3GPP TSG-RAN WG2 Meeting #126 R2-2405703

Fukuoka, Japan, May 20th-24th, 2024

**Agenda item: 9.3**

**Source: Session Chair (ZTE Corporation)**

**Title: Report from Break-out session on NR-NTN and IoT-NTN**

**Document for: Approval**

Organizational

1. All organization emails and notes will be shared over the following email discussion throughout the meeting:
* [AT126][300] Organizational – NR-NTN and IoT-NTN session

Scope:

* + - Share plans for the meeting and list of ongoing email discussions for the sessions related to NR-NTN and IoT-NTN
		- Share meetings notes and agreements for review and endorsement

Schedule/Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Main room** | **Brk 1 room** | **Brk 2 room** | **Brk 3 room** |
| **Monday**  |
| 09:00 – 10:30 | [**1], [2], [3],** **[7.0] R18 common (Diana)****[7.0.1][7.0.2]****[7.0.3] ASN.1 Review common** **Break out of ASN.1 Review****[7.0.4][7.0.5]** **@NR151617 UP (Diana)** | Breakout to start after common session including ASN.1 review**NRR1617 SL (Kyeongin)****NR18 SL (Kyeongin)** | Breakout to start after common session including ASN.1 review:**Rel-18 MUSIM (Erlin)****NR18 MIMO evo** |  |
| 11:00 – 13:00 |
| 14:30 – 16:30 | **Rel-18 UAV (1hr)****NR18 TEI (Diana)****SDT, including MT-SDT and related TEI18** | **NR R18 SL**  | **14:30-15:30 NR18 fCovEnh (Eswar)****NRLTE1516 Pos (Nathan)****NR17 Positioning and SL Relay (Nathan)** |
| 17:00 – 19:00 | **NR18 URLLC (Diana)****NR18 Network Energy Saving (Diana)** | **NR18 Mobile IAB (Johan)****NR18 feMob (Johan)** | NR18 Pos |  |
|  |  |
| **Tuesday**  |
| 08:30 – 10:30 | **NR18 feMob (Johan)** | **NR19 XR [1] (Dawid)** | **EUTRA&NR151617 (Mattias)** |  |
| 11:00 – 13:00 | **NR18 XR (Diana)** | **NR18 NTN NR /IoT(Sergio)** - all AIs in 7.7- all AIs in 7.6 | **NR18 Pos (Nathan)** |
|  14:30 -16:30 | **NR19 AI/ML PHY [2] (Diana)** | **NR19 feMob [2] (Kyeongin)** | NR17/18 Relay (Nathan) |  |
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|  |
| 17:00– 19:00 | **Rel-19 Ambient IoT [2] (Diana)** | **Rel- 19 NR NTN [1]**- 8.8.1- 8.8.2- 8.8.4 | **NR 18 MBS (Dawid)****NR18 eQoE (Dawid)** |  |
|  |
| **Wednesday**  |
| 08:30 – 10:30 | **NR19 Network Energy Saving [1] (Kyeongin)** | **NR19 NTN IoT**- 8.9.1- 8.9.2- 8.9.3 | **EUTRA&NR151617 (Mattias)****NR18 Redcap (Mattias)** |  |
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| 11:00 – 13:00 | **NR Other (Diana)****TEI18 (Diana)** | **NR19 XR [1] (Dawid)** | **NR18 SONMDT (Mattias)****NR19 SONMDT [0.5] (Mattias)** |  |
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| 14:30 – 16:30 | **AI/ML Mobility [2] (Diana)** | **Rel-19 LP-WUS [1](Erlin)** | **NR18 Pos (Nathan)** |  |
|  |
|  |
| 17:00 – 19:00 | **AI/ML PHY [2] (Diana)** | **NR19 feMob [2] (Kyeongin)** | **Positioning or SL relay offlines for Rel-18**  |  |
| **Thursday**  |
| 08:30 – 10:30 | **CB TBD Johan/Diana/Eswar** | **R18 NR/IoT NTN CB (Sergio)**- TBD**[R19 IoT CB]?** | CB KyeonginComebacks SL[R19 NES CB] |  |
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| 11:00 – 13:00 | **Rel-19 Ambient IoT [2] (Diana)** | **Rel-19 NTN NR [1] (Sergio)**- 8.8.5- 8.8.6 | CB Dawid:- R18 QoE. MBS [R19 XR CB] |  |
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|  |
| 14:30 – 16:30 | **CB Diana****UAV** **NES****XR****[R19 AI/ML PHY CB]** | CB Johan- mIAB- feMob | CB Nathan |  |
|  |
| 17:00 – 19:00 | **AI/ML Mobilitly [2] (Diana)** |  CB ErlinR18 CBs[R19 LP-WUS CB]CB Eswar  | CB Nathan |  |
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|  |
| **Friday**  |
| 08:30 – 10:30 | CB Johan TBDCB Diana TEI 18 CBsNR Others CBs[R19 AI/ML Mobility]? | CB TDB | CB MattiasTBD |  |
| 11:00 – 13:00 | CB Diana[R19 Ambient IoT]?ASN.1 Review common sessionReports from breakout sessionsEoM | CB Sergio TBD | TBD? |
| 14:30 – 16:00 |  |  |  |
| 16:00 – 17:00 |  |  |  |  |

List and details of [AT126] offline discussions

NOTE: No offline email discussions will be kicked off before Monday May 20th, 09:00 local time

## 7.6 IoT NTN enhancements

(IoT\_NTN\_enh-Core; leading WG: RAN1; REL-18; WID: [RP-223519](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_98e/Docs/RP-223519.zip))

Time budget: 0 TU

Tdoc Limitation: 2 tdocs

### 7.6.1 Organizational

LSs, rapporteur inputs and other organizational documents.

Editorials/clarifications should not be included in any tdoc but sent to the WI spec rapporteurs, who can submit a rapporteur CR as part of this AI.

Rapporteur inputs and other pre-assigned documents in this AI do not count towards the tdoc limitation.

Rapporteur CRs

[R2-2405452](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405452%20-%2036300_CR1402_%28Rel-17%29%20-%20IoT%20NTN%20Kmac%20correction.docx) IoT NTN Kmac correction Ericsson CR Rel-17 36.300 17.7.0 1402 - F LTE\_NBIOT\_eMTC\_NTN-Core

* To be handled in AI 4.1.1 (if anything is agreed for R17, then a R18 Cat A mirror CR needs to be agreed as well, while only R18-specific changes should be kept in a separate R18 Cat F CR)

[R2-2405453](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405453%20-%2036300_CR1401r1_%28Rel-18%29%20-%20IoT%20NTN%20Kmac%20and%20measurment%20corrections.docx) IoT NTN Kmac and measurment corrections Ericsson, Huawei CR Rel-18 36.300 18.1.0 1401 1 F IoT\_NTN\_enh-Core R2-2403776

(R18 IPA CR subject to changes if a R17 Cat F CR with a mirror R18 Cat A CR will be agreed)

[R2-2405128](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405128%20Corrections%20to%20IoT%20NTN.docx) Corrections to IOT NTN Huawei, HiSilicon CR Rel-18 36.331 18.1.0 5021 - F IoT\_NTN\_enh-Core

[R2-2405129](file:///C%3A%5CData%5C3GPP%5CRAN2%5CDocs%5CR2-2405129.zip) IOT NTN ASN1 RIL List Huawei, HiSilicon report Rel-18 IoT\_NTN\_enh-Core

[R2-2404954](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404954%2036.321%20CR1585r2%20R18%20IoT%20NTN.docx) Corrections on UE behaviour on DRX for IoT NTN MediaTek CR Rel-18 36.321 18.1.0 1585 2 F IoT\_NTN\_enh-Core R2-2404007

Moved here from 7.6.4

[R2-2405534](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405534-IoT-NTN-Correction.docx) Miscellaneous correction for IoT-NTN Nokia CR Rel-18 36.304 18.1.0 0873 2 F IoT\_NTN\_enh-Core R2-2403768

[R2-2405302](file:///C%3A%5CData%5C3GPP%5CExtracts%5C36306_CR1889_%28Rel-18%29_R2-2405302%20UE%20capability.docx) Corrections on terminology fixed cell Qualcomm Incorporated CR Rel-18 36.306 18.1.0 1889 - F IoT\_NTN\_enh-Core

Withdrawn

R2-2404687 Corrections on terminology fixed cell Qualcomm Incorporated CR Rel-18 36.331 18.1.0 5018 - F IoT\_NTN\_enh-Core Withdrawn

### 7.6.2 Stage 2 corrections

R2-2404593 Discussion on GNSS operation for IoT NTN OPPO discussion Rel-18 IoT\_NTN\_enh-Core

Proposal 1 The Differential Koffset is cleared when UE is performing GNSS measurement.

Proposal 2 Adopt the above TP in stage-2 spec if proposal 1 is agreed.

Proposal 3 UE capability of GNSS measurements during C-DRX inactive time is not reported to the network.

* Already agreed in the last meeting??

[R2-2405117](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405117%20Remaining%20issues%20on%20GNSS%20operation.docx) Remaining issues on GNSS operation Huawei, HiSilicon discussion Rel-18 IoT\_NTN\_enh-Core

* Whether UE goes to IDLE

Proposal 1: Update the wording in Stage 2 to cover the autonomous GNSS measurement cases as follows “Upon outdated GNSS position the UE shall move to idle mode, unless GNSS acquisition was triggered or being performed or uplink transmission extension is active.”

Proposal 2: Upon GNSS validity expiry, UE doesn’t move to idle mode if UE is performing autonomous GNSS measurement during C-DRX inactive time.

* Whether UE triggers RACH

Proposal 3: RACH is not triggered for the GNSS Validity Duration report if there is no UL resource available for the case of autonomous GNSS measurement in C-DRX inactive time.

[R2-2405152](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405152%20Stage%202%20corrections%20related%20to%20NTN%20measurements.docx) Stage 2 corrections related to NTN measurements Samsung discussion Rel-18 IoT\_NTN\_enh-Core

Proposal 1: Agree Stage 2 text proposal in Section 5.1 on measuring NTN cells in a terrestrial network.

Proposal 2: If none of the satellite IDs for a specific frequency in SIB3/SIB5 are present in SIB33, it is up to UE implementation to measure the frequency.

Proposal 3: Agree Stage 2 correction text.

### 7.6.3 RRC Corrections

T390

* [S068] (T390 behaviour for HO/CHO)

[R2-2405151](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405151%20%5BS068%5D%20Handling%20GNSS%20uplink%20transmission%20extension%20during%20handovers.docx) [S068] Handling GNSS uplink transmission extension during handover Samsung, ZTE, Google discussion Rel-18 IoT\_NTN\_enh-Core

Observation 1: Release 17 IoT NTN never specified requirements for UE to perform GNSS measurement during a handover.

Proposal 1: Any solution shall ensure that a handover execution to target cell does not occur if UE does not have a valid GNSS position fix.

Proposal 2: RAN2 considers the following solutions:

- A) Network does not trigger handover while T390 is running

- B) A GNSS position fix is performed before the handover execution if T390 is running.

Proposal 3: If B) in P2 is agreed, agree the text proposal in Section 5.

[R2-2405499](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405499%20%5BS068%5D%20UE%20behaviors%20on%20T390%20upon%20handover%20or%20CHO.DOCX) [S068] UE behaviours on T390 upon handover or CHO Huawei, HiSilicon discussion Rel-18 IoT\_NTN\_enh-Core

Observation 1: In handover and CHO, target cell can know whether UE has started T390 based on the absence of gnss-ValidityDuration in the RRC connection reconfiguration complete message.

Proposal 1: Clarify in the spec that UE only includes gnss-ValidityDuration in the RRC connection reconfiguration complete message when it has a valid GNSS. There is no need to specify the stop of T390 upon handover or CHO.

Proposal 2: Clarify in the spec that T390 is stopped if UE autonomously starts GNSS measurements during C-DRX non-active periods.

Proposal 3: Adopt the TP in the Annex.

[R2-2405440](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405440%20On%20left%20open%20issues%20for%20T390%20handling.docx) On left open issues for T390 handling Nokia, Nokia Shanghai Bell discussion Rel-18 IoT\_NTN\_enh-Core

* T390 behavior for HO/CHO

Observation 1: If the UE stops T390 when handing over to the target cell the UE will be regarded as uplink un-synchronized.

Observation 2: The target cell is not aware whether T390 is running in a UE performing handover to the cell.

Observation 3: For normal handover, the source cell can inform the UE’s T390 status to the target cell via inter-node message.

Observation 4: For conditional handover, the UE can report the UE’s T390 status to the target cell via Uu interface after CHO execution.

Proposal 1: For HO/CHO, the UE shall report the UE’s T390 status (e.g., the remaining value of the T390) to the target cell in the RRCConnectionReconfigurationComplete message.

Proposal 2: If Proposal1 is agreed, RAN2 to adopt the below text proposal for TS 36.331.

* T390 behavior for for C-DRX non-active periods

Observation 5: The UE and cell must have a common understanding of the T390 status to avoid the cell assumes an autonomous GNSS measurement has started or UE has moved to RRC Idle.

Proposal 3: The UE stops the T390 when it receives an acknowledgement of the cell receiving the new remaining GNSS validity duration, when the UE performed a successful GNSS measurement during a C-DRX non-active period.

Proposal 4: If Proposal3 is agreed, RAN2 to adopt the below text proposal for TS 36.331.

R2-2404157 Further Discussion on T390 vivo discussion Rel-18 IoT\_NTN\_enh-Core

Observation 1: There is no requirement that UE may need to acquire the valid GNSS position before HO or CHO, which is different than the RRC re-establishment case.

Observation 2: For HO or CHO, if T390 is stopped upon starting handover, the out-of-date GNSS position will be used to synchronize to the target cell, and UE does not have the opportunity to acquire a new valid GNSS position.

Observation 3: For HO or CHO, if T390 is not stopped upon starting handover, although the out-of-date GNSS position is used to synchronize to the target cell before T390 expiration, UE would have the opportunity to acquire a new valid GNSS position after T390 expiration.

Observation 4: Network implementation can ensure T390 not running and UE has a valid GNSS position during the handover procedure.

Proposal 1: T390 is not stopped upon starting HO or CHO (no spec changed).

[R2-2404653](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404653_IoT%20NTN%20T390.doc) T390 handling during mobility [S067][S068] Apple discussion Rel-18 IoT\_NTN\_enh-Core

Observation 1: If T390 expires when UE is performing GNSS acquisition, UE would go to RRC idle before RRC re-establishment is initiated.

Proposal 1: For RRC re-establishment procedure, T390 is stopped once GNSS acquisition is initiated.

Observation 2: In handover procedure, target cell cannot inherit network UL timing correction from source cell during T390.

Observation 3: When UE performs initial access to target cell, UE location is required for UE to perform pre-compensation on timing and frequency.

Proposal 2: RAN2 to down-select one of the two options on T390 handling during handover and CHO.

- Option 1: Network initiates GNSS measurement before handover and CHO to guarantee UE has a valid GNSS upon handover and CHO initiation.

- Option 2: UE should acquire GNSS location upon initiating handover and CHO if T390 is running.

Proposal 3: If Option 2 above is selected, T390 is stopped once GNSS acquisition is initiated during handover and CHO.

[R2-2405526](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405526%20Corrections%20on%20the%20conditions%20for%20stopping%20T390.docx) Corrections on the conditions for stopping T390 Google Inc. discussion Rel-18 36.331

Proposal 1 UE stops T390 (if it is running) upon performing the GNSS measurement, no matter whether the GNSS measurement is triggered by the network, performed by the UE using an autonomous gap, or performed by the UE using available idle periods.

Proposal 2 Replace the changes relevant to the conditions for stopping T390 in R2-2403774 with the text proposal in Section 3.

Proposal 3 RAN2 to discuss the exceptions (e.g., a very short GNSS position fix duration) that allow UE to remain in RRC\_CONNECTED when UE’s GNSS position becomes outdated, even if the UE is neither configured with autonomous GNSS measurement nor provided with an aperiodic GNSS measurement gap.

* RACH triggering during T390

[R2-2404594](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404594%20T390.doc) Discussion on RACH triggering during T390 running OPPO discussion Rel-18 IoT\_NTN\_enh-Core

Neighbour Satellite information in MO

[R2-2404896](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404896%20Redundant%20ephemeris%20info%20and%20other%20issues%20in%20MO%20for%20IoT%20NTN.docx) Redundant ephemeris info and other issues in MO for IoT NTN ZTE Corporation, Sanechips, Apple, Samsung discussion Rel-18 IoT\_NTN\_enh-Core

Proposal 1: To remove IE ephemerisInfo-r18 from MeasObjectEUTRA and keep the IE satelliteId-r18 as it is.

Proposal 2: To clarify in the field description of IE epochTime-r18 in MeasObjectEUTRA that this IE is only assiocaited with IE referenceLocation-r18, not applicable to ephemeris information. And the previous description “configured in the associated ReportConfigEUTRA” for reference location is no longer correct and can be removed.

Proposal 3: To clarify that the condition “OPTIONAL -- Cond Moving” for the IE epochTime-r18 and referenceLocation-r18 in MeasObjectEUTRA means the corresponding field is only mandatory present if EventD2 or condEventD2 is configured. Otherwise the field is not present.

Proposal 4: To clarify the description of Event D2 and CondEvent D2 that the referenceLocation's corresponding satellite ephemeris information is the one indicated by the satellite ID. Also to editorially align the description of Ml2 and Thresh2 with that of Event D2 and CondEvent D2.

[R2-2404592](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404592%20ephemeris%20for%20EMC%20neighbor%20cells.docx) Removing ephemeris from dedicated signaling for EMC neighbor cells OPPO CR Rel-18 36.331 18.1.0 5017 - F IoT\_NTN\_enh-Core

Summary of change: Remove the ephemerisInfo-r18 from measObjectEUTRA.

[R2-2404209](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404209%20On%20the%20necessity%20of%20satellite%20assistance%20information%20for%20measurement%20in%20IoT%20NTN.docx) On the necessity of satellite assistance information for measurement in IoT NTN CATT discussion

Observation 1: Different from NR NTN, IoT NTN does not support SMTC based mechanism for RRM measurement; thus a UE does not need to adjust the measurement timing window with the variation of PDD. This makes it questionable on whether/how the satellite assistance information of neighbour cell is useful/necessary for RRM measurements in RRC\_IDLE/INACTIVE or in RRC\_CONNECTED.

Proposal 1: RAN2 clarifies how/why the satellite assistance information is necessary/useful for RRM measurement in IoT NTN. If no necessity is identified, remove the satellite ID list in SIB3, SIB5 and MeasObjectEUTRA.

[H005]

[R2-2405498](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405498%20%5BH005%5D%20Start%20of%20autonomous%20GNSS%20measurements.docx) [H005] Start of autonomous GNSS measurements Huawei, HiSilicon discussion Rel-18 IoT\_NTN\_enh-Core

Proposal 1: Update the start condition of autonomous GNSS gap in clause 5.3.3.21 and 5.5.9: UE may re-acquire GNSS (when configured by the network) in the GNSS measurement timer, if eNB does not trigger UE to make GNSS measurement within duration T, where T is latest reported remaining GNSS validity duration plus UL transmission extension duration X (if any).

Proposal 2: Adopt the TP in the Annex.

Misc

Moved here from 7.6.4

[R2-2404408](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404408%20Remaining%20issues%20on%20GNSS%20operation%20in%20IoT%20NTN.docx) Remaining issues on GNSS operation in IoT NTN CATT discussion

Proposal 1: No need to reset the value of N\_TA before resuming UL operation after GNSS is fixed.

Proposal 2: Add the start condition "when indication from lower layers to extend UL transmission is received" for T390 in Clause 7.3.1.

Proposal 3: Add the stop condition "when the UE starts GNSS measurement" for T318 in Clause 7.3.1.

Proposal 4: Adopt the TP in Appendix.

[R2-2405528](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405528%20Further%20RRC%20corrections%20on%20IoT%20NTN.docx) Further RRC corrections for IoT NTN Samsung discussion Rel-18 IoT\_NTN\_enh-Core

Observation 1: With current implementation UE cannot signal feature for both GSO and NGSO.

Proposal 1: Agree H005.

Proposal 2: Agree E805 and E806.

### 7.6.4 Other Stage 3 corrections

*Corrections related to other specs, e.g. 36.321, 36.304, 36.306.*

MAC issues

Moved here from 7.6.3

[R2-2404686](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404686%20GNSS%20extension.doc) Remaining issues on out-of-date GNSS fix Qualcomm Incorporated discussion Rel-18 IoT\_NTN\_enh-Core

Proposal 1 UE resets the value of N\_TA before resuming UL operation after GNSS is fixed. Text proposal is provided above.

Proposal 2 Add stop criteria for timer T390 as “upon receiving indication that new GNSS is valid”.

Proposal 3 If the UE receives GNSS measurement trigger too early (i.e., remaining GNSS validity is still x minutes), the UE is allowed not to trigger the GNSS measurement but trigger the GNSS Validity Duration Report. Text proposal is provided above.

[R2-2404900](file:///C%3A%5C%5CData%5C%5C3GPP%5C%5CExtracts%5C%5CR2-2404900%20Remaining%20issues%20of%20MAC%20spec%20for%20IoT%20NTN.docx%22%20%5Co%20%22C%3AData3GPPExtractsR2-2404900%20Remaining%20issues%20of%20MAC%20spec%20for%20IoT%20NTN.docx) Remaining issues of MAC spec for IoT NTN ZTE Corporation, Sanechips discussion Rel-18 IoT\_NTN\_enh-Core

Proposal 1: RAN2 assume the exiting way for maintaining N\_TA after GNSS is fixed is enough, no enhancement is needed.

Proposal 2: It’s no need to enhance the process for the UE to report remaining GNSS Validity Duration after successful GNSS measurement during C-DRX.

Moved here from 7.6.3

[R2-2405198](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405198%20NTA%20handling%20after%20GNSS%20fix%20v1.docx) NTA handling after GNSS fix NEC discussion Rel-18 IoT\_NTN\_enh-Core

Proposal: reset NTA to 0 after GNSS fix

[R2-2405441](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405441%20Further%20discussion%20on%20UE%20behaviour%20after%20successful%20GNSS%20acquistion.docx) Further discussion on UE behaviour after successful GNSS acquisition Nokia, Nokia Shanghai Bell discussion Rel-18 IoT\_NTN\_enh-Core

Observation 1: The value of N\_TA is not clear after a UE has completed the GNSS measurement successfully.

Observation 2: If the UE transmits on PUSCH resources to the network after a GNSS measurement, the following PUSCH transmissions may cause interference to other UEs until the NW corrects any potential TA errors after sending multiple Timing Advance Commands MAC CE.

Observation 3: The network can correct large TA errors via the Random Access Response message.

Proposal 1: After a successful GNSS measurement /autonomous GNSS measurement, the UE shall perform the Random Access procedure for UL synchronization using N\_TA = 0.

Proposal 2: Up to UE implementation to decide when to report the GNSS Validity Duration Report MAC CE after a successful GNSS measurement during C-DRX inactive time.

Proposal 3: Add a Note to indicate when the UE should report the new remaining GNSS validity duration to NW after a successful GNSS measurement in C-DRX inactive time.

Proposal 4: If Proposal 3 is agreed, adopt the Note to TS 36.331.

[R2-2405451](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405451%20-%20R18%20IoT%20NTN%20GNSS%20extension.docx) R18 IoT NTN GNSS extension Ericsson discussion Rel-17 IoT\_NTN\_enh-Core

Observation 1 The UE shall trigger GNSS measurement reporting every time upon completing GNSS fix operation.

Observation 2 The GNSS Duration Report MAC CE shall not trigger SR; instead CBRA shall be used.

Observation 3 If the UE has a grant for new transmission, it will send the GNSS validity duration report MAC CE on that grant.

Observation 4 The current MAC spec does not always trigger CBRA to report the GNSS validity duration.

Proposal 1 Correct the MAC procedure to make it clear that a triggered GNSS validity duration report always trigger CBRA in line with the RAN2 agreements.

Proposal 2 Consider the MAC text proposal in section 3.1

Observation 5 The network use NTA to compensate for errors due to estimation of UE and satellite’s position/common TA.

Observation 6 Setting NTA=0 after GNSS reacquisition is not optimal as the NTA value, configured by the network, may compensated for more than the UE position error.

Observation 7 Alt A, C and D do not provide optimal performance.

Observation 8 The UE can calculate the timing error due to inaccurate UE position by comparing the values of N"TA,adjUE" based on its previous GNSS position and its new GNSS position after GNSS reacquisition, i.e., Terror\_UE\_position=N"TA,adjUE"-N"TA,adj[OLD]UE" .

Proposal 3 After a new GNSS position fix, set NTA=NTA\_old-Terror\_UE\_position where Terror\_UE\_position=N"TA,adj UE"-N"TA,adj[OLD]UE" is the timing error due to inaccurate UE position and is calculated from N"TA,adj [OLD]UE" based on the previous GNSS position and N"TA,adjUE" based on the new GNSS position.

Proposal 4 Consider the MAC text proposal in section 3.2.

[R2-2405454](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405454%20-%2036321_CR1586_%28Rel-18%29%20-%20IoT%20NTN%20MAC%20corrections.docx) IoT NTN MAC corrections Ericsson CR Rel-18 36.321 18.1.0 1586 - F IoT\_NTN\_enh-Core

[E805][E806]

[R2-2404843](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404843%20-%20%5BE805%5D%5BE806%5D%20Revert%20implementation%20of%20UE%20capability%20for%20HARQ%20and%20GNSS.docx) [E805][E806] Revert implementation of UE capability for HARQ and GNSS Ericsson discussion Rel-18 NR\_NTN\_enh-Core

Observation 1 RIL [H002] proposed to modify the capability for HARQ and GNSS to distinguish between GSO and NGSO cases.

Observation 2 In RAN2#125, RAN2 swiftly agreed to implement the change with the only rationale to align with Rel-17 design and latest agreements reflected in the “UE Feature list”,, without due consideration.

Observation 3 RAN2’s decision to modify the UE capability for HARQ and GNSS contradicts RAN1 consensus without technical justification nor appropriate communication.

Proposal 1 Revert the implementation of [H002] and send an LS to RAN1 to communicate this correction.

Withdrawn

R2-2405530 Miscellaneous correction for IoT-NTN Nokia, Nokia Shanghai Bell CR Rel-18 36.304 18.1.0 0875 - F IoT\_NTN\_enh-Core Withdrawn

## 7.7 NR NTN enhancements

(NR\_NTN\_enh -Core; leading WG: RAN1; REL-18; WID: RP-232669)

Time budget: 0 TU

Tdoc Limitation: 2 tdocs

### 7.7.1 Organizational

LSs, rapporteur inputs and other organizational documents.

Editorials/clarifications should not be included in any tdoc but sent to the WI spec rapporteurs, who can submit a rapporteur CR as part of this AI.

Rapporteur inputs and other pre-assigned documents in this AI do not count towards the tdoc limitation.

Incoming LSs

[R2-2404127](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404127_R4-2406496.docx) LS on UE capability for NW verified location (R4-2406496; contact: Huawei) RAN4 LS in Rel-18 NR\_NTN\_enh-Core To:RAN1, RAN2

[R2-2404248](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404248%20Correction%20on%20NR%20NTN.docx) Correction on NR NTN CATT (Rapporteur) CR Rel-18 37.355 18.1.0 0504 - F NR\_NTN\_enh-Core

[R2-2404146](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404146_S5-242198.doc) LS reply on OAM requirements for UE location verification (S5-242198; contact: CATT) SA5 LS in Rel-18 OAM\_NTN To:RAN3 Cc:SA2, RAN1, RAN2

* Noted?

Rapporteur CRs

Moved here from 7.7.4

[R2-2404839](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404839%20-%20Proposed%20conclusions%20for%20NR%20NTN%20RILs%20Rel-18.docx) Proposed conclusions for NR NTN RILs Rel-18 Ericsson report Rel-18 NR\_NTN\_enh-Core

[R2-2404855](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404855%20-%2038331_CR4761r2_%28Rel-18%29%20-%20Miscellaneous%20corrections%20to%20Rel-18%20NR%20NTN.docx) Miscellaneous corrections to Rel-18 NR NTN Ericsson CR Rel-18 38.331 18.1.0 4761 2 F NR\_NTN\_enh-Core R2-2403772 Revised

* This IPA CR is revised in R2-2404863 to include further changes

[R2-2404863](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404863%20-%2038331_CR4761r3_%28Rel-18%29%20-%20Miscellaneous%20corrections%20to%20Rel-18%20NR%20NTN.docx) Miscellaneous corrections to Rel-18 NR NTN Ericsson CR Rel-18 38.331 18.1.0 4761 3 F NR\_NTN\_enh-Core [R2-2404855](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404855%20-%2038331_CR4761r2_%28Rel-18%29%20-%20Miscellaneous%20corrections%20to%20Rel-18%20NR%20NTN.docx)

[R2-2405374](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405374%20NTN%20corrections%20for%20TS%2038.321.docx) Corrections for Non-terrestrial Networks InterDigital CR Rel-18 38.321 18.1.0 1858 - F NR\_NTN\_enh-Core

[R2-2404856](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404856_Terminology%20alignment%20in%2038.304%20for%20NR-NTN_final.docx) Terminology alignment in 38.304 for NR-NTN ZTE Corporation, Sanechips, Ericsson, CATT, Nokia, Intel, Huawei, HiSilicon CR Rel-18 38.304 18.1.0 0403 - F NR\_NTN\_enh-Core Revised

* Revised in R2-2405623

[R2-2405623](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405623_Terminology%20alignment%20in%2038.304%20for%20NR-NTN_final.docx) Terminology alignment in 38.304 for NR-NTN ZTE Corporation, Sanechips, Ericsson, CATT, Nokia, Intel, Huawei, HiSilicon CR Rel-18 38.304 18.1.0 0403 1 F NR\_NTN\_enh-Core [R2-2404856](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404856_Terminology%20alignment%20in%2038.304%20for%20NR-NTN_final.docx)

[R2-2404526](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404526__38306-FR2-Ref.docx) Add FR2 band reference to NTN related UE Capabilities Intel Corporation draftCR Rel-18 38.306 18.1.0 NR\_NTN\_Ph3-Core

[R2-2405455](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405455%20-%2038331_CR4836_%28Rel-17%29%20-%20Terminology%20alignment%20for%20NR%20NTN.docx) Terminology alignment for NR NTN Ericsson, ZTE Corporation, Sanechips, Intel Corporation, CATT CR Rel-17 38.331 17.8.0 4836 - F NR\_NTN\_solutions-Core

* Revised in R2-2405714

[R2-2405714](file:///C%3A%5CData%5C3GPP%5CRAN2%5CDocs%5CR2-2405714.zip) Terminology alignment for NR NTN , ZTE Corporation, Sanechips, Intel Corporation, CATT, Huawei, HiSilicon, Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.8.0 4836 1 F NR\_NTN\_solutions-Core

* To be handled in AI 6.1.3.1

[R2-2405456](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405456%20-%2038331_CR4837_%28Rel-18%29%20-%20Terminology%20alignment%20for%20NR%20NTN.docx) Terminology alignment for NR NTN Ericsson, ZTE Corporation, Sanechips, Intel Corporation, CATT CR Rel-18 38.331 18.1.0 4837 - F NR\_NTN\_enh-Core

* Revised in R2-2405715

[R2-2405715](file:///C%3A%5CData%5C3GPP%5CRAN2%5CDocs%5CR2-2405715.zip) Terminology alignment for NR NTN , ZTE Corporation, Sanechips, Intel Corporation, CATT, Huawei, HiSilicon, Nokia, Nokia Shanghai Bell CR Rel-18 38.331 18.1.0 4837 1 F NR\_NTN\_enh-Core

* Revised in R2-2405751 to make it a Cat A mirror CR for R2-2405714 (R18-specific changes to be moved to the R18 RRC Rapporteur CR)

R2-2405751 Terminology alignment for NR NTN , ZTE Corporation, Sanechips, Intel Corporation, CATT, Huawei, HiSilicon, Nokia, Nokia Shanghai Bell CR Rel-18 38.331 18.1.0 4837 2 A NR\_NTN\_enh-Core

* To be handled in AI 6.1.3.1

### 7.7.2 Stage 2 corrections

[R2-2405243](file:///C%3A%5C%5CData%5C%5C3GPP%5C%5CExtracts%5C%5CR2-2405243_CR%20Stage-2%20Corrections%20for%20NR_NTN.docx%22%20%5Co%20%22C%3AData3GPPExtractsR2-2405243_CR%20Stage-2%20Corrections%20for%20NR_NTN.docx) Stage-2 corrections on NR NTN THALES CR Rel-18 38.300 18.1.0 0858 1 F NR\_NTN\_enh-Core R2-2403773

[R2-2404890](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404890%20location-based%20only%20CHO.docx) Correction on Location-based CHO OPPO CR Rel-18 38.300 18.1.0 0863 - F NR\_NTN\_enh-Core

### 7.7.3 RRC corrections

Rapporteur’s suggestions

[R2-2404844](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404844%20-%20Comments%20on%20remaining%20NR%20NTN%20RILs.docx) Comments on remaining NR NTN RILs Ericsson discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1 Accept E302 to align NR NTN and IoT NTN specification.

Proposal 2 Reject [H115]. UE re-acquires system information upon satellite switch with resynchronization.

Proposal 3 If P2 is not agreed, it is up to network implementation to secure that value tags are set consistently across cells upon satellite switch with resynchronization.

Proposal 4 Reject H010

Satellite switch with resync

* [H115]

[R2-2405501](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405501%20%5BH115%5D%20SIB19%20acquisition%20after%20satellite%20switching.docx) [H115] SIB19 acquisition after satellite switching Huawei, HiSilicon discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1: Clarify in clause 5.2.2.2.1 that only SIB19 is re-acquired after satellite switching with re-sync. Add the UE behaviour of obtaining SIB19 in clause 5.2.2.4.21.

Proposal 2: Adopt the TP for [H115] in the Annex.

[R2-2404685](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404685%20issue%20on%20PCI%20unchanged.docx) SIB acquisition after Satellite switch with re-sync Qualcomm Incorporated discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1 Unless the validity duration expires or UE receives paging notification of SI change, there is no need for UE to re-acquire the MIB, SIB1, SIB19 and other SIBs after satellite switch with resync.

[R2-2405169](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405169.docx) Discussion on E302, H115 Samsung discussion Rel-18 NR\_NTN\_enh-Core

* [H010]

[R2-2405672](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405672_%5BH010%5D%5BH115%5D%20and%20MIB%20acquisition.docx) [H010][H115] and skipping MIB acquisition Sequans Communications discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1: If time offset is not clear enough, consider adding “with the same index”, or using “SSB half-frame” or “SSB burst”

Observation 1: During satellite switch with resync, cell is unchanged hence SI acquisition should not be required

Observation 2: If broadcasted SMTCs needs to be updated at satellite switch, it means configured SMTCs shall also be updated, killing the benefit of the feature

Proposal 2: RAN2 to discuss if any fields require updating, and why (particularly SMTCs)

Observation 3: Omitting PBCH acquisition can reduce interruption time

Observation 4: It is beneficial for the UE to know if cell/SSB timing is unchanged (at gNB)

Proposal 3: Capture that in hard switch (t-serviceStart absent), cell timing/SSB location is unchanged (at gNB)

[R2-2405680](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405680_Soft%20switch%20SSB%20time%20offset%20and%20SMTC%20impact.docx) Soft satellite switch SSB time offset and SMTC impact Sequans Communications discussion Rel-18 NR\_NTN\_enh-Core

* Other

[R2-2404158](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404158%20Further%20Discussion%20Satellite%20Switch%20with%20Resync.docx) Further Discussion on Satellite Switch with Resync vivo discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1: Change the granularity of capabilities softSatelliteSwitchResyncNTN-r18 and hardSatelliteSwitchResyncNTN-r18 as per band level.

Proposal 2: RAN2 confirms that parallelMeasurementWithoutRestriction-r17 and/or simultaneousRxDataSSB-DiffNumerology is not the pre-requisite capability of softSatelliteSwitchResyncNTN-r18.

[R2-2405143](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405143%20On%20Reducing%20the%20NW%20Uncertainty%20in%20Satellite%20Switching%20with%20Resynchronization.docx) On Reducing the NW Uncertainty in Satellite Switching with Resynchronization Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_NTN\_enh-Core

[R2-2405273](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405273%20Discussion%20on%20beam%20management%20for%20satellite%20switch%20with%20re-sync.docx) Discussion on beam management for satellite switch with re-sync ETRI discussion Rel-18 NR\_NTN\_enh-Core

[R2-2405423](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405423%20Discussion%20on%20satellite%20switch%20with%20resync%20in%20RRC%20states%20other%20than%20RRC%20connected.docx) Discussion on satellite switch with resync in RRC states other than RRC connected ASUSTeK discussion Rel-18 NR\_NTN\_enh-Core

(Cond)Event D2

[R2-2405079](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405079%20Clarification%20on%20%28cond%29EventD2%20configuration.doc) Clarification on (cond)event D2 configuration ZTE Corporation, Sanechips discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1: It is proposed to reject second changes ( i.e., optionally present part) proposed in RIL 302.

[R2-2404208](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404208%20Corrections%20on%20Event%20D2%20measurement%20reporting%20procedure.docx) Corrections on Event D2 measurement reporting CATT discussion

Observation 1: Current Spec does not specific how to derive the applicable cells for Event D2. This leads to the issue that when UE initiates measurement reporting procedure for Event D2, it can report nothing (including RRM measurement and PCI) about the neighbour cell that fulfils the reporting conditions.

Observation 2: According to the current ASN.1 structure of MeasObjectNR, one measID can be associated with multiple neighbour cells each of which is further associated with one reference location. When receiving measurement reporting from UE, the NW cannot know which cell fulfils the reporting condition due to Observation 1.

Observation 3: For Event D2, UE fulfils either the entering condition or leaving condition will initiate measurement reporting procedure. According to the current measurement reporting mechanism, the NW could not know whether the UE meets entering condition or leaving condition due to Observation 1.

Proposal 1: The measurement results reporting for event D2 should include the physCellId of the neighbour cells that fulfils the reporting conditions.

Proposal 2: One cellsTriggeredList should be kept for the measID which is associated with event D2:

- When the entering condition is fulfilled for one neighbour cell of the event D2, the UE includes this cell to the cellsTriggeredList for this measID and initiates measurement reporting procedure.

- When the leaving condition is fulfilled for one cell included in the cellsTriggeredList which is associated with event D2, the UE removes this cell from the cellsTriggeredList for this measID and initiates measurement report procedure.

Proposal 3: If Proposal 1 and Proposal 2 are agreed, adopt the TP in Annex.

Proposal 4: if Proposal 1 and Proposal 2 are agreed, RAN2 confirms the similar issues exists also in TS 36.331 and agrees to apply a similar way of change as in P1/2 in TS 36.331 as well.

FR2 capability

[R2-2405500](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405500%20Correction%20on%20NR%20NTN%20FR2%20capabilities.docx) Correction on NR NTN FR2 capabilities Huawei, HiSilicon CR Rel-18 38.331 18.1.0 4841 - F NR\_NTN\_enh-Core

Other

[R2-2404673](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404673_Open%20issues%20on%20NR%20NTN%20enhancements_v0.doc) Open issues on NR NTN enhancements Apple discussion Rel-18 NR\_NTN\_enh-Core

[R2-2404883](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404883%20Discussion%20on%20the%20leftover%20issues%20for%20NR-NTN.docx) Discussion on the leftover issues for NR-NTN Google Inc. discussion Rel-18

### 7.7.4 Other Stage 3 corrections

*Corrections related to other specs, e.g. 38.321, 38.304, 38.306.*

[R2-2405080](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405080%20Consideration%20on%20remaining%20FR2%20UE%20capability%20issues.doc) Consideration on remaining FR2 UE capability issues ZTE Corporation, Sanechips, Eutelsat Group discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1: Update TS 38306 to allow indicate below UE capabilities for NTN FDD-FR2:

* SDT related: cg-SDT-r17, mt-CG-SDT-r18
* MBS related: maxDynamicSlotRepetitionForSPS-Multicast-r17, maxNumberG-CS-RNTI-r17, maxNumberG-RNTI-r17, multiPUCCH-HARQ-ACK-ForMulticastUnicast-r17, priorityIndicatorInDCI-Multicast-r17, priorityIndicatorInDCI-SPS-Multicast-r17, releaseSPS-MulticastWithCS-RNTI-r17, sps-MulticastMultiConfig-r17, re-LevelRateMatchingForMulticast-r17, twoHARQ-ACK-CodebookForUnicastAndMulticast-r17

Proposal 2: If P1 is agreed, RAN2 consider the corresponding TP in annex for CR implementation.

[R2-2405170](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405170.docx) Discussion on TAT handling in RACH-less CHO Samsung discussion Rel-18 NR\_NTN\_enh-Core

Proposal 1: For the start of TAT in RACH-less CHO, UE follows the procedure for RACH-less HO (i.e., no specification change).

[R2-2405118](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405118%20Correction%20on%20HARQ%20buffer%20flush%20during%20satellite%20switch%20with%20re-synchronization.docx) Correction on HARQ buffer flush during satellite switch with re-synchronization Huawei, HiSilicon CR Rel-18 38.321 18.1.0 1854 - F NR\_NTN\_enh-Core

[R2-2405142](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405142%20On%20Scheduling%20Restrictions%20in%20Satellite%20Soft%20Switching%20with%20Resynchronization%20%E2%80%93%20further%20view.docx) On Scheduling Restrictions in Satellite Soft Switching with Resynchronization – further view Nokia discussion Rel-18 NR\_NTN\_enh-Core R2-2403300

Proposal 1: In case the UE supports softSatelliteSwitchResyncNTN-r18, the UE shall also support parallelMeasurementWithoutRestriction.

Proposal 2: RAN2 is asked to reconsider the decision made at RAN2#125 regarding PDD during satellite switching.

Proposal 3: In case the UE supports softSatelliteSwitchResyncNTN-r18, the UE shall also support serviceLinkPropDelayDiffReporting-r17.

Proposal 4: If the decision regarding PDD is revised, confirm with RAN4 that service link propagation delay difference (PDD) helps in reducing the scheduling restriction duration during satellite soft-switching with resynchronization.

Proposal 5: If the LS to RAN4 is sent, RAN2 asks how early such measurements, calculations and reporting should be done.

Proposal 6: Adopt the 38.306 and 38.331 Text Proposals in the Annex A and B.

[R2-2405424](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405424%20Discussion%20on%20TA%20timer%20for%20satellite%20switch.docx) Discussion on TA timer for satellite switch ASUSTeK discussion Rel-18 38.321 NR\_NTN\_enh-Core

Proposal 1: RAN2 to discuss whether the TA timer is started or restarted upon satellite switch with resynchronization.

## 8.8 NTN for NR Ph3

(NR\_NTN\_Ph3-Core; leading WG: RAN2; REL-19; WID: RP-240775

LTE\_TN\_NR\_NTN\_mob, leading WG: RAN2, Rel-19 WID: RP-240846)

Time budget: 2 TU

Tdoc Limitation: 4 tdocs

### 8.8.1 Organizational

LS, Rapporteur input, including workplan, etc.

[R2-2404207](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404207%20Updated%20work%20plan%20for%20NR_NTN_Ph3.docx) Updated work plan for NR NTN Ph3 CATT, Thales Work Plan

[R2-2404137](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404137_S2-2405600.docx) LS on Support of Regenerative-based Satellite Access (S2-2405600; contact: vivo) SA2 LS in Rel-19 FS\_5GSAT\_Ph3\_ARCH To:RAN3 Cc:RAN2

### 8.8.2 Downlink coverage enhancements

Contributions should focus on RAN2 aspects of DL coverage enhancements (e.g. cell level / beam level DTX/DRX mechanism, etc.).

[R2-2404159](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404159%20Discussion%20on%20Downlink%20Coverage%20Enhancements.docx) Discussion on Downlink Coverage Enhancements vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404204](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404204%20Discussion%20on%20Downlink%20Coverage%20Enhancements.docx) Discussion on downlink coverage enhancements CATT discussion

[R2-2404354](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404354%20Discussions%20on%20beam%20and%20cell%20level%20DTX%20DRX.doc) Discussions on beam and cell level DTX DRX Fujitsu discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404582](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404582%20-%20Discussion%20on%20DL%20coverage%20enhancement%20for%20NTN.doc) Discussion on DL coverage enhancement in NTN OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404654](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404654_DL%20coverage%20enhancement.doc) DL coverage enhancement in NTN Apple discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404682](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404682%20Cell%20DTX.docx) Discussion on cell DTX/DRX Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404739](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404739%20Discussion%20on%20system%20level%20enhancement%20for%20downlink%20coverage%20enhancements%20for%20NTN.doc) Discussion on system level enhancement for downlink coverage enhancements for NTN Xiaomi discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404797](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404797%20Downlink%20coverage%20enhancement%20in%20NTN.docx) Downlink coverage enhancement in NTN Lenovo discussion Rel-19

[R2-2405081](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405081%20Consideration%20on%20downlink%20coverage%20enhancements.doc) Consideration on downlink coverage enhancements ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405124](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405124%20Discussion%20on%20DL%20coverage%20enhancements.docx) Discussion on DL coverage enhancements Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405173](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405173.docx) Discussion on Downlink Coverage Enhancement Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405229](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405229%20Downlink%20coverage%20enhancements.docx) On the applicability of downlink coverage enhancements Nokia, Nokia Shanghai Bell discussion NR\_NTN\_Ph3-Core

[R2-2405240](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405240%20NR%20NTN%20DL%20Coverage%20enhancements%20discussion_v2.docx) Discussion on RAN2 Aspects for Downlink Coverage Enhancements in NR NTN evolution THALES discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405299](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405299%20Questions%20identified%20to%20RAN1%20on%20Downlink%20Coverage%20Enhancement.docx) Questions identified to RAN1 on Downlink Coverage Enhancement CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405312](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405312_Coverage%20of%20NTN.doc) Downlink Coverage in NR NTN China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405320](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405320%20Consideration%20on%20downlink%20coverage%20enhancement.docx) Consideration on downlink coverage enhancement NEC Corporation. discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405375](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405375%20%28R19%20NR%20NTN%20WI%20AI%208.8.2%29%20DL%20coverage.docx) Downlink coverage enhancement for NTN InterDigital discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405376](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405376%20DRAFT%20-%20LS%20on%20DL%20coverage%20enhancements.docx) [Draft] LS on DL coverage enhancements InterDigital LS out Rel-19 NR\_NTN\_Ph3-Core To:RAN1

[R2-2405449](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405449%20-%20Downlink%20coverage%20enhancements.docx) Downlink coverage enhancements Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405613](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405613%20Downlink%20coverage%20enhancements%20for%20NTN.docx) Downlink coverage enhancements for NTN NERCDTV discussion

[R2-2405626](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405626-Discussion_for_DL_coverage_enhancement.docx) Discussion for DL coverage enhancement Sharp discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405636](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405636_discussion%20on%20downlink%20coverange%20enhancement%20in%20NTN.docx) Discussion on downlink coverage enhancements in NR NTN ETRI discussion Rel-19 NR\_NTN\_Ph3-Core

Withdrawn

R2-2405600 Downlink coverage enhancements for NTN NERCDTV discussion Withdrawn

### 8.8.3 Uplink Capacity/Throughput Enhancement

No contributions are expected for this AI at this meeting.

### 8.8.4 Support of Broadcast service

Contributions should address the signaling of the intended service area of a broadcast service.

[R2-2404160](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404160%20Discussion%20on%20MBS%20Broadcast%20Provision%20in%20NTN.docx) Discussion on MBS Broadcast Provision in NTN vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404206](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404206%20Discussion%20on%20support%20of%20broadcast%20service%20in%20NR%20NTN.docx) Discussion on support of broadcast service via NR NTN CATT discussion

[R2-2404282](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404282_discussion%20on%20support%20of%20broadcast%20service%20in%20NTN.docx) Discussion on support of a broadcast service in NR NTN ETRI discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404355](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404355%20Discussions%20on%20signaling%20of%20the%20intended%20service%20area%20of%20a%20broadcast%20service.doc) Discussions on signaling of the intended service area of a broadcast service Fujitsu discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404429](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404429.docx) Discussion on support of broadband services Continental Automotive discussion

[R2-2404580](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404580%20Discussion%20on%20providing%20MBS%20service%20area%20in%20NTN%20network.docx) Discussion on providing MBS service area in NTN network OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404621](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404621.docx) Discussion on MBS Broadcasting Control over NTN access TCL discussion

[R2-2404655](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404655_MBS%20over%20NTN.doc) Broadcast service support over NTN Apple discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404679](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404679%20MBS%20broadcast%20in%20NTN.docx) MBS broadcast service area information Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404798](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404798%20On%20broadcast%20service%20area%20indication%20in%20NTN.docx) On broadcast service area indication in NTN Lenovo discussion Rel-19

[R2-2404841](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404841%20-%20Support%20for%20broadcast%20services%20in%20NR%20NTN.docx) Support for broadcast services in NR NTN Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404853](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404853_area_config.docx) Discussions on the configuration of intended service areas ITRI discussion NR\_NTN\_Ph3-Core

[R2-2404854](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404854_limited_MBS.docx) Discussions on limiting broadcast service in the intended service areas ITRI discussion NR\_NTN\_Ph3-Core

[R2-2404916](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404916.docx) Broadcast service area signaling Sony discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404982](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404982%20Discussion%20on%20the%20support%20of%20broadcast%20service.docx) Discussion on the support of broadcast service HONOR discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405020](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405020%20Support%20of%20MBS%20broadcast%20service%20for%20NTN.docx) Support of MBS broadcast service for NTN CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405082](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405082%20Consieration%20on%20broadcast%20service%20ehancements.doc) Consideration on broadcast service enhancements ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405099](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405099.doc) Discussion on the service area of a broadcast service Xiaomi discussion

[R2-2405125](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405125%20Discussion%20on%20supporting%20MBS%20broadcast%20over%20NTN.docx) Discussion on supporting MBS broadcast over NTN Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405147](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405147%20On%20the%20Signalling%20Aspects%20of%20MBS%20over%20Rel-19%20NR%20NTN.docx) On the Signalling Aspects of MBS over Rel-19 NR NTN Nokia discussion Rel-19 NR\_NTN\_Ph3 R2-2403306

[R2-2405174](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405174.docx) Discussion on Broadcast Service Area in NTN Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405204](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405204.docx) Discussions on MBS in Rel-19 NTN TOYOTA Info Technology Center discussion Rel-19

[R2-2405211](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405211%20%5BNTN%5D%20Discussion%20on%20support%20of%20broadcast%20service%20in%20NTN.docx) Discussion on support of broadcast service in NTN LG Electronics France discussion Rel-19 NR\_NTN\_Ph3 R2-2403121

[R2-2405239](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405239%20NR%20NTN%20MBS%20discussion_v3.docx) Discussion on MBS broadcast additional features for NR NTN Evolution THALES discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405277](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405277_Clarification%20on%20intended%20service%20area.docx) Clarification on intended service area NEC Telecom MODUS Ltd. discussion

[R2-2405377](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405377%20%28R19%20NR%20NTN%20WI%20AI%208.8.4%29%20Broadcast.docx) Support for broadcast service in NTN InterDigital discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405525](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405525.docx) Discussion on support of broadcast service ITL discussion Rel-19

[R2-2405627](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405627-Discussion_on_MBS_service_support_for_NR_NTN.docx) Discussion on MBS service support for NR NTN Sharp discussion Rel-19 NR\_NTN\_Ph3-Core

### 8.8.5 Support of regenerative payload

Contributions should focus on the needed updates for Stage 2 description and on whether any existing essential features would be affected - and potentially need any modifications - in a regenerative payload architecture.

[R2-2404161](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404161%20Discussion%20on%20Mobility%20for%20Regerative%20Payload.docx) Discussion on Mobility with Regenerative Payload vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404205](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404205%20Further%20discussion%20on%20regenerative%20payload.docx) Further discussion on regenerative payload CATT discussion

R2-2404256 Further discussion on regenerative payload for satellite switch with resync NTU discussion Rel-19 Late

[R2-2404590](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404590%20regenerative%20payload.doc) Discussion on satellite switch with resynch for regenerative payload OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404680](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404680%20Regenerative%20payload.docx) Discussion on regenerative payload Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404799](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404799%20Considerations%20on%20regenerative%20payload%20in%20NTN.docx) Considerations on regenerative payload in NTN Lenovo discussion Rel-19

[R2-2404917](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404917.docx) Satellite switch with re-sync in regenerative payload Sony discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405021](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405021%20Support%20of%20regenerative%20payload.docx) Support of regenerative payload CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405083](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405083%20Consideration%20on%20regenerative%20payload%20support.doc) Consideration on support of regenerative payload ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405100](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405100.doc) Discussion on the support of regenerative payload Xiaomi discussion

[R2-2405126](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405126%20Discussion%20on%20support%20of%20regenerative%20payload.docx) Discussion on support of regenerative payload Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405148](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405148%20On%20the%20feasibility%20of%20the%20existing%20NTN%20features%20over%20regenerative%20architecture.docx) On the feasibility of the existing NTN features over regenerative architecture Nokia discussion Rel-19 NR\_NTN\_Ph3

[R2-2405156](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405156%20Regenerative%20payload%20for%20NR%20NTN.docx) Regenerative payload for NR NTN Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405196](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405196%20Timing%20relationship%20with%20Regenerative%20mode%20v1.docx) Support Regenerative Payload NEC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405241](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405241%20NR%20NTN%20Regenerative%20TP_v6.docx) Regenerative NTN payload support in NR NTN Evolution THALES discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405313](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405313_Stage-2%20updates%20for%20regenerative%20payload.doc) Stage-2 updates for regenerative payload China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405448](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405448%20-%20Stage%202%20updates%20for%20regenerative%20payload.docx) Stage 2 updates for regenerative payload Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405629](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405629-Discussion_for_regenerative_payload.docx) Discussion for regenerative payload Sharp discussion Rel-19 NR\_NTN\_Ph3-Core

Withdrawn

R2-2404622 Discussion on Support of NTN Regenerative Architecture TCL discussion Withdrawn

### 8.8.6 LTE to NR NTN mobility

Support for idle mode mobility between LTE and NR NTN.

[R2-2404162](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404162%20Discussion%20on%20LTE%20TN%20to%20NR%20NTN%20Mobility.docx) Discussion on LTE TN to NR NTN Mobility vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404198](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404198.docx) Support for LTE to NR-NTN idle mode mobility Telit Communications S.p.A. ; Thales discussion R2-2403066

[R2-2404211](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404211%20Support%20of%20Idle%20Mode%20Mobility%20from%20EUTRA%20TN%20to%20NR%20NTN.docx) Support of Idle Mode Mobility from EUTRA TN to NR NTN CATT discussion

[R2-2404591](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404591%20LTE%20to%20NR%20NTN%20mobility.doc) Discussion on LTE to NR NTN idle mode mobility OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404656](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404656_LTE%20TN%20to%20NTN%20mobility.doc) Mobility from LTE TN to NR NTN Apple discussion Rel-19 LTE\_TN\_NR\_NTN\_mob-Core

[R2-2404681](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404681%20mobility%20LTE%20to%20NR%20NTN.docx) Idle mode mobility from LTE to NR NTN Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2404759](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404759%20E-UTRA%20TN%20to%20NR%20NTN%20Idle%20mobility.docx) Discussion on cell reselection from E-UTRA TN to NR NTN MediaTek Inc. discussion NR\_NTN\_Ph3-Core R2-2403226

[R2-2404800](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404800%20On%20LTE%20to%20NR-NTN%20IDLE%20mobility.docx) On LTE to NR-NTN IDLE mobility Lenovo discussion Rel-19

[R2-2404840](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404840%20-%20E-UTRAN%20TN%20to%20NR-NTN%20mobility.docx) E-UTRAN TN to NR-NTN mobility Ericsson discussion Rel-19 LTE\_TN\_NR\_NTN\_mob

[R2-2404986](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404986.doc) Further discussion on idle mode cell reselection form LTE to NR NTN Transsion Holdings discussion Rel-19

[R2-2405022](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405022%20Considerations%20on%20cell%20reselection%20enhancements%20from%20E-UTRAN%20TN%20to%20NR-NTN.docx) Considerations on cell reselection enhancements from E-UTRAN TN to NR-NTN CMCC discussion Rel-19 LTE\_TN\_NR\_NTN\_mob

[R2-2405084](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405084%20Consideration%20on%20idle%20mode%20mobility%20between%20LTE%20TN%20and%20NR%20NTN.doc) Consideration on idle mode mobility between LTE TN and NR NTN ZTE Corporation, Sanechips discussion Rel-19

[R2-2405101](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405101.doc) Discussion on the cell reselection from LTE to NR NTN Xiaomi discussion

[R2-2405108](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405108%20%28R19%20NR%20NTN%20WI%20A8.8.6%29%20LTE%20to%20NR%20NTN%20mobility.doc) Discussion on LTE to NR NTN mobility Interdigital, Inc. discussion Rel-19 LTE\_TN\_NR\_NTN\_mob

[R2-2405127](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405127%20Discussion%20on%20LTE%20to%20NR%20NTN%20mobility.docx) Discussion on LTE to NR NTN mobility Huawei, HiSilicon, Turkcell discussion Rel-19 LTE\_TN\_NR\_NTN\_mob-Core

[R2-2405146](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405146%20On%20How%20to%20Address%20E-UTRA%20TN%20to%20NR%20NTN%20Mobility%20in%20IDLE%20modeN%20Mobility%20in%20IDLE%20mode.docx) On How to Address E-UTRA TN to NR NTN Mobility in IDLE mode Nokia discussion Rel-19 NR\_NTN\_Ph3

[R2-2405155](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405155%20E-UTRAN%20TN%20to%20NR%20NTN%20mobility%20basic%20scenario%20and%20signalling.docx) E-UTRAN TN to NR NTN mobility basic scenario and signalling Samsung discussion Rel-19 LTE\_TN\_NR\_NTN\_mob-Core

[R2-2405210](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405210%20%5BNTN%5D%20Discussion%20on%20support%20of%20LTE%20to%20NR%20NTN%20cell%20reselection.docx) Discussion on support of LTE to NR NTN cell reselection LG Electronics France discussion Rel-19 LTE\_TN\_NR\_NTN\_mob R2-2403123

[R2-2405314](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405314_Consideration%20of%20LTE%20TN%20to%20NR%20NTN%20mobility.doc) Consideration of LTE TN to NR NTN mobility China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2405630](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405630-Discussion_for_LTE_to_NR_NTN_mobility.docx) Discussion for LTE to NR NTN mobility Sharp discussion Rel-19 LTE\_TN\_NR\_NTN\_mob-Core

## 8.9 IoT NTN Ph3

(IoT\_NTN\_Ph3-Core; leading WG: RAN2; REL-19; WID: RP-240776)

Time budget: 1 TU

Tdoc Limitation: 2 tdocs

### 8.9.1 Organizational

LS, Rapporteur input, including workplan, etc.

[R2-2404144](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404144_S3-241567.docx) LS to SA2 and RAN2 on selected satellite architecture for Store and Forward (S3-241567; contact: InterDigital) SA3 LS in Rel-19 FS\_5GSAT\_Ph3\_SEC To:SA2, RAN2 Cc:SA, RAN3, SA3-LI

[R2-2405378](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405378%20DRAFT%20-%20Reply%20LS%20on%20Store%20and%20Forward.docx) [Draft] Reply LS on selected satellite architecture for Store and Forward InterDigital LS out Rel-19 IoT\_NTN\_Ph3-Core To:SA3 Cc:SA2

### 8.9.2 Support of Store & Forward

Contributions should focus on possible impacts to the radio interface.

[R2-2404163](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404163%20RAN2%20Aspect%20for%20S%26F%20Operation.docx) RAN2 Aspects for Store & Forward vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404199](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404199.docx) Considerations on S&F operation from device perspective Telit Communications S.p.A. discussion Revised

[R2-2404202](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404202%20Discussion%20on%20support%20of%20store%20and%20forward%20operation.docx) Discussion on support of store and forward operation CATT discussion

[R2-2404321](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404321%20Overview%20of%20the%20Store%20and%20Forward%20satellite%20operation.docx) Overview of the Store and Forward satellite operation Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404436](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404436_Elements_of_Store_and_Forward_Operation.docx) Elements of Store & Forward Operation PANASONIC discussion

[R2-2404589](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404589%20S%26F%20operation.doc) Discussion on Store & Forward satellite operation OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404657](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404657_Store%20and%20Forward.doc) Support of S&F operation in IoT NTN Apple discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404683](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404683%20store%20and%20forward.docx) S&F satellite operation with full eNB as regenerative payload Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404801](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404801%20Store%20and%20Forward%20support%20in%20IoT%20NTN.docx) Store and Forward support in IoT NTN Lenovo discussion Rel-19

[R2-2404882](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404882%20RAN2%20impacts%20of%20supporting%20Store%26Forward%20operation%20in%20IoT%20NTN.docx) RAN2 impacts of supporting Store&Forward operation in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core R2-2402380

[R2-2404885](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404885%20Discussion%20on%20the%20store%20and%20forward%20operation.docx) Discussion on the store and forward operation Google Inc. discussion Rel-19

[R2-2404979](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404979.docx) Considerations on S&F operation from device perspective Telit Communications S.p.A., Novamint, Sateliot discussion [R2-2404199](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404199.docx)

[R2-2404987](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404987%20Support%20of%20Store%20%26%20Forward%20for%20IoT-NTN%20.docx) Discussion on support of Store&Forward Transsion Holdings discussion Rel-19

[R2-2405012](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405012%C2%A0Discussion%C2%A0on%C2%A0IoT%C2%A0NTN%C2%A0Store%C2%A0and%C2%A0Forward.docx) Discussion on IoT NTN Store and Forward CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405102](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405102.doc) Discussion on the support of store and forward satellite operation Xiaomi discussion

[R2-2405132](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405132%20RAN2%20impact%20on%20S%26F%20mode.docx) RAN2 impact on S&F mode MediaTek Inc. discussion IoT\_NTN\_Ph3-Core R2-2402942

[R2-2405153](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405153%20On%20RAN2%20aspects%20on%20Store%20and%20Forward.docx) On RAN2 aspects of Store and Forward Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405193](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405193-Store-Forward-RAN-Aspects.docx) Radio Interface Aspects for Store And Forward mode operation of IoT-NTN Nokia, Nokia Shanghai Bell discussion

[R2-2405197](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405197%20Support%20store%20and%20forward%20v1.docx) Support of Store and Forward NEC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405242](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405242.doc) Considerations on Store & Forward Satellite Operation SHARP Corporation discussion Rel-19

[R2-2405315](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405315_The%20impact%20of%20access%20for%20Store%20%26%20Forward%20in%20IoT%20NTN.doc) The impact of access for Store & Forward in IoT NTN China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405429](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405429%20Discussion%20on%20information%20for%20Store%20%26%20Forward.docx) Discussion on information for Store & Forward ASUSTeK discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405450](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405450%20-%20Support%20for%20store%20and%20forward.docx) Support for store and forward Ericsson discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405657](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405657.docx) Discussion of the Store and Forward satellite operation TCL discussion

Withdrawn

R2-2404409 Overview of the Store and Forward satellite operation Huawei, HiSilicon discussion Rel-19 IoT\_NTN\_Ph3-Core Withdrawn

### 8.9.3 Uplink Capacity Enhancement

At this meeting contributions should only focus on the possible enhancements to reduce the necessary uplink and downlink signaling to complete an EDT transaction (Msg3 transmission without msg1/RAR; efficient delivery of msg4 / RRCEarlyDataComplete).

[R2-2404164](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404164%20Discussion%20on%20EDT%20Enhancement%20for%20IoT-NTN.docx) Discussion on EDT Enhancement for IoT-NTN vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404203](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404203%20On%20signalling%20overhead%20reduction%20for%20EDT%20in%20IoT%20NTN.docx) On signalling overhead reduction for EDT in IoT NTN CATT discussion

[R2-2404322](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404322%20Overview%20of%20uplink%20capacity%20enhancement.docx) Overview of capacity enhancement for uplink Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404561](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404561%20Discussion%20on%20EDT%20optimisation%20in%20IoT-NTN.docx) Discussion on EDT optimisation in IoT-NTN HONOR discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404581](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404581%20-%20Discussion%20on%20enhanced%20EDT%20for%20IoT%20NTN.doc) Discussion on enhanced EDT for IoT NTN OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404658](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404658_PUR.doc) Uplink capacity enhancement in IoT NTN Apple discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404684](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404684%20EDT%20enh.docx) Discussion on EDT enhancements Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404740](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404740%20Discussion%20on%20uplink%20capacity%20enhancements%20for%20IOT%20NTN.doc) Discussion on uplink capacity enhancements for IOT NTN Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404802](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404802%20EDT%20for%20uplink%20capacity%20enhancement%20in%20NTN%20%28Revision%20of%20R2-2402716%29.docx) EDT for uplink capacity enhancement in NTN Lenovo discussion Rel-19

[R2-2404842](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404842%20-%20UL%20capacity%20enhancements%20objectives%20for%20IoT%20NTN.docx) UL capacity enhancements objectives for IoT NTN Ericsson discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2404884](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404884%20Consideration%20on%20enhanced%20early%20data%20transmission%20in%20IoT%20NTN.docx) Consideration on enhanced early data transmission in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core R2-2402381

[R2-2404922](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2404922.doc) Uplink Capacity Enhancement for EDT transaction Spreadtrum Communications discussion Rel-19

[R2-2405023](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405023%20Considerations%20on%20EDT%20enhancements%20for%20IoT-NTN.docx) Considerations on EDT enhancements for IoT-NTN CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405109](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405109%20%28R19%20IoT-NTN%20AI%208.9.3%29%20-%20PUR%20resource%20enhancement.docx) Msg3 transmission without msg1/RAR Interdigital, Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405110](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405110%20%28R19%20IoT-NTN%20AI%208.9.3%29%20-%20EDT%20complete.docx) Efficient delivery (reduced overhead) of msg4 / RRCEarlyDataComplete Interdigital, Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405133](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405133%20Discussion%20on%20enhanced%20EDT.docx) Discussion on enhanced EDT MediaTek Inc. discussion IoT\_NTN\_Ph3-Core R2-2402943

[R2-2405154](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405154%20Scenarios%20and%20procedures%20for%20uplink%20capacity%20enhancements.docx) Scenarios and procedures for IoT NTN uplink capacity enhancements Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405201](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405201.docx) Efficient delivery of RRCEarlyDataComplete message TOYOTA Info Technology Center discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405202](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405202.docx) Discussion on Msg3-EDT enhancements ESA discussion Rel-19

[R2-2405321](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405321%20Consideration%20on%20EDT%20enhancement%20for%20IoT-NTN.docx) Consideration on EDT enhancement for IoT-NTN NEC Corporation. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405442](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405442%20Discussion%20on%20UL%20capacity%20enhancement%20for%20IoT%20NTN.docx) Discussion on UL capacity enhancement for IoT NTN Nokia, Nokia Shanghai Bell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2405655](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2405655.docx) Consideration on enhanced early data transmission in IoT NTN TCL discussion

Withdrawn

R2-2404410 Overview of capacity enhancement for uplink Huawei, HiSilicon discussion Rel-19 IoT\_NTN\_Ph3-Core Withdrawn

# Summary

Agreed CRs

NR-NTN

IoT-NTN

Approved LSs out

[Post126] Email discussions

Short

Long