**3GPP TSG-RAN WG2 Meeting #119bis-e *draft R2-2211020***

**Online, 10 - 19 Oct, 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **36.331** | **CR** | **4884** | **rev** | **-** | **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 corrections to TS 36.331 for IoT NTN | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
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| ***Work item code:*** | LTE\_NBIOT\_eMTC\_NTN | | | | |  | ***Date:*** | | | 2022-10-19 |
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| ***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)* | |
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| ***Reason for change:*** | | Include agreements related to [Offline-107]:  Agreements via email (from offline 107):   1. Add the following clarification to the field description of epochTime:   For serving cell, the startSFN indicates the current SFN or the next upcoming SFN after the frame where the message indicating the epochTime is received.   1. Approve the following changes in R2-2210079:   Change “earth moving satellite” to “earth moving cell” and “quasi-earth fixed satellite” to “quasi-earth fixed cell”.   1. Add the following note in the description of IE EphemerisOrbitalParameters:   NOTE: The ECI and ECEF coincide at Epoch time (e.g. x,y,z axis in ECEF are aligned with x,y,z axis in ECI).   1. Change the reference in T317 description from 5.3.3.21 to 5.3.18.   Agreements online:   1. In case of HO/CHO, the SFN indicated by epochTime is the frame nearest to the frame where RRC reconfiguration message is received | | | | | | | | |
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| ***Summary of change:*** | | Include agreements related to [offline-107]    **Impact analysis**  Impacted functionality:  IOT NTN  Inter-operability:  No interoperability issues. | | | | | | | | |
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| ***Consequences if not approved:*** | | Without the above changes, the IOT NTN related operations are not completely clear and might be misundertood. | | | | | | | | |
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| ***Clauses affected:*** | | 6.3.1, 6.3.4, 7.3.1 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| START OF CHANGE |

### 6.3.1 System information blocks

[Unchanged parts omitted]

*– SystemInformationBlockType31*

The IE *SystemInformationBlockType31* contains satellite assistance information for the serving cell. *SystemInformationBlockType31* is only signalled in a NTN cell.

***SystemInformationBlockType31* information element**

-- ASN1START

SystemInformationBlockType31-r17 ::= SEQUENCE {

servingSatelliteInfo-r17 ServingSatelliteInfo-r17,

lateNonCriticalExtension OCTET STRING OPTIONAL,

...

}

ServingSatelliteInfo-r17 ::= SEQUENCE {

ephemerisInfo-r17 CHOICE {

stateVectors EphemerisStateVectors-r17,

orbitalParameters EphemerisOrbitalParameters-r17

},

nta-CommonParameters-17 SEQUENCE {

nta-Common-r17 INTEGER (0..8316827) OPTIONAL, -- Need OP

nta-CommonDrift-r17 INTEGER (-261935..261935) OPTIONAL, -- Need OP

nta-CommonDriftVariation-r17 INTEGER (0..29479) OPTIONAL -- Need OP

},

ul-SyncValidityDuration-r17 ENUMERATED {s5, s10, s15, s20, s25, s30, s35, s40,

s45, s50, s55, s60, s120, s180, s240, s900},

epochTime-r17 SEQUENCE {

startSFN-r17 INTEGER (0..1023),

startSubFrame-r17 INTEGER (0..9)

} OPTIONAL, -- Need OP

k-Offset-r17 INTEGER (0..1023),

k-Mac-r17 INTEGER (1..512) OPTIONAL, -- Need OP

...

}

-- ASN1STOP

| ***SystemInformationBlockType31* field descriptions** |
| --- |
| ***epochTime***  Epoch time of the satellite ephemeris data and common TA parameters, see TS 36.213 [23]. The reference point for epoch time of the serving satellite ephemeris and Common TA parameters is the uplink time synchronization reference point.  *epochTime* is the starting time of a DL subframe indicated by *startSFN* and *startSubframe*. For serving cell, the *startSFN* indicates the current SFN or the next upcoming SFN after the frame where the message indicating the *epochTime* is received.  If the field is absent, the UE uses the starting time of the DL subframe corresponding to the end of the SI window during which the SI message carrying SIB31 is transmitted.  E-UTRAN always includes *epochTime* when *SystemInformationBlockType31* is provided through dedicated signalling.  In case of handover or conditional handover, the *startSFN* indicated by *epochTime* is the frame nearest to the frame where *RRCConnectionReconfiguration* message is received |
| ***k-Mac***  Scheduling offset used when downlink and uplink frame timing are not aligned at the eNB, see TS 36.213 [23]. Unit in ms.  If the field if absent, the UE uses the (default) value of 0. |
| ***k-Offset***  Scheduling offset used in the timing relationships in NTN, see TS 36.213 [23]. Unit in ms. |
| ***nta-Common***  Network-controlled common TA, see TS 36.213 [23]. Unit of μs.  Step of 32.55208 ×10-3 μs. Actual value = field value \* 32.55208 ×10-3.  If the field is absent, the UE uses the (default) value of 0. |
| ***nta-CommonDrift***  Drift rate of the common TA, see TS 36.213 [23]. Unit of μs/s.  Step of 0.2 ×10-3 μs/s. Actual value = field value \* 0.2 ×10-3.  If the field is absent, the UE uses the (default) value of 0. |
| ***nta-CommonDriftVariation***  Drift rate variation of the common TA, see TS 36.213 [23]. Unit of μs/s2.  Step of 0.2 ×10-4 μs/s2. Actual value = field value \* 0.2 ×10-4.  If the field is absent, the UE uses the (default) value of 0. |
| ***orbitalParameters***  Instantaneous values of the satellite orbital parameters. The signalled values are only valid for the duration as defined by *ul-SyncValidationDuration* and *epochTime*. |
| ***stateVectors***  Instantaneous values of the satellite state vectors. The signalled values are only valid for the duration as defined by *ul-SyncValidationDuration* and *epochTime*. |
| ***ul-SyncValidationDuration***  Validity duration of the satellite ephemeris data and common TA parameters, i.e. maximum time during which the UE can apply the satellite ephemeris without acquiring new satellite ephemeris, see TS 36.213 [23]. Unit in second.  Value *s5* corresponds to 5 seconds, value *s10* corresponds to 10 seconds and so on. |

– *SystemInformationBlockType32*

The IE *SystemInformationBlockType32* contains satellite assistance information for prediction of discontinuous coverage. *SystemInformationBlockType32* is only signalled in a NTN cell.

***SystemInformationBlockType32* information element**

-- ASN1START

SystemInformationBlockType32-r17 ::= SEQUENCE {

satelliteInfoList-r17 SatelliteInfoList-r17 OPTIONAL, -- Need OR

lateNonCriticalExtension OCTET STRING OPTIONAL,

...

}

SatelliteInfoList-r17 ::= SEQUENCE (SIZE (1..maxSat-r17)) OF SatelliteInfo-r17

SatelliteInfo-r17 ::= SEQUENCE {

satelliteId-r17 INTEGER (0..255),

serviceInfo-r17 SEQUENCE {

tle-EphemerisParameters-r17 TLE-EphemerisParameters-r17 OPTIONAL, -- Need OR

t-ServiceStart-r17 TimeOffsetUTC-r17 OPTIONAL -- Need OR

},

footprintInfo-r17 SEQUENCE {

referencePoint-r17 SEQUENCE {

longitude-r17 INTEGER (-131072..131071),

latitude-r17 INTEGER (-131072..131071)

} OPTIONAL, -- Need OR

elevationAngles-r17 SEQUENCE {

elevationAngleRight-r17 INTEGER (-14..14),

elevationAngleLeft-r17 INTEGER (-14..14) OPTIONAL -- Need OP

} OPTIONAL, -- Need OR

radius-r17 INTEGER (1..256) OPTIONAL -- Need OR

}

}

-- ASN1STOP

| ***SystemInformationBlockType32* field descriptions** |
| --- |
| ***elevationAngleLeft, elevationAngleRight***  Leftmost and rightmost (with reference to the satellite direction) elevation angle. Unit in degree.  Step of 5 degree. Actual value = field value \* 5.  If the field *elevationAngleLeft* is absent, the leftmost elevation angle is equal to the value of field *elevationAngleRight*. |
| ***footprintInfo***  Satellite footprint.  E-UTRAN may configure *elevationAngles* and/or *radius* for earth moving cell.  E-UTRAN may configure *referencePoint* and *radius* for quasi-earth fixed cell. |
| ***latitude***  Latitude of the reference point. Unit in degree.  Step of 360 / 262144 degree. Actual value = field value \* (360 / 262144). |
| ***longitude***  Longitude of the reference point. Unit in degree.  Step of 360 / 262144 degree. Actual value = field value \* (360 / 262144). |
| ***radius***  Distance between the reference point and the edge of the satellite or beam coverage. Unit in km.  Step of 10 km. Actual value = field value \* 10. |
| ***serviceInfo***  Information on when the satellite will provide coverage.  E-UTRAN always configures *tle-EphemerisParameters* for a satellite with earth moving cell(s) and always configures *t-ServiceStart* for a quasi-earth fixed cell. |
| ***tle-EphemerisParameters***  Mean values of the satellite orbital parameters based on the TLE set format for estimating in-coverage and out-of-coverage periods for a satellite with earth moving cell(s), see TS 36.304 [4]. |
| ***t-ServiceStart***  Time information on when the incoming satellite is going to start serving the area for quasi-earth fixed cell. |

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| NEXT CHANGE |

6.3.4 Mobility control information elements

[Unchanged parts omitted]

– *EphemerisOrbitalParameters*

The IE *EphemerisOrbitalParameters* provides satellite ephemeris in format of orbital parameters in ECI.

NOTE: The ECI and ECEF coincide at Epoch time (e.g. x,y,z axis in ECEF are aligned with x,y,z axis in ECI).

***EphemerisOrbitalParameters* information element**

-- ASN1START

EphemerisOrbitalParameters-r17 ::= SEQUENCE {

semiMajorAxis-r17 INTEGER (0..8589934591),

eccentricity-r17 INTEGER (0..1048575),

periapsis-r17 INTEGER (0..268435455),

longitude-r17 INTEGER (0..268435455),

inclination-r17 INTEGER (-67108864..67108863),

anomaly-r17 INTEGER (0..268435455)

}

-- ASN1STOP

| ***EphemerisOrbitalParameters* field descriptions** |
| --- |
| ***anomaly***  Mean anomaly M at epoch time, see NIMA TR 8350.2 [110]. Unit in radian.  Step of 2.341\* 10-8 rad. Actual value = field value \* (2.341\* 10-8). |
| ***eccentricity***  Eccentricity e, see NIMA TR 8350.2 [110].  Step 1.431 \* 10-8. Actual value = field value \* (1.431 \* 10-8). |
| ***inclination***  Inclination i, see NIMA TR 8350.2 [110]. Unit in radian.  Step of 2.341\* 10-8 rad. Actual value = field value \* (2.341\* 10-8). |
| ***longitude***  Longitude of ascending node Ω, see NIMA TR 8350.2 [110]. Unit in radian.  Step of 2.341\* 10-8 rad. Actual value = field value \* (2.341\* 10-8). |
| ***periapsis***  Argument of periapsis ω, see NIMA TR 8350.2 [110]. Unit in radian.  Step of 2.341\* 10-8 rad. Actual value = field value \* (2.341\* 10-8). |
| ***semiMajorAxis***  Semi major axis α, see NIMA TR 8350.2 [110]. Unit in meter.  Stepof 4.249 \* 10-3 m. Actual value = 6500000 + field value \* (4.249 \* 10-3). |

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| NEXT CHANGE |

7.3.1 Timers (Informative)

| **Timer** | **Start** | **Stop** | **At expiry** |
| --- | --- | --- | --- |
| T300  NOTE1 | Transmission of *RRCConnectionRequest* or *RRCConnectionResumeRequest* or *RRCEarlyDataRequest* | Reception of *RRCConnectionSetup*, *RRCConnectionReject* or *RRCConnectionResume* or *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT, cell re-selection and upon abortion of connection establishment by upper layers | Perform the actions as specified in 5.3.3.6 |
| T301  NOTE1 | Transmission of *RRCConnectionReestabilshmentRequest* | Reception of *RRCConnectionReestablishment* or *RRCConnectionReestablishmentReject* message as well as when the selected cell becomes unsuitable | Go to RRC\_IDLE |
| T302 | Reception of *RRCConnectionReject* while performing RRC connection establishment or reception of *RRCConnectionRelease* including *waitTime* | Upon entering RRC\_CONNECTED and upon cell re-selection, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR, or upon reception of *RRCConnectionReject* message for E-UTRA/5GC. | Inform upper layers about barring alleviation as specified in 5.3.3.7 |
| T303 | Access barred while performing RRC connection establishment for mobile originating calls | Upon entering RRC\_CONNECTED and upon cell re-selection, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Inform upper layers about barring alleviation as specified in 5.3.3.7 |
| T304 | Reception of *RRCConnectionReconfiguration* message including the *MobilityControl Info* or  reception of *MobilityFromEUTRACommand* message including *CellChangeOrder* or upon conditional reconfiguration execution i.e. when applying a stored *RRCConnectionReconfiguration* message including the *MobilityControl Info*. | Criterion for successful completion of handover within E-UTRA, handover to E-UTRA or cell change order is met (the criterion is specified in the target RAT in case of inter-RAT) | In case of cell change order from E-UTRA or intra E-UTRA handover, initiate the RRC connection re-establishment procedure; In case of handover to E-UTRA, perform the actions defined in the specifications applicable for the source RAT; If any DAPS bearer is configured and if there is no RLF in source PCell, initiate the failure information procedure. |
| T305 | Access barred while performing RRC connection establishment for mobile originating signalling | Upon entering RRC\_CONNECTED and upon cell re-selection, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Inform upper layers about barring alleviation as specified in 5.3.3.7 |
| T306 | Access barred while performing RRC connection establishment for mobile originating CS fallback. | Upon entering RRC\_CONNECTED and upon cell re-selection, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Inform upper layers about barring alleviation as specified in 5.3.3.7 |
| T307 | Reception of *RRCConnectionReconfiguration* message including *MobilityControlInfoSCG* | Successful completion of random access on the PSCell, upon initiating re-establishment and upon SCG release | Initiate the SCG failure information procedure as specified in 5.6.13. |
| T308 | Access barred due to ACDC while performing RRC connection establishment subject to ACDC | Upon entering RRC\_CONNECTED and upon cell re-selection, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Inform upper layers about barring alleviation for ACDC as specified in 5.3.3.7 |
| T309  NOTE1 | When access attempt is barred at access barring check for an Access Category. The UE shall maintain one instance of this timer per Access Category. | Upon entering RRC\_CONNECTED, upon cell (re)selection, upon reception of *RRCConnectionRelease,* upon change of PCell while in RRC\_CONNECTED, or upon reception of *MobilityFromEUTRACommand*. | Perform the actions as specified in 5.3.16.4. |
| T310  NOTE1  NOTE2 | Upon detecting physical layer problems for the PCell i.e. upon receiving N310 consecutive out-of-sync indications from lower layers | Upon receiving N311 consecutive in-sync indications from lower layers for the PCell, upon triggering the handover procedure, upon initiating the connection re-establishment procedure, and upon initiating the MCG failure information procedure. | If security is not activated and the UE is not a NB-IoT UE that supports RRC connection re-establishment for the Control Plane CIoT EPS/5GS optimisation: go to RRC\_IDLE else: initiate the MCG failure information procedure as specified in 5.6.26 or the connection re-establishment procedure as specified in 5.3.7. |
| T311  NOTE1 | Upon initiating the RRC connection re-establishment procedure | Selection of a suitable E-UTRA cell or a cell using another RAT. | Go to RRC\_IDLE |
| T312  NOTE2 | Upon triggering a measurement report for a measurement identity for which T312 has been configured and *useT312* has been set to true, while T310 is running | Upon receiving N311 consecutive in-sync indications from lower layers, upon triggering the handover procedure, upon initiating the connection re-establishment procedure, upon initiating the MCG failure information procedure, and upon the expiry of T310 | Initiate the MCG failure information procedure as specified in 5.6.26 or the connection re-establishment procedure as specified in 5.3.7. |
| T313  NOTE2 | Upon detecting physical layer problems for the PSCell i.e. upon receiving N313 consecutive out-of-sync indications from lower layers | Upon receiving N314 consecutive in-sync indications from lower layers for the PSCell, upon initiating the connection re-establishment procedure, upon SCG release and upon receiving *RRCConnectionReconfiguration* including *MobilityControlInfoSCG* | Inform E-UTRAN about the SCG radio link failure by initiating the SCG failure information procedure as specified in 5.6.13. |
| T314  NOTE2 | Upon early detecting physical layer problems for the PCell i.e. upon receiving N310 consecutive "early-out-of-sync" indications from lower layers. | Upon receiving N311 consecutive in-sync indications from lower layers for the PCell, upon triggering the handover procedure and upon initiating the connection re-establishment procedure | Initiate the UE Assistance Information procedure to report early detection of physical layer problems in accordance with 5.6.10. |
| T315  NOTE2 | Upon detecting physical layer improvements of the PCell i.e. upon receiving N311 consecutive "early-in-sync" indications from lower layers. | Upon receiving N310 consecutive "early-out-of-sync" indications from lower layers for the PCell. | Initiate the UE Assistance Information procedure to report detection of physical layer improvements in accordance with 5.6.10. |
| T316 | Upon transmission of the *MCGFailureInformation* message | Upon receiving *RRCConnectionRelease*, *RRCConnectionReconfiguration* with *mobilityControlInfo, MobilityFromEUTRACommand*, or upon initiaitng the re-establishment procedure, | Perform the actions as specified in 5.6.26.5. |
| T317  NOTE1 | Upon acquisition of *SystemInformationBlockType31* |  | In RRC\_CONNECTED mode, initiate acquisition of *SystemInformationBlockType31* in accordance with 5.3.18. |
| T318  NOTE1 | Upon starting acquisition of *SystemInformationBlockType31* in RRC\_CONNECTED | Upon successful acquisition of *SystemInformationBlockType31*in RRC\_CONNECTED | If security is not activated and the UE is not a NB-IoT UE that supports RRC connection re-establishment for the Control Plane CIoT EPS optimisation: go to RRC\_IDLE else: initiate the connection re-establishment procedure as specified in 5.3.7. |
| T320 | Upon receiving *t320* or upon cell (re)selection to E-UTRA from another RAT with validity time configured for dedicated priorities (in which case the remaining validity time is applied). | Upon entering RRC\_CONNECTED, when PLMN selection is performed on request by NAS, when the UE enters RRC\_IDLE from RRC\_INACTIVE, or upon cell (re)selection to another RAT (in which case the timer is carried on to the other RAT), or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Discard the cell reselection priority information provided by dedicated signalling. |
| T321 | Upon receiving *measConfig* including a *reportConfig* with the *purpose* set to *reportCGI* | Upon acquiring the information needed to set all fields of *cellGlobalId* for the requested cell, upon receiving *measConfig* that includes removal of the *reportConfig* with the *purpose* set to *reportCGI* and upon detecting that a cell is not broadcasting SIB1. | Initiate the measurement reporting procedure, stop performing the related measurements and remove the corresponding *measId* |
| T322  NOTE1 | Upon receiving *redirectedCarrierOffsetDedicated* included in *RedirectedCarrierInfo* | Upon entering RRC\_CONNECTED, when PLMN selection is performed on request by NAS, or upon cell (re)selection to another frequency or RAT, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Release *redirectedCarrierOffsetDedicated*. |
| T323 | Upon receiving *t323*. | Upon entering RRC\_CONNECTED, when PLMN selection is performed on request by NAS, when the UE enters RRC\_IDLE from RRC\_INACTIVE, or upon cell (re)selection to another RAT, or upon reception of *RRCEarlyDataComplete* or *RRCConnectionRelease* for UP-EDT or *RRCConnectionRelease* for UP transmission using PUR. | Discard the *altFreqPriorities* provided by dedicated signalling. UE shall apply the cell reselection priority information broadcast in the system information via *cellReselectionPriority* and *cellReselectionSubPriority*. |
| T325 | Timer (re)started upon receiving *RRCConnectionReject* message with *deprioritisationTimer*. |  | Stop deprioritisation of all frequencies or E-UTRA signalled by *RRCConnectionReject.* |
| T326  NOTE1 | Upon entering RRC\_CONNECTED, upon update to NRSRPRef . | Upon leaving RRC\_CONNECTED. | Stop performing connected mode neighbour cell measurement. |
| T330 | Upon receiving *LoggedMeasurementConfiguration* message | Upon log volume exceeding the suitable UE memory, upon initiating the release of *LoggedMeasurementConfiguration* procedure | Perform the actions specified in 5.6.6.4 |
| T331 | Upon receiving *RRCConnectionRelease* message including *measIdleConfig.* | Upon receiving *RRCConnectionSetup, RRCConnectionResume, RRCConnectionRelease* with an idle/inactive measurement configuration or indication to release the configuration, if *validityArea* is configured, upon cell selection/reselection to a cell that does not belong to the *validityArea* (if configured)*,* or upon reselecting to an inter-RAT cell. | Perform the actions specified in 5.6.20.3. |
| T340  NOTE2 | Upon transmitting *UEAssistanceInformation* message with *powerPrefIndication* set to *normal* | Upon releasing *powerPrefIndication* during the connection re-establishment procedure | No action. |
| T341  NOTE2 | Upon transmitting *UEAssistanceInformation* message with *bw-Preference.* | Upon resuming an RRC connection or upon releasing *bw-Preference* during the connection re-establishment procedure | No action. |
| T342  NOTE2 | Upon transmitting *UEAssistanceInformation* message with *delayBudgetReport*. | Upon releasing *delayBudgetReportingConfig* during the connection re-establishment and connection resume procedures | No action. |
| T343  NOTE2 | Upon transmitting *UEAssistanceInformation* message with *RLM-Report* including *earlyOutOfSync*. | Upon initiating the connection re-establishment procedure | No action. |
| T344  NOTE2 | Upon transmitting *UEAssistanceInformation* message with *RLM-Report* including *earlyInSync*. | Upon initiating the connection re-establishment procedure | No action. |
| T345 | Upon transmitting *UEAssistanceInformation* message with *overheatingAssistance* | Upon releasing *overheatingAssistance* during the connection re-establishment procedure, or connection resume procedure. | No action. |
| T346 | Upon transmitting UEAssistanceInformation message with *scg-DeactivationPreference* | Upon releasing *scg-DeactivationPreferenceConfig* during the RRC connection establishment or re-establishment procedures, or upon reconfiguration of *scg-DeactivationPreferenceConfig* to *release*. | No action. |
| T350 | Upon entering RRC\_IDLE if *t350* has been received in wlan-OffloadInfo. | Upon entering RRC\_CONNECTED, or upon cell reselection. | Perform the actions specified in 5.6.12.4. |
| T351 | Reception of *RRCConnectionReconfiguration* message including the association*Timer* in *WLAN-MobilityConfig*. | Upon successful connection to WLAN, upon WLAN connection failure, upon leaving RRC\_CONNECTED, upon triggering the handover procedure, or upon initiating the connection re-establishment procedure. | Perform WLAN Connection Status Reporting specified in 5.6.15.2. |
| T360 | Upon performing the redistribution target selection as specified in TS 36.304 [4]. | Upon entering RRC\_CONNECTED, upon receiving a Paging message including *redistributionIndication*; upon reselecting a cell not belonging to the redistribution target. | Stop considering a frequency or cell to be redistribution target, and perform the redistribution target selection if the condition specified in TS 36.304 [4] is met. |
| T370 | Upon receiving *SL-DiscConfig* including a *discSysInfoToReportConfig* set to *setup.* | Upon initiating the transmission of *SidelinkUEInformation* including *discSysInfoReportFreqList*, upon receiving *SL-DiscConfig* including *discSysInfoToReportConfig* set to *release*, upon handover and re-establishment*.* | Release *discSysInfoToReportConfig*. |
| T380 | Upon reception of *periodic-RNAU-timer* in RRCConnectionRelease. | Upon reception of *RRCConnectionResume*, *RRCConnectionRelease* or *RRCConnectionSetup*. | Initiate the RAN notification area update procedure |
| NOTE1: Only the timers marked with "NOTE1" are applicable to NB-IoT.  NOTE2: The behaviour as specified in 7.3.2 applies. | | | |

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| END OF CHANGE |