**3GPP TSG-RAN WG2 Meeting #120 R2-221xxxx**

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

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** | **Draft** | **rev** |  | **Current version:** | **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 | **X** | Radio Access Network | **X** | Core Network |  |

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|  |
| ***Title:***  | Draft 331 CR for NR NTN UE capabilities |
|  |  |
| ***Source to WG:*** | Intel Corporation, Qualcomm Inc. |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_NTN\_solutions-Core |  | ***Date:*** | 2022-11-22 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* *Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | 1. In RAN2#119bis-e meeting, the UE capability for eventD1, i.e., location-based measurement report trigger, was agreed and should be merged into the rapporteur CR.
2. And the field descriptions of three NTN related UE capabilities, i.e., “ra-SDT-NTN-r17, srb-SDT-NTN-r17 and inactiveStateNTN-r17”, were suggested to move to TS 38.306.
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|  |  |
| ***Summary of change:*** | 1. Add conditional mandatory per UE capability *eventD1-MeasReportTrigger-r17* to indicate whether UE supports eventD1.
2. The field descriptions of the following NTN capabilities are removed from 38.331, i.e., ra-SDT-NTN-r17, srb-SDT-NTN-r17 and inactiveStateNTN-r17

**Impact analysis:**Impacted functionality:- measurement reportInter-operability issues:- No issue has been identified. |
|  |  |
| ***Consequences if not approved:*** | Network would not know whether the UE supports eventD1. |
|  |  |
| ***Clauses affected:*** | 6.3.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS38.306 CR TBD |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

# 6 Protocol data units, formats and parameters (ASN.1)

*First change*

### 6.3.3 UE capability information elements

**< *unmodified Subclauses removed*>**

– *MeasAndMobParameters*

The IE *MeasAndMobParameters* is used to convey UE capabilities related to measurements for radio resource management (RRM), radio link monitoring (RLM) and mobility (e.g. handover).

***MeasAndMobParameters* information element**

-- ASN1START

-- TAG-MEASANDMOBPARAMETERS-START

MeasAndMobParameters ::= SEQUENCE {

 measAndMobParametersCommon MeasAndMobParametersCommon OPTIONAL,

 measAndMobParametersXDD-Diff MeasAndMobParametersXDD-Diff OPTIONAL,

 measAndMobParametersFRX-Diff MeasAndMobParametersFRX-Diff OPTIONAL

}

MeasAndMobParameters-v1700 ::= SEQUENCE {

 measAndMobParametersFR2-2-r17 MeasAndMobParametersFR2-2-r17 OPTIONAL

}

MeasAndMobParametersCommon ::= SEQUENCE {

 supportedGapPattern BIT STRING (SIZE (22)) OPTIONAL,

 ssb-RLM ENUMERATED {supported} OPTIONAL,

 ssb-AndCSI-RS-RLM ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 eventB-MeasAndReport ENUMERATED {supported} OPTIONAL,

 handoverFDD-TDD ENUMERATED {supported} OPTIONAL,

 eutra-CGI-Reporting ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting ENUMERATED {supported} OPTIONAL

 ]],

 [[

 independentGapConfig ENUMERATED {supported} OPTIONAL,

 periodicEUTRA-MeasAndReport ENUMERATED {supported} OPTIONAL,

 handoverFR1-FR2 ENUMERATED {supported} OPTIONAL,

 maxNumberCSI-RS-RRM-RS-SINR ENUMERATED {n4, n8, n16, n32, n64, n96} OPTIONAL

 ]],

 [[

 nr-CGI-Reporting-ENDC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 eutra-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

 eutra-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 reportAddNeighMeasForPeriodic-r16 ENUMERATED {supported} OPTIONAL,

 condHandoverParametersCommon-r16 SEQUENCE {

 condHandoverFDD-TDD-r16 ENUMERATED {supported} OPTIONAL,

 condHandoverFR1-FR2-r16 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 nr-NeedForGap-Reporting-r16 ENUMERATED {supported} OPTIONAL,

 supportedGapPattern-NRonly-r16 BIT STRING (SIZE (10)) OPTIONAL,

 supportedGapPattern-NRonly-NEDC-r16 ENUMERATED {supported} OPTIONAL,

 maxNumberCLI-RSSI-r16 ENUMERATED {n8, n16, n32, n64} OPTIONAL,

 maxNumberCLI-SRS-RSRP-r16 ENUMERATED {n4, n8, n16, n32} OPTIONAL,

 maxNumberPerSlotCLI-SRS-RSRP-r16 ENUMERATED {n2, n4, n8} OPTIONAL,

 mfbi-IAB-r16 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NPN-r16 ENUMERATED {supported} OPTIONAL,

 idleInactiveEUTRA-MeasReport-r16 ENUMERATED {supported} OPTIONAL,

 idleInactive-ValidityArea-r16 ENUMERATED {supported} OPTIONAL,

 eutra-AutonomousGaps-r16 ENUMERATED {supported} OPTIONAL,

 eutra-AutonomousGaps-NEDC-r16 ENUMERATED {supported} OPTIONAL,

 eutra-AutonomousGaps-NRDC-r16 ENUMERATED {supported} OPTIONAL,

 pcellT312-r16 ENUMERATED {supported} OPTIONAL,

 supportedGapPattern-r16 BIT STRING (SIZE (2)) OPTIONAL

 ]],

 [[

 -- R4 19-2 Concurrent measurement gaps

 concurrentMeasGap-r17 CHOICE {

 concurrentPerUE-OnlyMeasGap-r17 ENUMERATED {supported},

 concurrentPerUE-PerFRCombMeasGap-r17 ENUMERATED {supported}

 } OPTIONAL,

 -- R4 19-1 Network controlled small gap (NCSG)

 nr-NeedForGapNCSG-reporting-r17 ENUMERATED {supported} OPTIONAL,

 eutra-NeedForGapNCSG-reporting-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-1-1 per FR Network controlled small gap (NCSG)

 ncsg-MeasGapPerFR-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-1-2 Network controlled small gap (NCSG) supported patterns

 ncsg-MeasGapPatterns-r17 BIT STRING (SIZE(24)) OPTIONAL,

 -- R4 19-1-3 Network controlled small gap (NCSG) supported NR-only patterns

 ncsg-MeasGapNR-Patterns-r17 BIT STRING (SIZE(24)) OPTIONAL,

 -- R4 19-3-2 pre-configured measurement gap

 preconfiguredUE-AutonomousMeasGap-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-3-1 pre-configured measurement gap

 preconfiguredNW-ControlledMeasGap-r17 ENUMERATED {supported} OPTIONAL,

 handoverFR1-FR2-2-r17 ENUMERATED {supported} OPTIONAL,

 handoverFR2-1-FR2-2-r17 ENUMERATED {supported} OPTIONAL,

 -- RAN4 14-1: per-FR MG for PRS measurement

 independentGapConfigPRS-r17 ENUMERATED {supported} OPTIONAL,

 rrm-RelaxationRRC-ConnectedRedCap-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 25-3: Parallel measurements with multiple measurement gaps

 parallelMeasurementGap-r17 ENUMERATED {n2} OPTIONAL,

 condHandoverWithSCG-NRDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-Length-Reporting-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-Length-Reporting-ENDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-Length-Reporting-NEDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-Length-Reporting-NRDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-Length-Reporting-NPN-r17 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 -- R4 25-1: Parallel measurements on multiple SMTC-s for a single frequency carrier

 parallelSMTC-r17 ENUMERATED {n4} OPTIONAL,

 -- R4 19-2-1 Concurrent measurement gaps for EUTRA

 concurrentMeasGapEUTRA-r17 ENUMERATED {supported} OPTIONAL,

 serviceLinkPropDelayDiffReporting-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-1-4 Network controlled small gap (NCSG) performing measurement based on flagderiveSSB-IndexFromCell-inter

 ncsg-SymbolLevelScheduleRestrictionInter-r17 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 eventD1-MeasReportTrigger-r17 ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersXDD-Diff ::= SEQUENCE {

 intraAndInterF-MeasAndReport ENUMERATED {supported} OPTIONAL,

 eventA-MeasAndReport ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 handoverInterF ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 sftd-MeasNR-Neigh ENUMERATED {supported} OPTIONAL,

 sftd-MeasNR-Neigh-DRX ENUMERATED {supported} OPTIONAL

 ]],

 [[

 dummy ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersFRX-Diff ::= SEQUENCE {

 ss-SINR-Meas ENUMERATED {supported} OPTIONAL,

 csi-RSRP-AndRSRQ-MeasWithSSB ENUMERATED {supported} OPTIONAL,

 csi-RSRP-AndRSRQ-MeasWithoutSSB ENUMERATED {supported} OPTIONAL,

 csi-SINR-Meas ENUMERATED {supported} OPTIONAL,

 csi-RS-RLM ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 handoverInterF ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 maxNumberResource-CSI-RS-RLM ENUMERATED {n2, n4, n6, n8} OPTIONAL

 ]],

 [[

 simultaneousRxDataSSB-DiffNumerology ENUMERATED {supported} OPTIONAL

 ]],

 [[

 nr-AutonomousGaps-r16 ENUMERATED {supported} OPTIONAL,

 nr-AutonomousGaps-ENDC-r16 ENUMERATED {supported} OPTIONAL,

 nr-AutonomousGaps-NEDC-r16 ENUMERATED {supported} OPTIONAL,

 nr-AutonomousGaps-NRDC-r16 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 cli-RSSI-Meas-r16 ENUMERATED {supported} OPTIONAL,

 cli-SRS-RSRP-Meas-r16 ENUMERATED {supported} OPTIONAL,

 interFrequencyMeas-NoGap-r16 ENUMERATED {supported} OPTIONAL,

 simultaneousRxDataSSB-DiffNumerology-Inter-r16 ENUMERATED {supported} OPTIONAL,

 idleInactiveNR-MeasReport-r16 ENUMERATED {supported} OPTIONAL,

 -- R4 6-2: Support of beam level Early Measurement Reporting

 idleInactiveNR-MeasBeamReport-r16 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 increasedNumberofCSIRSPerMO-r16 ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersFR2-2-r17 ::= SEQUENCE {

 handoverInterF-r17 ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC-r17 ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC-r17 ENUMERATED {supported} OPTIONAL,

 idleInactiveNR-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

...

}

-- TAG-MEASANDMOBPARAMETERS-STOP

-- ASN1STOP

*Second change*

#### – *NTN-Parameters*

The IE *NTN-Parameters* is used to convey the subset of UE Radio Access Capability Parameters that apply to NTN access when there is a difference compared to TN access.

*NTN-Parameters* information element

-- ASN1START

-- TAG-NTN-PARAMETERS-START

NTN-Parameters-r17 ::= SEQUENCE {

 inactiveStateNTN-r17 ENUMERATED {supported} OPTIONAL,

 ra-SDT-NTN-r17 ENUMERATED {supported} OPTIONAL,

 srb-SDT-NTN-r17 ENUMERATED {supported} OPTIONAL,

 measAndMobParametersNTN-r17 MeasAndMobParameters OPTIONAL,

 mac-ParametersNTN-r17 MAC-Parameters OPTIONAL,

 phy-ParametersNTN-r17 Phy-Parameters OPTIONAL,

 fdd-Add-UE-NR-CapabilitiesNTN-r17 UE-NR-CapabilityAddXDD-Mode OPTIONAL,

 fr1-Add-UE-NR-CapabilitiesNTN-r17 UE-NR-CapabilityAddFRX-Mode OPTIONAL,

 ue-BasedPerfMeas-ParametersNTN-r17 UE-BasedPerfMeas-Parameters-r16 OPTIONAL,

 son-ParametersNTN-r17 SON-Parameters-r16 OPTIONAL

}

-- TAG-NTN-PARAMETERS-STOP

-- ASN1STOP

|  |
| --- |
| *NTN-Parameters* field descriptions |
| ***fdd-Add-UE-NR-CapabilitiesNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *fdd-Add-UE-NR-Capabilities* applies to NTN. |
| ***fr1-Add-UE-NR-CapabilitiesNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *fr1-Add-UE-NR-Capabilities* applies to NTN. |
|  |
| ***mac-ParametersNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *mac-Parameters* applies to NTN. |
| ***measAndMobParametersNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *measAndMobParameters* applies to NTN. |
| ***phy-ParametersNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *phy-Parameters* applies to NTN. |
|  |
| ***son-ParametersNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *son-Parameters-r16* applies to NTN. |
|  |
| ***ue-BasedPerfMeas-ParametersNTN***NTN related capabilities which the UE supports in NTN differently than in TN. If absent, *ue-BasedPerfMeas-Parameters-r16* applies to NTN. |

*End of change*

### Annex: UE capability agreements

**RAN2#116bis:**

Agreements:

1. define one single NR NTN UE capability to encompass essential features to support NTN, and UE can further indicate other optional capabilities.
2. gnss-Location-r16 is conditionally mandatory when UE indicates the support of NR NTN access, and update the field description to cover NTN case.
3. consider the following differentiation of user plane enhancements as baseline:

 Essential sub-features include:

 1) the adaptations of RACH;

 2) DRX HARQ RTT timer extension;

 3) the timer extension to accommodate long RTT for other MAC timers (e.g., extended sr-ProhibitTimer);

 4) the timer extension to accommodate long RTT in RLC and PDCP layers (FFS for LEO)

 Optional sub-features include:

 1) TA reporting (TA reporting during RACH using MAC CE, and Event-triggers for TA reporting in connected mode);

 2) disabling HARQ feedback for downlink transmission;

 3) new HARQ state for uplink transmission and the corresponding new LCP mapping rule for dynamic grants.

4. consider the following differentiation of control plane enhancements as baseline:

 Essential sub-features include (for NGSO, FFS for GEO):

 1) soft TAC update;

 2) SMTC enhancements (event-triggered assistance information reporting, 2 SMTC in parallel);

 Optional sub-features include:

 1) cell stop-time based neighbour cell measurements;

 2) location based cell reselection criteria;

 3) SMTC enhancements (4 SMTC in parallel and UE based solution in idle/inactive);

 4) CHO enhancements (location based CHO).

 FFS if CHO enhancements (time based and Event A4 based CHO) is essential or optional

1. Postpone the UE capability discussion on location reporting

Working Assumption (further check if anything can be per band):

1. the granularities of all the optional RAN2 determined sub-features with capability signalling are per UE.

Agreements via email - from offline 112:

1. RAN2 confirms that the RLC timer extension (i.e., t-Reassembly timer) is also essential for NGSO.
2. RAN2 confirms that the PDCP timer extension (i.e., discardTimer and t-Reordering timer) is also essential for NGSO.
3. RAN2 confirms that Multiple TACs feature (i.e., UE should be able derive multiple TACs per PLMN in a cell, and indicate to NAS layer all received TACs per PLMN) is essential for both GSO and NGSO.
4. The support of essential NTN features should be the Prerequisite for optional NR NTN UE capabilities.

Agreements:

1. Define single UE capability to encompass all features essential to support both GSO and NGSO, i.e., when UE indicates it, it means UE supports all the GSO and NGSO essential features (FFS for SMTC enhancements). (this does not automatically mean that interoperability testing between GSO and NGSO is also supported)
2. UE capabilities for optional CHO enhancements (at least location based CHO) for NTN are per band, which is also in line with R16 CHO design

**RAN2#117:**

Agreements via email - from offline 104:

1. The SMTC enhancements (event-triggered assistance information reporting, 2 SMTC in parallel) are essential for NGSO capable UEs.
2. Incorporate event-triggered TA reporting feature into TA reporting UE capability defined in RAN1 feature list.
3. Specify single UE capability to represent the support of both UL HARQ state B and the new LCP restriction.
4. Postpone the discussion on NTN SMTC UE capabilities, and if the updated RAN1/4 feature lists during this meeting don’t include NTN SMTC related UE capabilities, RAN2 sends an LS to RAN1/4 for triggering this discussion.

Agreements online:

1. RAN2 understands that in NTN, RTT values are assumed to be longer in the calculation of L2 buffer. No spec change

Agreements via email - from offline 104 - second round:

1. the UE capabilities for time based CHO and Event A4 based CHO are optional with capability signalling.
2. RAN2 confirms that, if UE supports both GSO and NGSO, it means UE also supports mobility between GSO and NGSO.
3. If a TA report is triggered and there are no available UL-SCH resources, the network may optionally configure UE to trigger an SR. A UE capability is introduced for this.

|  |
| --- |
| **  Agreed adding an FFS for optional features, e.g.**"Define IoT bit for the support of {GSO, NGSO, both}, and this indication means all NTN essential features and optional features (FFS) UE indicates have been tested in the corresponding scenario(s). The exemplary spec change may be like:ntn-ScenarioSupport-r17      ENUMERATED {GSO, NGSO, both}      OPTIONAL,nonTerrestrialNetwork-r17    ENUMERATED {supported}            OPTIONAL,(FFS for optional features) |

**RAN2#118:**

Agreements:

1. Whether existing TN capabilities need separate NTN capabilities or IoT bits is focused on per-UE capabilities
2. Add separate IoT bits to convey a subset of UE Radio Access Capability Parameters differently for NR NTN. It also implies that other per-UE UE capabilities not within this list are applicable to both TN and NTN.
3. Proposal 3: at least the following existing TN UE capabilities need separate IoT bits for NTN:

 1) mac-Parameters;

 2) phy-Parameters;

 3) measAndMobParameters;

 4) fdd-Add-UE-NR-Capabilities;

 5) fr1-Add-UE-NR-Capabilities

 6) SON/MDT related capabilities.

 7) at least inactiveState

4. “ntn-ScenarioSupport-r17 is used for both essential and optional NTN capabilities”.

Agreements via email – from offline 108 – second round:

1. No other specification efforts in Rel-17 on UEs without GNSS receiver.
2. RAN2 to confirm NTN-capable UEs also support TN mandatory (without capability signalling) features, and whether TN mandatory features (with capability signalling) are supported can be indicated by IoT bits. No further spec impacts other than IoT bits.
3. The SMTC enhancements (event-triggered assistance information reporting, 2 SMTC in parallel) are optional for GSO capable UE.
4. update the field description of uplink-TA-Reporting-r17 as below:

 uplink-TA-Reporting-r17

 Indicates whether the UE supports UE reporting of information related to TA pre-compensation as specified in TS 38.321 [8]. UE indicating support of this feature shall also indicate support of uplinkPreCompensation-r17 for this band.

Agreements:

1. RAN2 adopts the following solution, as an optional feature, for assisting the NW in adjusting SMTCs in CONNECTED mode: service link propagation delay difference between the serving and each configured neighbour NTN cell is reported via UE Assistance Information. The reporting occurs when the propagation delay difference between the serving and any configured neighbour NTN cell becomes by offset smaller/larger than the value reported previously. Further Stage-3 details to be discussed based on what provided by OPPO to Q7.1 in R2-2206505.

**RAN2#119:**

Agreements:

1. RAN2 to confirm if a UE supports 25-3 in RAN4 feature list (i.e., parallelMeasurementGap-r17), it also supports the association between one frequency layer and two measurement gaps with the same gap type.
2. RAN2 agreement is updated to align with RAN4 agreement, i.e., “2 SMTC-s on a single frequency carrier” is mandatory for both GSO capable UE and NGSO capable UE. No additional spec change is needed as it has been captured in the latest mega UE capability CR R2-2207276.
3. the draft CR R2-2207268 and R2-2207269 can be adopted as baseline for specifying the UE capability for service link propagation delay difference report.

Agreements via email – from offline 102:

1. regarding “if a UE supports 25-3 in RAN4 feature list (i.e., parallelMeasurementGap-r17), it also supports the association between one frequency layer and two measurement gaps with the same gap type”, the following clarification in TS 38.306 is agreed and merged to NR NTN UE capability rapporteur CR: “*parallelMeasurementGap-r17:* Indicates whether the UE supports 2 parallel measurement gaps for NTN RRM measurements. If a UE does not include this field but includes *nonTerrestrialNetwork-r17*, the UE supports 1 measurement gap for NTN RRM measurements. If this parameter is indicated, a UE shall also support that two parallel measurement gaps with the same gap type can be associated to one frequency layer.”
2. the first change in R2-2208537 is agreed, and merged to NR NTN UE capability rapporteur CR, i.e., “In the description of nonTerrestrialNetwork-r17, “i.e.,” is replaced by “e.g.,””.
3. the second change in R2-2208537 is agreed, and merged to NR NTN UE capability rapporteur CR, i.e., “In the description of parallelMeasurementGap-r17, it is added that UE supporting this feature shall also indicate the support of nonTerrestrialNetwork-r17”
4. the change proposed by R2-2208679 is agreed, and merged to NR NTN UE capability rapporteur CR, i.e., “Introduce an optional capability without signalling for location-based measurement initiation”.

**RAN2#119bis:**

Agreements via email (from offline 116):

1. The changes in R2-2209801, regarding introducing tUE specific capability for the UE coarse location report, are not pursued.
2. RAN2 understands that CA and DC are not supported in NTN

*Capability event forD1*

[R2-2209707](file:///C%3A/Data/3GPP/Extracts/38331_CR3501_%28Rel-17%29_R2-2209707%20eventD1.docx) Missing UE capability for eventD1 Qualcomm Incorporated CR Rel-17 38.331 17.2.0 3501 - F NR\_NTN\_solutions-Core

* Intel/Mediatek/Apple/Ericsson/Nokia agree
* Agreed (to be merged with the rapporteur CR)

[R2-2209708](file:///C%3A/Data/3GPP/Extracts/38306_CR0810_%28Rel-17%29_R2-2209708%20eventD1.docx) Missing UE capability for eventD1 Qualcomm Incorporated CR Rel-17 38.306 17.2.0 0810 - F NR\_NTN\_solutions-Core

* Agreed (to be merged with the rapporteur CR)

**RAN2#120:**

[R2-2213019](file:///C%3A%5CData%5C3GPP%5CRAN2%5CInbox%5CR2-2213019.zip) [offline-101] RNA across NT/NTN – second round Qualcomm discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1 Update TS 38.306 for support of RRC inactive state in NTN (i.e., mandatory with UE capability signalling).

* Agreed

[R2-2211728](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2211728_38.306CR0834_%28Rel-17%29_Clarification%20on%20NTN%20RRM%20measurement%20capability.docx) Clarification on NTN RRM measurement capability Apple CR Rel-17 38.306 17.2.0 0834 - F NR\_NTN\_solutions-Core

* Intel is fine but in the second sentence we could have “SSB based” measurements as well. Apple agrees
* Changes are agreed with the clarification above. To be merged in the capability CRs