ue-Category-NB* and supports *sr-WithoutHARQ-ACK-r15,* handling of *sr-ProhibitTimerOffset-r17* as specified in TS 36.331 [5];

- extending the length of the (UL) HARQ RTT timer as specified in TS 36.321 [4];

- Physical layer:

- calculation of the UE specific TA in RRC\_IDLE and RRC\_CONNECTED state based on its GNSS-acquired position and the serving satellite ephemeris as specified in TS 36.211 [17];

- calculation of the common TA in RRC\_IDLE and RRC\_CONNECTED as specified in TS 36.213 [22];

- for TA update in RRC\_CONNECTED state, support of combination of both open (i.e. UE specific TA estimation, and common TA calculation) and closed (i.e., received TA commands) control loops;

- - frequency pre-compensation to counter shift the Doppler experienced on the service link;

- timing relationship enhancements using higher layer parameters *k-Offset-r17* and *k-Mac-r17* as specified in TS 36.213 [22];

- segmented UL transmission using higher layer parameters *prach-TxDuration-r17, nprach-TxDurationFmt01-r17, nprach-TxDurationFmt2-r17*, *pucch-TxDuration-r17* and *(n)pusch-TxDuration-r17* as specified in TS 36.331 [5]. except for UEs indicating support of *ue-Category-NB* and *ntn-ScenarioSupport-r17* with value GSO.

A UE indicating support of *ce-ModeA-r13* and *ntn-Connectivity-EPC-r17* shall also indicate support of *standalone GNSS-Location*. A UE indicating support for any *ue-Category-NB* and *ntn-Connectivity-EPC-r17* is assumed to have GNSS location capability*.*

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| End of change |