3GPP TSG-RAN WG2 Meeting #130 R2-2504673

Malta, May 19th – 23rd, 2025

**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:

* [AT130][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**  **Dragonara** | **Brk 1 room**  **Pavillion** | **Brk 2 room**  **St Georges** | **Brk 3 room\***  **Castillian** |
| **Monday** | | | | |
| 09:00 – 10:30 | **[1], [2], [3],**  **[7.0] R18 common (Diana)**  [7.0.1] UE capabilities  **[8.0] NR19 General (ASN.1)**  **Break out**  **[2.5] specification improvements**  **@NR151617 UP (Diana)**  **[7.0.2] Other Rel-18 corrections cont** | Breakout to start after completion of 7.0.1 and ASN.1 discussion  **NR18 SL (Kyeongin)**  [7.0.2.0] In-principle agreed CRs on SL  [7.0.2.20] NR18 SL  **[8.5] NR19 NES (if NR18 SL ends early) (Kyeongin)**  [8.5.1] Organizational  [8.5.4] Adaptation of common signal/channel | **After morning coffee break (after the Main Room is split)**  **[6.1] NR17 relay documents (Nathan)**  **[7.0.2.19] NR18 SL Relay (Nathan)**  **[8.13] NR19 SL Relay (Nathan)**  [8.13.3] Fast/parallel setup  [8.13.1] if time allows | Breakout to start after completion of 7.0.1 and ASN.1 discussion  **NRLTE151617 Pos (Nathan)**  [4.3] LTE positioning  [5.3] NR Rel-16 and earlier  [6.3] NR Rel-17  **[7.0.2.21] NR18 Pos (Nathan)** |
| 11:00 – 13:00 |
| 14:30 -16:30 | **[7.0.2] Other Rel-18 corrections cont**  **NES and then other topics**  **[7.0.2.11] NR TEI18**  **[7.8] Other Rel-18 corrections**  **[8.19] TEI19** | **NR18 Mob (Kyeongin)**  [7.0.2.0] In-principle agreed CRs on Mob  [7.0.2.22] NR18 Mob | **@14:30 – 15:30 R19 XR/NR Others (Dawid)**  [8.7.1] Incoming LSes, running CRs/open issue lists  [8.20.2] LS on RTP retransmission  [8.7.3] Meas gap cancellation, if time allows  **@15:30 [7.0.2.13] NR18 MIMO (Erlin)**  **[8.12] NR19 MIMO [0.75](Erlin)**  [8.12.1]  [8.12.2] |
| 17:00– 19:00 | **[8.2] NR19 Ambient IoT [2.5] (Diana)**  [8.2.2] Paging  [8.2.4] Data transmission (segmentation) | **[8.6] NR19 Mob (Kyeongin)**  [8.6.1] Organizational  [8.6.2] Inter-CU LTM | **[8.12] NR19 MIMO (Erlin) con’t**  [8.12.2] cont.  [8.12.3] if time allows  **@18:00 [8.20] NR Others**  [8.20.1] all topics except for CSSF opt. |
| **Tuesday** | | | | |
| 08:30 – 10:30 | **[8.3] NR19 AI/ML Mobility [2] (Diana)**  [8.3.1] Organizational  [8.3.2] Functionality management | **[8.4] NR19 LP-WUS [1] (Erlin)**  [8.4.1]  [8.4.2]  [8.4.3]  [8.4.4] if time allows | **[8.13] NR19 SL Relay (Nathan)**  [8.13.1] any leftovers from Monday  [8.13.2]  [8.13.3] start |  |
| 11:00 – 13:00 | **[8.1] NR19 AI/ML PHY [2.5] (Diana)**  [8.1.1] Organizational  [8.2.2] LCM BM | **NR18 NTN NR /IoT(Sergio)**  [4.1] R17 IoT NTN corrections  [6.1.1], [6.1.2], [6.1.3] R17 NTN corrections  [7.0.2.17] R18 NR NTN corrections  [7.0.2.18] R18 IoT NTN corrections  [7.0.2.18] TEI18 (NTN related aspects)  **[8.9] NR19 IoT NTN [1] Sergio**  [8.9.3] Uplink Capacity Enhancements (if time allows)  - including outcome of [301] | **EUTRA&NR151617 (Mattias)**  Except NR17 NTN related Tdoc, which will be handled in Sergio´s session.  [4.1]  [5.1.1], [5.1.3.1], [5.1.3.2], [5.1.3.3]  [6.1.1], [6.1.3], [6.1.3.1], [6.1.3.2], [6.1.3.3] |  |
| 14:30 -16:30 | **[8.2] NR19 Ambient IoT [2] (Diana)**  [8.2.1] Organizational  [8.2.3] Random Access | **[8.8] NR19 NR NTN (Sergio) [2]**  [8.8.1] Organizational  [8.8.2] Downlink coverage enhancements | **[8.18] EUTRA MBS (Dawid) [0.25]**  **[7.0.2.11] NR18 SON/MDT**  **[8.10] NR19 SONMDT [0.5] (Mattias)** |  |
| 17:00– 19:00 | **[8.6] NR19 Mob [2] (Kyeongin)**  17:00-17:30: MAC offline  17:30-19:00  [8.6.2] Inter-CU LTM (if needed)  [8.6.3] L1 event-triggered MR | **[8.7] NR19 XR [2] (Dawid)**  [8.7.5] Timely retransmissions  [8.7.5] Unnecessary reTx avoidance  [8.7.4.1] LCP enhancements  [8.7.4.2] DSR enhancements, if time allows | **[8.10] NR19 SONMDT [0.5] (Mattias) con’t** |  |
| **Wednesday** | | | | |
| 08:30 – 10:20 | **[8.6] NR19 Mob [2] (Kyeongin)**  08:30-09:40  [8.6.3] L1 event-triggered MR (if needed)  [8.6.4] C-LTM  09:40-10:20: RRC offline | **[8.7] NR19 XR [2] (Dawid)**  [8.7.4.2] DSR enhancements cont.  [8.7.6] XR rate control  [8.7.3] Meas gap cancellation (if not treated on Monday) | **Offline slot**  **@9:30 [8.19] NR19 NR Other (Erlin)** [8.20.1] CSSF opt., other topics if needed  [8.20.2] MCE |  |
| 10:45– 12:35 | **[8.3] NR19 AI/ML Mobility [2] (Diana)**  [8.3.3] config and reporting  [8.3.5] performance monitoring | **[8.5] NR19 Network Energy Saving [1] (Kyeongin)**  [8.5.4] Adaptation of common signal/channel (if needed)  [8.5.2] OD-SSB | **[8.11] NR19 SBFD [0.75] (Erlin)**  [8.11.1]  [8.11.2]  [8.11.3] if time allows |  |
| 14:00 -15:50 | **[8.1] NR19 AI/ML PHY [2.5] (Diana)**  [8.2.2] LCM Positioning  [8.2.3] NW sided data collection | **[8.9] NR19 IoT NTN [1] Sergio**  [8.9.1] Organizational  [8.9.3] Uplink Capacity Enhancements (cont)  [8.9.2] Support of S&F  [8.9.4] Support of PWS | **[6.1][7.0.2.19] NR1718 SL relay CB (Nathan)**  **[8.13] NR19 SL relay (Nathan)**  [8.13.3] cont.  [8.13.4] |  |
|  |
| 16:10– 18:00 | **@17:00-18:30 AI/ML PHY cont**  [8.2.3] NW sided data collection  [8.2.4] UE sided data collection  **[8.19] TEI19 if needed** | **[8.17] R19 IoT NTN TDD mode [0.5]**  **[8.8] NR19 NR NTN [2] (Sergio)**  [8.8.4] Support of Broadcast service  [8.8.6] LTE to NR NTN mobility  [8.8.3] Uplink Capacity/Throughput Enhancement  [8.8.5] Support of regenerative payload | **[8.15] NR19 NavIC**  **[7.0.2.21] NR18 Pos (Nathan) and TEI19 positioning** |  |
|  |
| 18:30 | Charity Fun Run/Walk | | | |
| **Thursday** | | | | |
| **Colourful Polo day** | | | | |
| 08:30 – 10:30 | **@9:00 [8.1] NR19 AI/ML PHY [2.5] (Diana) CBs or remaining items from other AIs**  [8.2.5] Model transfer (if time allows) | **[4.1], [7.0.2.18], [7.0.2.20] R18 IoT NTN**  - issues marked CB Thursday  - outcome of [302]  **[8.9] R19 IoT NTN CB**  - TBD | CB Nathan  **[7.0.2.21] NR18 Positioning**  **[7.0.2.19] NR18 SL relay**  **[8.13] NR19 SL relay** |  |
|  |
| 11:00 – 13:00 | **[8.2] NR19 Ambient IoT [2.5] (Diana)**  [8.2.4] Data transmission | **[6.1.x], [7.0.2.17] NR18 NR NTN**  - issues marked CB Thursday  **8.8] NR19 NR NTN CB**  - outcome of [303] and [304]  - issues marked CB Thursday  **[8.18] TEI19** (NTN related aspects) | **CB Mattias**  **CB EUTRA&NR151617 (Mattias)**  **[8.10] CB SON/MDT R19** |  |
| 14:30 -16:30 | **@14:30-15:30 CB AIoT**  **CBs**  **@15:30-16:30 CB** **NR19 AI/ML Mobility**  CBs  [8.3.4] Data collection | **[7.0.2.20] CB NR18 SL** **(Kyeongin)** **[8.5] CB NR19 NES (Kyeongin)**  Comebacks on SL and NES  [8.5.2] OD-SSB (if needed)  [8.5.3] OD-SIB1 | CB Erlin  **[8.4] NR19 LP-WUS (Erlin) CBs/Continuation**  **Details to be added** |  |
|  |
| 17:00 – 19:00 | **CB NR 18 and TEI19 Diana** | **[7.0.2.22] CB NR18 Mob (Kyeongin)**  **[8.6] CB NR19 Mob (Kyeongin)**  Comebacks on R18/19 Mob  [8.6.4] C-LTM | CB Dawid:  **[8.7] NR19 XR CB/continuation** |  |
| **Friday** | | | | |
| 08:30 – 10:30 | CB Diana TBD  **@9:30-10:30 CB Ambient IoT** | **CB Sergio**  **NTN** | CB Erlin NR19 MIMO  CB NR19 SBFD, NR19 Others  **Details to be added** |  |
| 11:00 – 13:00 | CB Diana  @11-12 R19 Ambient IoT  Other CBs  Reports from breakout sessions  EoM |  |  |
| 14:30 – 16:00 |  |  |  |
| 16:00 – 17:00 |  |  |  |  |

**Breaks**

Morning coffee: 10:30 to 11:00

Lunch: (see schedule) 13:00 to 14:30 (except Wednesday) and 13:00-15:00 TueThurdsay

Afternoon coffee: (see schedule) 16:30 to 17:00 (except Wednesday) and 17:00 to 17:30 Tue/Thursday

List and details of [AT130] offline discussions

NOTE: No offline email discussions will be kicked off before Monday May 19th, 09:00 local time

* [AT130][301][R19 IoT NTN] CB-msg4 design (Mediatek)

Scope: discuss open issues MAC-12, MAC-13, MAC-14

Intended outcome: summary of the offline discussion

Offline time: Monday 2025-05-19 afternoon coffee break in BO3

Deadline for offline discussion summary: Tuesday 2025-05-20 11:00

* [AT130][302][TEI18] In-band operation for NB-IoT (Ericsson)

Scope: discuss the proposals in [R2-2504657](file:///C:\Data\3GPP\Extracts\R2-2504657%20-%20In-band%20operation%20for%20NB-IoT.docx) and [R2-2504139](file:///C:\Data\3GPP\Extracts\R2-2504139-IoT-NTN-NR-Inband.docx) and draft corresponding CRs

Intended outcome: summary of the offline discussion and related CRs

Deadline for companies’ feedback: Wednesday 2025-05-21 20:00

Deadline for offline discussion summary (in R2-2504773): Thursday 2025-05-22 08:00

* [AT130][303][R19 NR NTN] NTN less than 5MHz (ZTE)

Scope: discuss the R19 capability CR and whether any other change is needed to support NTN scenarios with less than 5MHz

Intended outcome: revised 38.306 CR

Deadline for companies' feedback: Wednesday 2025-05-21 20:00

Deadline for revised CR: Thursday 2025-05-22 08:00

* [AT130][304][R19 NR NTN] DL CE (Xiaomi)

Scope: continue the discussion on further details for the WA and on possible cell re-selection enhancements (e.g. considering the proposals in [R2-2503495](file:///C:\Data\3GPP\Extracts\R2-2503495%20Discussion%20on%20DL%20coverage%20enhancement.doc) and [R2-2504400](file:///C:\Data\3GPP\Extracts\R2-2504400-Analysis%20on%20DL%20coverage%20enhancements%20due%20to%20extended%20SSB%20periodicity.docx))

Intended outcome: summary of the offline discussion

Offline time: Wednesday 2025-05-2 afternoon coffee break in BO1

Deadline for offline discussion summary (in R2-2504775): Thursday 2025-05-22 08:00

## 4.1 EUTRA corrections Rel-17 and earlier

(LTE\_NBIOT\_eMTC\_NTN; leading WG: RAN1; REL-17; WID: [RP-211601](file:///C:\Data\3GPP\archive\RAN\RAN%2392\Tdocs\RP-211601.zip))

[R2-2504332](file:///C:\Data\3GPP\Extracts\R2-2504332-R17%20CR%20IoT-NTN%20Correction%20to%20explicit%20indication%20of%20epoch%20in%20SIB31.docx) Correction to explicit indication of epoch in SIB31 Nordic Semiconductor ASA, Qualcomm, Mediatek Inc., Ericsson CR Rel-17 36.331 17.12.0 5127 - F LTE\_NBIOT\_eMTC\_NTN

* ZTE thinks we should change “received” into “transmitted”. ZTE also thinks we could refer to the end of the SI window.
* Xiaomi thinks we only need to add “the last repetition of”. QC thinks this is not sufficient
* Change “received” into “transmitted”.
* Fix the coversheet
* Revised into R2-2504763

R2-2504763 Correction to explicit indication of epoch in SIB31 Nordic Semiconductor ASA, Qualcomm, Mediatek Inc., Ericsson CR Rel-17 36.331 17.12.0 5127 1 F LTE\_NBIOT\_eMTC\_NTN

* CB Thursday

[R2-2504333](file:///C:\Data\3GPP\Extracts\R2-2504333-R18%20CR%20IoT-NTN%20Correction%20to%20explicit%20indication%20of%20epoch%20in%20SIB31.docx) Correction to explicit indication of epoch in SIB31 Nordic Semiconductor ASA, Qualcomm, Mediatek Inc., Ericsson CR Rel-18 36.331 18.5.0 5128 - A LTE\_NBIOT\_eMTC\_NTN

* Revised into R2-2504764

R2-2504764 Correction to explicit indication of epoch in SIB31 Nordic Semiconductor ASA, Qualcomm, Mediatek Inc., Ericsson CR Rel-18 36.331 18.5.0 5128 1 A LTE\_NBIOT\_eMTC\_NTN

[R2-2504335](file:///C:\Data\3GPP\Extracts\R2-2504335-DISC%20IoT-NTN%20Clarification%20to%20SI%20accumulation.docx) Clarification to NTN SI message accumulation over SI-windows Nordic Semiconductor ASA discussion Rel-17

Observation 3: The SI accumulation feature should not be used when acquiring SIB31(-NB) and SIB33(-NB).

Proposal 2: Clarify in the specifications that the SI accumulation shall not be used when acquiring SIB31(-NB) and SIB33(-NB).

* Vivo agrees with the intention but thinks the current spec already allows this UE behaviour.
* Google thinks this also depends on the SI window length
* Samsung thinks that at least in GEO case this would be useful
* Nokia thinks this issue is not new
* Ericsson wonders if the same problems exists for other SIB
* RAN2 understands that the UE is not required to perform SI accumulation across SI windows when acquiring SIB31(-NB) and SIB33(-NB) (no need for spec change)

[R2-2504336](file:///C:\Data\3GPP\Extracts\R2-2504336-R17%20CR%20IoT-NTN%20SI%20accumulation.docx) Clarification to NTN SI message accumulation over SI-windows Nordic Semiconductor ASA CR Rel-17 36.331 17.12.0 5129 - F LTE\_NBIOT\_eMTC\_NTN

* Not pursued

[R2-2504337](file:///C:\Data\3GPP\Extracts\R2-2504337-R18%20CR%20IoT-NTN%20SI%20accumulation.docx) Clarification to NTN SI message accumulation over SI-windows Nordic Semiconductor ASA CR Rel-18 36.331 18.5.0 5130 - A LTE\_NBIOT\_eMTC\_NTN

* Not pursued

## 6.1 Common

(NR\_NTN\_solutions-Core; leading WG: RAN2; REL-17; WID: [RP-211557](file:///C:\Data\3GPP\archive\RAN\RAN%2392\Tdocs\RP-211557.zip))

[R2-2504661](file:///C:\Data\3GPP\Extracts\R2-2504661%20-%2038304_CR0438_(Rel-17)%20-%20Removal%20of%20PWS%20support%20in%20NR%20NTN.docx) Removal of PWS support in NR NTN Ericsson CR Rel-17 38.304 17.10.0 0438 - F NR\_NTN\_solutions-Core

* ZTE thinks we could wait for SA1 feedback. HW agrees and in case we could just have a Stage2 clarification
* Samsung prefers to have something in Stage3 as well and thinks we might need something for eMTC as well
* CB Thursday

[R2-2504660](file:///C:\Data\3GPP\Extracts\R2-2504660%20-%2038304_CR0437_(Rel-18)%20-%20Removal%20of%20PWS%20support%20in%20NR%20NTN.docx) Removal of PWS support in NR NTN Ericsson CR Rel-18 38.304 18.4.0 0437 - A NR\_NTN\_enh-Core

### 6.1.1 Stage 2 and Organisational

Incoming LSs, etc. You should discuss your stage 2 CRs with the specification rapporteurs before submission. Includes impact to 38.300, 37.340, (36.300 if applicable)

[R2-2504520](file:///C:\Data\3GPP\Extracts\R2-2504520%20Clarification%20on%20redirection%20and%20cell%20reselection%20to%20NR%20NTN%20(R17).docx) Clarification on redirection and cell reselection to NR NTN CATT, Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-17 36.300 17.9.0 1418 - F NR\_NTN\_solutions-Core

* Oppo thinks the coversheet should be fixed
* Vivo thinks we could remove the reference and introduce the definition of NR NTN.
* Revised into R2-2504765 to fix the coversheet

R2-2504765 Clarification on redirection and cell reselection to NR NTN CATT, Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-17 36.300 17.9.0 1418 1 F NR\_NTN\_solutions-Core

* CB Thursday

[R2-2504521](file:///C:\Data\3GPP\Extracts\R2-2504521%20Clarification%20on%20redirection%20and%20cell%20reselection%20to%20NR%20NTN%20(R18).docx) Clarification on redirection and cell reselection to NR NTN CATT, Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-18 36.300 18.4.0 1419 - A NR\_NTN\_solutions-Core

* Revised into R2-2504766 to fix the coversheet

R2-2504766 Clarification on redirection and cell reselection to NR NTN CATT, Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-18 36.300 18.4.0 1419 1 A NR\_NTN\_solutions-Core

### 6.1.2 User Plane corrections

User Plane Related aspects will be handled in the User Plane break out session. (exception: TEI new proposals if any).

[R2-2504314](file:///C:\Data\3GPP\Extracts\R2-2504314%20P-CSI%20report%20in%20NTN.docx) Corrections on P-CSI report in NTN Qualcomm Incorporated discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1 RAN2 decide whether to adopt option#1 or option#2:

Option#1: In current symbol (n-UE’s TA), if drx-onDurationTimer of a DRX group would not be running, the UE does not report P-CSI on PUCCH in this DRX group.

Option#2: if drx-onDurationTimer would not be running prior to symbol n (i.e., UE is in DRX sleep prior to symbol n), it is up to UE implementation whether to wakeup from C-DRX sleep prior to symbol n to report periodic CSI.

* ZTE thinks symbol n refers to DL and thinks option 2 is already the UE behaviour
* HW can accept option 2. Apple agrees
* Draft a CR according to option 2 in R2-2504767

Proposal 2 Same as in P-SCI, clarification is added for periodic SRS.

* Cover also periodic SRS in the CR

R2-2504767 Corrections on P-CSI report in NTN Qualcomm Incorporated Rel-17 38.321 17.12.0 XXXX - F NR\_NTN\_solutions-Core

* CB Thursday

R2-2504768 Corrections on P-CSI report in NTN Qualcomm Incorporated Rel-18 38.321 18.5.0 XXXX - A NR\_NTN\_solutions-Core

[R2-2504605](file:///C:\Data\3GPP\Extracts\R2-2504605%20Discussion%20on%20DCP%20and%20CSI%20report.doc) Discussion on DCP and CSI report Beijing Xiaomi Mobile Software discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1: Add a sentence in 38.306 to clarify that "In this release, DRX adaptation is not supported for NTN".

Proposal 2: The current symbol n is interpreted as uplink symbol. RAN2 to discuss whether to capture it in the spec or in the chair note. If it is clarified in the spec, from which release to capture.

* Noted

[R2-2504612](file:///C:\Data\3GPP\Extracts\R2-2504612_Clarification%20on%20the%20ambiguity%20of%20symbol%20n.docx) Clarification on the ambiguity of symbol n Xiaomi CR Rel-17 38.321 17.12.0 2094 - F NR\_NTN\_solutions-Core

* Not pursued

### 6.1.3 Control Plane corrections

#### 6.1.3.1 NR RRC

Corrections to 38331, and related change to other TS if applicable, except UE caps.

[R2-2504203](file:///C:\Data\3GPP\Extracts\R2-2504203%20correction%20on%20eventD1D2_v2.docx) Corrections on measurement with (cond)EventD1/D2/T1 Samsung discussion Rel-17 NR\_NTN\_solutions, NR\_NTN\_enh-Core

Observation 1: For eventD1/D2 distance measurement and condEventT1 time measurement, layer 3 filtering is also not applicable, thus, should be clarified as an exceptional case.

* RAN2 understands that only for (cond)EventD1/D2/T1, layer 3 filtering is not applicable (no spec change)

Proposal 1: Clarify in clause 5.5.3.1 that UE does not apply the layer 3 filtering as specified in 5.5.3.2 to derive distance measurements and time measurements.

* QC wonders if this is already clear
* Nokia agrees with the observation but doesn’t think we need to clarify this in the spec

Observation 2: Trigger quantity and measurement quantity are not defined for eventD1/D2 or condEventD1/D2/T1. It is not clear for UE how to derive cell measurement results for measurement configuration with eventD1/D2 or with condEventD1/D2/T1.

* Ericsson has a different understanding and thinks no spec changes are needed
* CB Thursday

Proposal 2: Clarify that UE doesn’t derive cell measurement results based on SSB or CSI-RS measurements for distance measurements and time measurements, considering trigger quantity or measurement quantity cannot be configured in these cases.

Observation 3: For CHO with condEventD1/D2/T1 only, it is not clear whether/how UE performs cell measurement based on SSB/CSI-RS when no RRM event is configured and how to determine applicable cell.

Proposal 3: To determine applicable cell for CHO with only condEventD1/D2/T1, clarify in clause 5.3.5.13.4 that UE considers the cell detected on the associated measObject which has a physical cell identity matching the value in CHO configuration.

Observation 4: For event-triggered measurement with eventD1/D2, it is not clear how UE determines applicable cell to be included in the measurement report.

Proposal 4: Capture a note that it is up to UE implementation to determine the applicable cell(s) for event-triggered measurement with eventD1/D2.

* QC supports this
* Xiaomi thinks this is not needed
* HW has a different understanding
* CB Thursday

[R2-2504204](file:///C:\Data\3GPP\Extracts\R2-2504204%20CR%20(cond)eventD1%20Rel-17%20v2.docx) Corrections on measurement with (cond)EventD1/T1 Samsung CR Rel-17 38.331 17.12.0 5365 - F NR\_NTN\_solutions

* CB Thursday

[R2-2504205](file:///C:\Data\3GPP\Extracts\R2-2504205%20CR%20(cond)eventD1%20Rel-18%20v4.docx) Corrections on measurement with (cond)EventD1/D2/T1 Samsung CR Rel-18 38.331 18.5.1 5366 - F NR\_NTN\_solutions, NR\_NTN\_enh-Core

* CB Thursday

#### 6.1.3.2 UE capabilities

UE cap corrections 38306, 38331.

[R2-2503937](file:///C:\Data\3GPP\Extracts\R2-2503937%20Capability%20for%20SMTC%20adjustment%20in%20RRC_IDLE%20and%20RRC_INACTIVE%20(R17).docx) Capability for SMTC adjustment in RRC\_IDLE and RRC\_INACTIVE Huawei, HiSilicon, CMCC, Qualcomm Incorporated. CR Rel-17 38.306 17.12.0 1281 - F NR\_NTN\_solutions-Core

* Ericsson thinks we could add “between serving and neighbour satellite”. QC is not sure this is needed, or we should rather refer to cells
* Add “between serving and neighbour cells”
* Revised into R2-2504769

R2-2504769 Capability for SMTC adjustment in RRC\_IDLE and RRC\_INACTIVE Huawei, HiSilicon, CMCC, Qualcomm Incorporated. CR Rel-17 38.306 17.12.0 1281 1 F NR\_NTN\_solutions-Core

* Agreed

[R2-2503938](file:///C:\Data\3GPP\Extracts\R2-2503938%20Capability%20for%20SMTC%20adjustment%20in%20RRC_IDLE%20and%20RRC_INACTIVE%20(R18).docx) Capability for SMTC adjustment in RRC\_IDLE and RRC\_INACTIVE Huawei, HiSilicon, CMCC, Qualcomm Incorporated. CR Rel-18 38.306 18.5.0 1282 - A NR\_NTN\_solutions-Core

* Revised into R2-2504770

R2-2504770 Capability for SMTC adjustment in RRC\_IDLE and RRC\_INACTIVE Huawei, HiSilicon, CMCC, Qualcomm Incorporated. CR Rel-18 38.306 18.5.0 1282 1 A NR\_NTN\_solutions-Core

* Agreed

[R2-2504315](file:///C:\Data\3GPP\Extracts\R2-2504315%20Rel-17%2038306%20DCP%20support.docx) Clarification on support of DCP in NTN Qualcomm Inc. CR Rel-17 38.306 17.12.0 1294 - F NR\_NTN\_solutions-Core

* Revise the change into “In this version of the specification this feature is not applicable in NTN”
* Revised in R2-2504771

R2-2504771 Clarification on support of DCP in NTN Qualcomm Inc., Xiaomi CR Rel-17 38.306 17.12.0 1294 1 F NR\_NTN\_solutions-Core

* Agreed

[R2-2504316](file:///C:\Data\3GPP\Extracts\R2-2504316%20Rel-18%2038306%20DCP%20support.docx) Clarification on support of DCP in NTN Qualcomm Inc. CR Rel-18 38.306 18.5.0 1295 - A NR\_NTN\_solutions-Core

* Revised in R2-2504772

R2-2504772 Clarification on support of DCP in NTN Qualcomm Inc., Xiaomi CR Rel-18 38.306 18.5.0 1295 1 A NR\_NTN\_solutions-Core

* Agreed

Moved here from 6.1.2

[R2-2504607](file:///C:\Data\3GPP\Extracts\R2-2504607_Clarification%20on%20not%20support%20DCP%20for%20NTN(R17).docx) Clarification on not support DCP for NTN Xiaomi CR Rel-17 38.306 17.12.0 1304 - F NR\_NTN\_solutions-Core

* Not pursued

[R2-2504611](file:///C:\Data\3GPP\Extracts\R2-2504611_Clarification%20on%20not%20support%20DCP%20for%20NTN(R18).docx) Clarification on not support DCP for NTN Xiaomi CR Rel-18 38.306 18.5.0 1305 - A NR\_NTN\_solutions-Core

* Not pursued

## 7.0 Common

Rel-18 WIs not covered under an explicit AI in 7.x. Multi-WI Rel-18 items, e.g. cross-WI-issues not handled under another WI. UE capabilities.

### 7.0.2 Rel-18 corrections

*Essential corrections only. For smaller corrections please contact CR editor / Rapporteur directly. Coordinate with rapporteurs and chair if input above limit is required*

*Tdoc limitation: 6*

#### 7.0.2.17 NR NTN enhancements

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

IPA CRs

[R2-2503935](file:///C:\Data\3GPP\Extracts\R2-2503935%20Clarification%20on%20ssb-TimeOffset.docx) Clarification on ssb-TimeOffset Huawei, HiSilicon CR Rel-18 38.331 18.5.1 5335 2 F NR\_NTN\_enh-Core R2-2503066

* Agreed

[R2-2504217](file:///C:\Data\3GPP\Extracts\R2-2504217.docx) Correction to Rel-18 NR NTN CHO with only location/time-based trigger Samsung CR Rel-18 38.331 18.5.1 5314 1 F NR\_NTN\_enh-Core R2-2502669

* Revised in R2-2504684

[R2-2504684](file:///C:\Data\3GPP\Extracts\R2-2504684.docx) Correction to Rel-18 NR NTN CHO with only location/time-based trigger Samsung CR Rel-18 38.331 18.5.1 5314 2 F NR\_NTN\_enh-Core

* Agreed

[R2-2504220](file:///C:\Data\3GPP\Extracts\R2-2504220.docx) Correction to Rel-18 NR NTN CHO with only location/time-based trigger Samsung CR Rel-18 38.306 18.5.0 1263 1 F NR\_NTN\_enh-Core R2-2502670

* Revised in R2-2504685

[R2-2504685](file:///C:\Data\3GPP\Extracts\R2-2504685.docx) Correction to Rel-18 NR NTN CHO with only location/time-based trigger Samsung CR Rel-18 38.306 18.5.0 1263 2 F NR\_NTN\_enh-Core

* Agreed

[R2-2504650](file:///C:\Data\3GPP\Extracts\R2-2504650_CR1200r2_38306_Rel18_Correction%20on%20NTN%20in%20FR2%20bands.docx) Correction on NTN in FR2-NTN bands vivo, ZTE Corporation, Ericsson, Sanechips CR Rel-18 38.306 18.5.0 1200 2 F NR\_NTN\_enh-Core R2-2501782

* Agreed

Others

[R2-2504133](file:///C:\Data\3GPP\Extracts\R2-2504133%20Further%20Thoughts%20on%20IDC%20issue%20between%20GNSS%20and%20NTN%20UL.docx) Further Thoughts on IDC issue between GNSS and NTN UL Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_NTN\_enh-Core

Observation 1: RAN2 attempted to understand what kind of periodicity and duration of IDC free time could be required for the UE to measure GNSS.

Observation 2: RAN2 could not conclude without consulting other WGs, so sent the LS to RAN4, asking this group on the periodicity and duration of IDC free time to help the UE read the GNSS.

Observation 3: The LS from RAN2 has been discussed at RAN4#114bis, but without any consensus regarding the requirements to be indicated to RAN2.

Observation 4: It might turn out, RAN2 needs to proceed without the feedback from RAN4.

Observation 5: When multiple UEs use IDC-TDM scheme with maximum values of activeDuration and cycle length, it results in 15% of UL transmissions that might be avoided. This brings a serious complexity to NW’s scheduler.

Proposal 1: Do not consider an extension of autonomousDenialSlots which would increase the number of slots the UE can autonomously deny and bring additional complexity to UL scheduling.

Proposal 2: If a specification change to address the IDC issue is needed, consider extending the length of the activeDuration in IDC-TDM solution.

* CB Thursday

[R2-2504339](file:///C:\Data\3GPP\Extracts\R2-2504339%20Rel-18%2038331%20RP%20for%20hard%20satellite%20switch.docx) Clarification on reference point for hard satellite switch with resynchronization Qualcomm Incorporated, Huawei CR Rel-18 38.331 18.5.1 5372 - F NR\_NTN\_enh-Core

* CB Thursday

Withdrawn

R2-2504206 Corrections on measurement with (cond)EventD1/D2/T1 Samsung CR Rel-18 38.331 18.5.1 5367 - F NR\_NTN\_enh-Core Withdrawn

R2-2504313 Clarification on reference point for hard satellite switch with resynchronization Qualcomm Incorporated, Huawei CR Rel-18 38.321 18.5.0 2085 - F NR\_NTN\_enh-Core Withdrawn

#### 7.0.2.18 IoT NTN enhancements

(IoT\_NTN\_enh-Core; leading WG: RAN2; REL-18; WID: [RP-223519](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_98e/Docs/RP-223519.zip))

IPA CRs

[R2-2504067](file:///C:\Data\3GPP\Extracts\R2-2504067%20Correction%20on%20SIB33%20reception%20in%20RRC_CONNECTED.docx) Correction on SIB33 reception in RRC\_CONNECTED Huawei, HiSilicon CR Rel-18 36.331 18.5.0 5105 2 F IoT\_NTN\_enh-Core R2-2501968

* Agreed

[R2-2504089](file:///C:\Data\3GPP\Extracts\R2-2504089%20Corrections%20to%20location%20based%20measurement.docx) Corrections to location-based measurement ZTE Corporation, Ericsson, CATT, Sanechips CR Rel-18 36.300 18.4.0 1417 2 F IoT\_NTN\_enh-Core R2-2503062

* Agreed

Others

[R2-2504095](file:///C:\Data\3GPP\Extracts\R2-2504095%20Various%20corrections%20on%20connected%20mode%20RRM%20for%20IoT%20NTN.docx) Various corrections on connected mode RRM for IoT NTN Samsung CR Rel-18 36.331 18.5.0 5121 - F IoT\_NTN\_enh-Core

* CB Thursday

#### 7.0.2.20 TEI18

Moved here from 7.0.2.18

[R2-2504657](file:///C:\Data\3GPP\Extracts\R2-2504657%20-%20In-band%20operation%20for%20NB-IoT.docx) In-band operation for NB-IoT Ericsson discussion Rel-18 IoT\_NTN\_enh-Core, TEI18

Proposal 1 Clarify in Stage 2 that only the same operation mode for anchor and non-anchor carrier is supported in NTN.

* ZTE thinks there is no need to restrict this in RAN2 specs.
* Vivo thinks we need to clarify which cases are supported and then supports all the proposals
* QC also supports
* Agreed (can further discuss the wording)

Proposal 2 Following option a), introduce a note in Table 5.5a-1 to clarify operation mode in NB-IoT NTN.

Proposal 3 There are no stage 3 issues related to the introduction of in-band support for NB-IoT.

* Continue in offline 302 for all proposals

[R2-2504139](file:///C:\Data\3GPP\Extracts\R2-2504139-IoT-NTN-NR-Inband.docx) RAN2 Impacts for NR NB-IoT-NTN Nokia , Nokia Shanghai Bells discussion

Proposal 1: RAN2 to consider NOTE for Table5.5a-1 to capture supported operating modes for IoT-NTN and also the combinations for multi-carrier operation.

Proposal 2: RAN2 to discuss whether UE capability without signalling is needed to indicate the UE support for new deployment mode.

* QC thinks we need a capability with signalling
* HW thinks we should wait for RAN4 to decide on the capability
* Continue in offline 302 for all proposals
* [AT130][302][TEI18] In-band operation for NB-IoT (Ericsson)

Scope: discuss the proposals in [R2-2504657](file:///C:\Data\3GPP\Extracts\R2-2504657%20-%20In-band%20operation%20for%20NB-IoT.docx) and [R2-2504139](file:///C:\Data\3GPP\Extracts\R2-2504139-IoT-NTN-NR-Inband.docx) and draft corresponding CRs

Intended outcome: summary of the offline discussion and related CRs

Deadline for companies’ feedback: Wednesday 2025-05-21 20:00

Deadline for offline discussion summary (in R2-2504773): Thursday 2025-05-22 08:00

R2-2504773 Report of [AT130][302][TEI18] In-band operation for NB-IoT Ericsson discussion TEI18

[R2-2504658](file:///C:\Data\3GPP\Extracts\R2-2504658%20-%2036300_CR1420_(Rel-18)%20-%20Introduction%20of%20the%20inband%20operation%20for%20NTN%20IoT%20in%20NR%20NTN.docx) Introduction of the inband operation for NTN IoT in NR NTN Ericsson, Samsung CR Rel-18 36.300 18.4.0 1420 - C IoT\_NTN\_enh-Core, TEI18

[R2-2503359](file:///C:\Data\3GPP\Extracts\R2-2503359_CR1421_36300_Rel18_Introduction%20of%20NB-IoT%20NTN%20in-band%20operation%20with%20NR%20NTN.docx) Introduction of NB-IoT NTN in-band operation with NR NTN vivo CR Rel-18 36.300 18.4.0 1421 - B TEI18

## 8.8 NTN for NR Ph3

(NR\_NTN\_Ph3-Core; leading WG: RAN2; REL-19; WID: [RP-243300](file:///C:\Data\3GPP\archive\RAN\RAN%23106\Tdocs\RP-243300.zip))

LTE\_TN\_NR\_NTN\_mob, leading WG: RAN2, Rel-19 WID: [RP-240924](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_104/Docs/RP-240924.zip))

Time budget: 2 TU

Tdoc Limitation: 3 tdocs

### 8.8.1 Organizational

LS, Rapporteur input, including workplan, running CRs, open issues lists, etc.

For the LTE\_TN\_NR\_NTN\_mob WI, including endorsed draft CRs from the WI spec rapporteurs.

Rapporteur inputs do not count towards the tdoc limitation.

Running CRs and lists of open issues for NR\_NTN\_Ph3-Core

[R2-2504630](file:///C:\Data\3GPP\Extracts\R2-2504630%20Draft%20Stage%202%20CR%20for%20NTN%20Ph3_v08_cl.docx) Discussion on NTN MBS broadcast description in Stage 2 CR THALES discussion Rel-19 NR\_NTN\_Ph3-Core

* Revise the Stage 2 running Draft CR into R2-2504761 reflecting the meeting agreements

R2-2504761 Stage 2 Running CR for NR NTN phase 3 THALES draftCR Rel-19 38.300 18.5.0 NR\_NTN\_Ph3-Core

[R2-2504629](file:///C:\Data\3GPP\Extracts\R2-2504629%20Discussion%20Stage%202%20CR.docx) Stage 2 Running CR for NR NTN phase 3 THALES draftCR Rel-19 38.300 18.5.0 NR\_NTN\_Ph3-Core

Proposal 1 RAN2 down select one of the below options on how to capture MBS broadcast in Stage 2:

Option 1 : NTN MBS broadcast should be described in the MBS section §16.10 as enhancements for NTN only

Option 2 : NTN MBS broadcast should be described in a new sub-section §16.14.X in the NTN section as a new feature of NTN

Option 3 : Keep [2] MBS broadcast descriptions for stage 2 (i.e. RAN3 endorsed BL CR and new SIB description)

* Xiaomi thinks option 3 is sufficient
* ZTE prefers option 2
* Nokia would like to avoid option 1 and think we can go for a combination of option 2 and 3. QC agrees
* We can consider RAN2 specific changes according to option 2 on top of what agreed by RAN3

[R2-2504656](file:///C:\Data\3GPP\Extracts\R2-2504656%20-%2038331_(Rel-19)%20-%20Running%20RRC%20CR%20for%20NR%20NTN%20phase%203.docx) Running RRC CR for NR NTN phase 3 Ericsson draftCR Rel-19 38.331 18.5.1 B NR\_NTN\_Ph3-Core

[R2-2504659](file:///C:\Data\3GPP\Extracts\R2-2504659%20-%20Remaining%20RRC%20open%20issues%20for%20NR%20NTN%20Rel-19.docx) Remaining RRC open issues for NR NTN Rel-19 Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

[Proposals for easy agreement]

Proposal 1 If a new SMTC periodicity is finally adopted and included in system information broadcast, RAN2 introduces the support in a backwards compatible manner. FFS signalling details (e.g., new field or extension of SMTC4).

* We introduce support for SMTC enhancements in idle/inactive mode in a backwards compatible manner. FFS signalling details (e.g., new field or extension of SMTC4).

Proposal 2 RAN2 includes the mapping between a MBS broadcast session (TMGI) and ISA ID(s) extending MBS-SessionInfoList to avoid signaling overhead (duplication of TMGIs).

* Agreed

Proposal 3 For the service continuity discussion in MBS NR NTN, RAN2 takes the following scenarios as a baseline:

• Multiple frequencies, served by the same satellite, illuminating the same geographical area. Each frequency provides a different MBS service. These services are not being broadcast in the serving cell.

• Multiple frequencies, served by the same or different satellites, but not covering the same geographical area (they are neighbour cells). Each frequency provides a different MBS service. These services are not being broadcast in the serving cell.

* QC wonders if we need to restrict the scenarios
* Nokia supports focussing the discussion on service continuity based on the scenarios in p3. Thales agrees
* Apple thinks that also the scenario of multiple frequencies supporting the same MBS service should be considered. CATT thinks there is no enhancement for this scenario also in the TN case

[Proposals for discussion]

Proposal 4 Companies are encouraged to address the following topics in their contributions:

• Maximum number of SMTCs that need to be supported (e.g., 6).

• Association of SMTC with location/beam information (e.g. serving cell SSB index, reference location).

• Nature of SIBXX defining the intended service area: cell or area specific.

Agreements:

1. Introduce support for SMTC enhancements in idle/inactive mode in a backwards compatible manner. FFS signalling details (e.g., new field or extension of SMTC4).

2. Introduce mapping between a MBS broadcast session (TMGI) and ISA ID(s) extending MBS-SessionInfoList to avoid signaling overhead (duplication of TMGIs).

[R2-2504077](file:///C:\Data\3GPP\Extracts\R2-2504077%20Stage-3%20running%20304%20CR%20for%20NR%20NTN.docx) Running 38.304 CR for NR NTN ZTE Corporation, Sanechips draftCR Rel-19 38.304 18.4.0 B NR\_NTN\_Ph3-Core

[R2-2504078](file:///C:\Data\3GPP\Extracts\R2-2504078%20Remaining%20304%20open%20issues%20for%20NR%20NTN.docx) Remaining 304 open issues for NR NTN ZTE Corporation, Sanechips report Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: Below open issue is included in 304 running CR open issue list for companies to contribute next meeting:

Open issue idle/inactive-1: RAN2 can further discuss whether and how to enhance cell (re)selection procedure due to DL CE

Proposal 2: When using ISA(s) for MBS broadcast service reception or MBS service continuity, it is up to UE implementation on how to determine it is in the ISA(s) of MBS broadcast service or not. FFS capture it in stage 3 or in stage 2.

* ZTE and vivo think the statement should be in Stage 3
* Capture in a Note in Stage 2 that when using ISA(s) for MBS broadcast service reception or MBS service continuity, it is up to UE implementation how to determine if it is in the ISA(s) of MBS broadcast service or not.

Agreements:

1. Capture in a Note in Stage 2 that when using ISA(s) for MBS broadcast service reception or MBS service continuity, it is up to UE implementation how to determine if it is in the ISA(s) of MBS broadcast service or not.

[R2-2504171](file:///C:\Data\3GPP\Extracts\R2-2504171_38.306%20UE%20capability%20running%20CR%20on%20NR%20NTN_v6_clean.docx) Draft CR for Rel-19 NR NTN UE capabilities Apple draftCR Rel-19 38.306 18.5.0 B NR\_NTN\_Ph3-Core

[R2-2504170](file:///C:\Data\3GPP\Extracts\R2-2504170_Open%20issue%20list%20for%20NR%20NTN%20UE%20capability_v1_Rapp.doc) Open issues of Rel-19 NR NTN UE capabilities Apple discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: Implementation of ETWS geo-fencing UE capability for NTN is added to existing ETWS feature.

* Implementation of ETWS geo-fencing and PWS UE capability for NTN is added to the PWS feature

Proposal 2: UE capability discussion on SMTC enhancement is postponed until the functionality is determined.

Agreements:

1. Implementation of ETWS geo-fencing and PWS UE capability for NTN is added to the PWS feature

Running CRs for LTE\_TN\_NR\_NTN\_mob WI

[R2-2504096](file:///C:\Data\3GPP\Extracts\R2-2504096%20Introduction%20of%20Stage%202%20for%20LTE%20TN%20to%20NR%20NTN%20idle%20mode%20mobility.docx) Introduction of stage 2 for LTE TN to NR NTN idle mode mobility Samsung CR Rel-19 36.300 18.4.0 1412 4 B LTE\_TN\_NR\_NTN\_mob R2-2501416

[R2-2504530](file:///C:\Data\3GPP\Extracts\R2-2504530%20Introduction%20of%20LTE%20TN%20to%20NR%20NTN%20IDLE%20mode%20mobility%20(Rev.5).docx) Introduction of LTE TN to NR NTN IDLE mode mobility CATT CR Rel-19 36.331 18.5.0 5065 5 B LTE\_TN\_NR\_NTN\_mob-Core R2-2501418 Late

[R2-2503358](file:///C:\Data\3GPP\Extracts\R2-2503358_CR1200r3_36306_Rel19_Introduction%20of%20LTE%20TN%20to%20NR%20NTN%20Mobility%20UE%20Capability.docx) Introduction of LTE TN to NR NTN Mobility UE Capability vivo CR Rel-19 36.306 18.4.0 1900 4 B LTE\_TN\_NR\_NTN\_mob-Core R2-2501417

Other

[R2-2504632](file:///C:\Data\3GPP\Extracts\R2-2504632%20Discussion%20k-mac%20NR%20NTN.docx) Discussion to align NR NTN k-Mac with IoT NTN TDD k-Mac THALES discussion Rel-19 NR\_NTN\_Ph3-Core

Observation 1 It is beneficial for transparent architecture deployement with a limited number of gatewey to support extension of k-Mac parameter

Observation 2 K-Mac extension up to 1023 ms was agreed for IoT NTN TDD that would make an inconsistency between different NTN deployement scenarios

Proposal 1 For NR NTN, support k-Mac with a value range up to 1023 ms for Rel-19

* Xiaomi thinks we should think about backward compatibility issues
* Samsung would support this if combined with the introduction of a new barring bit. ZTE tends to agree
* QC would also like to understand which deployment would really need this
* Can come back to this in the next meeting

Moved here from 8.0

[R2-2503324](file:///C:\Data\3GPP\Extracts\R2-2503324_R4-2504712.docx) LS on UE capability signalling for NTN less than 5MHz (R4-2504712; contact: ZTE, Xiaomi) RAN4 LS in Rel-19 NR\_IoT\_NTN\_req\_test\_enh To:RAN2

* QC wonders if on top of adding new capabilities we need other changes to avoid impacts to legacy UEs. Vivo thinks there is no issue
* Noted

[R2-2504668](file:///C:\Data\3GPP\Extracts\R2-2504668_less%20than%205Mhz%20for%20NR%20NTN.docx) Introduction of UE capability signalling for NTN less than 5MHz Xiaomi CR Rel-19 38.306 18.5.0 1306 - B NR\_NTN\_Ph3-Core

* Not pursued

[R2-2504669](file:///C:\Data\3GPP\Extracts\R2-2504669%20Introduce%20UE%20capability%20siganlling%20for%20NTN%20less%20than%205MHz.docx) Introduce UE capability signalling for NTN less than 5MHz ZTE Corporation, Sanechips CR Rel-19 38.306 18.5.0 1307 - B NR\_NTN\_Ph3-Core

* Continue the discussion in offline 303
* Revised in R2-2504774

R2-2504774 Introduce UE capability signalling for NTN less than 5MHz ZTE Corporation, Sanechips CR Rel-19 38.306 18.5.0 1307 1 B NR\_IoT\_NTN\_req\_test\_enh

* CB Thursday
* [AT130][303][R19 NR NTN] NTN less than 5MHz (ZTE)

Scope: discuss the R19 capability CR and whether any other change is needed to support NTN scenarios with less than 5MHz

Intended outcome: revised 38.306 CR

Deadline for companies' feedback: Wednesday 2025-05-21 20:00

Deadline for revised CR: Thursday 2025-05-22 08:00

Withdrawn

R2-2503463 Introduction of LTE TN to NR NTN IDLE mode mobility CATT CR Rel-19 36.331 18.5.0 5065 4 B LTE\_TN\_NR\_NTN\_mob-Core R2-2501418 Withdrawn

### 8.8.2 Downlink coverage enhancements

Contributions should focus on RAN2 aspects of DL coverage enhancements due to extended SIB periodicity (up to 160ms), including e.g. possible SMTC impacts (while no contributions are expected on cell level / beam level DTX/DRX mechanism).

[R2-2504571](file:///C:\Data\3GPP\Extracts\R2-2504571%20Discussion%20on%20Downlink%20Coverage%20Enhancements.docx) Discussion on Downlink Coverage Enhancements CSCN, Huawei, HiSilicon, ZTE corporation, Sanechips, CATT discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: RAN2 to introduce SSB-based solution for SMTC enhancement in RRC\_Idle/Inactive.

* Nokia wonders if this solution is based on the SSB-index

Proposal 2: RAN2 to consider the following options for enhanced SMTCs and measurement gaps configurations for UEs in RRC\_CONNECTED:

Option 1: Measurement report based solution (D1/D2 enhancement, new event D)

Option 2: UAI with multiple areas or locations.

* QC thinks that legacy procedures are sufficient. Vivo agrees. Google/LG/Samsung/Xiaomi/Oppo also agree
* HW thinks that it’s not clear which legacy procedure could be used in this case
* WA: We introduce a mechanism to assist the NW to configure the SMTCs in connected mode
* Continue in offline 304 on further details for the WA

[R2-2503495](file:///C:\Data\3GPP\Extracts\R2-2503495%20Discussion%20on%20DL%20coverage%20enhancement.doc) Discussion on DL coverage enhancement Xiaomi discussion Rel-19 NR\_NTN\_Ph3-Core

* RRC open issues:

Proposal 1: (RRC-1)RAN2 to agree that the maximum configured SMTCs per frequency for idle/inactive UEs is 6.

- HW wonders if this includes the serving cell

* Agreed (can come back if we find an issue)

Observation 1: If cell is configured with idle/inactive mode location based neighbor cell measurement initiation or UE is stationary or low mobility, neighbor cell reference location based SMTC selection can achieve the maximum power saving gain.

Observation 2: If cell is configured with multiple SSBs and not configured with idle/inactive mode location based neighbor cell measurement initiation and UE is high mobility, serving cell SSB index based SMTC selection can achieve the maximum power saving gain.

Proposal 2: (RRC-2)RAN2 consider support both neighbor cell reference location based SMTC selection and serving cell SSB index based SMTC selection.

- Lenovo thinks the neighbor cell reference location based SMTC selection implies more effort for the UE

- LG (and others) think the serving cell SSB index based SMTC selection does not cover all the cases

- Toyota thinks we should only have one solution and it should be the location based solution

- CT thinks the location based solution provides more information for the UE to select the correct SMTC

- CATT thinks no solution is perfect and in this case we could support both.

Proposal 3: (RRC-2)For reference location based solution, new IEs similar to ReferenceLocation-r17 and tn-DistanceRadius-r18 are introduced for reference location and cell radius of neighbour cells.

Proposal 4: (RRC-2)For serving cell SSB index based solution, signalling the associated SSB index per SMTC is supported.

Proposal 5: (RRC-new1)To support configuring 6 SMTCs and 2 SMTC periodicities for DL CE UE, introduce a new SMTC list instead of extend legacy smtc4list.

* To support SMTC enhancements for DL CE UE, introduce a new SMTC list instead of extending legacy smtc4list (can consider signalling optimizations for the new list to refer to the content of smtc4list to avoid signalling duplications)

Proposal 6: (RRC-new2)For connected mode, the maximum number of configured SMTCs remains 4 without extending.

Proposal 7: (RRC-new2)Legacy coarse location report can be reused to assist network to configure SMTC in connected mode. RAN2 can further discuss whether to enhance coarse location report with rougher accuracy granularity to address user consent concern if any.

* Idle/inactive open issues

Proposal 8: (idle/inactive-1)For cell selection criterion, support configuring different set of q-RxLevMin, Qrxlevminoffsetcell, q-QualMin, Qqualminoffsetcell for legacy UE and DL CE UE.

* Continue in offline 304

Proposal 9: (idle/inactive-1)For cell reselection criterion, support configuring different q-OffsetCell for legacy UE and DL CE UE.

* Continue in offline 304

Proposal 10: (idle/inactive-1)For idle/inactive mode measurement, support configuring different s-IntraSearchP, s-IntraSearchQ, s-NonIntraSearchP, s-NonIntraSearchQ, s-SearchThresholdP, s-SearchThresholdP2, s-SearchThresholdQ, s-SearchThresholdQ2 for legacy UE and DL CE UE.

* Continue in offline 304

[R2-2504312](file:///C:\Data\3GPP\Extracts\R2-2504312%20Multiple%20SMTCs.docx) Discussion on beam hopping with multiple SMTC offsets Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1 Existing signaling ssb-PeriodicityServingCell in serving cell common configuration is sufficient to indicate the default SSB periodicity of a cell.

Proposal 2 Introduce location-based SMTC selection procedure.

Proposal 3 Each SMTC can be associated with a reference location of the intended neighbor beams that need to be measured by the UE.

* We introduce a location-based SMTC selection procedure where each SMTC can be associated with a reference location of the intended neighbor cells that need to be measured by the UE. FFS if also an SSB-index based SMTC selection is supported

Proposal 4 The UE chooses 4 SMTCs based on the shortest distances from UE’s location to reference locations and perform RRM measurements using existing procedure as if smtc4list-r17 is configured.

Proposal 5 The legacy UEs use smtc4list-r17 and new capable UEs ignore smtc4list-r17. For new capable UEs (i.e., UEs supporting location-based SMTC), new list is introduced to include PCI list, offset and associated reference location for each SMTC.

[R2-2503926](file:///C:\Data\3GPP\Extracts\R2-2503926%20Open%20issues%20for%20DL%20coverage%20enhancements.docx) Discussion on NTN downlink coverage enhancement Nokia, Nokia Shanghai Bell discussion NR\_NTN\_Ph3-Core

Observation 1: RRM requirements are not applicable in case more than 2 SMTCs are configured.

Proposal 1: SMTC4 is the fallback in case SMTC5 is not supported by the UE similarly as SMTC1 is fallback in case the UE does not support SMTC4.

Proposal 2: RAN2 to discuss how to restrics the UE freedom when legacy SSB and SMTC is configured in order to prepare for RAN4 reply that such prioritisation is needed for the solution to be acceptable.

Observation 2: The relevant information for configuring the UE to measure neighbor cells that are active in a scattered manner in the same or different satellites are: periodicity and time offset.

Proposal 3: gNB may provide the neighbor cells SSB periodicities and time offsets in relation to the serving cell SSB in addition or as a replacement to the location.

Proposal 4: In case both location based and the coordinated procedure is adopted, RAN2 to discuss whether the assistance information type indicated is used to determine the network configuration.

Proposal 5: Location assistance information should consist of a center and a radius of a number of circles, each referring to one of the SMTCs in the new list.

Proposal 6: Only 6 additional SMTCs are needed.

[R2-2504400](file:///C:\Data\3GPP\Extracts\R2-2504400-Analysis%20on%20DL%20coverage%20enhancements%20due%20to%20extended%20SSB%20periodicity.docx) Analysis on DL coverage enhancements due to extended SSB periodicity CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

Observation 6: There are two cases in cell re-selection scenario:

* Case 1: Neighboring cells supporting DL CE and normal cells are deployed in different carriers
* Case 2: Neighboring cells supporting DL CE and normal cells are deployed in co-channel manner

Proposal 7: For case 1, the UEs not supporting DL CE can realize de-prioritizing re-selection to cells operating with DL CE via legacy frequency priority.

* Continue in offline 304

Proposal 8: For case 2, to avoid the complexity and inter-cell interference of the introducing the cell-specific priority, keeping the frequency-specific priority is preferred. Conversely, the existing IntraFreqExcludedCellList IE can be utilized to enable the UEs not supporting DL CE to avoid the performance of the detection for PSS/SSS of cell with DL CE to reduce the amount of unnecessary coherent detection and UE power.

* Continue in offline 304

Agreements:

1. the maximum configured SMTCs per frequency for idle/inactive UEs is 6 (can come back if we find and issue)

2. To support SMTC enhancements for DL CE UE, introduce a new SMTC list instead of extending legacy smtc4list (can consider signalling optimizations for the new list to refer to the content of smtc4list to avoid signalling duplications)

3. We introduce a location-based SMTC selection procedure where each SMTC can be associated with a reference location of the intended neighbor cells that need to be measured by the UE. FFS if also an SSB-index based SMTC selection is supported

Working Assumption:

1. We introduce a mechanism to assist the NW to configure the SMTCs in connected mode

* [AT130][304][R19 NR NTN] DL CE (Xiaomi)

Scope: continue the discussion on further details for the WA and on possible cell re-selection enhancements (e.g. considering the proposals in [R2-2503495](file:///C:\Data\3GPP\Extracts\R2-2503495%20Discussion%20on%20DL%20coverage%20enhancement.doc) and [R2-2504400](file:///C:\Data\3GPP\Extracts\R2-2504400-Analysis%20on%20DL%20coverage%20enhancements%20due%20to%20extended%20SSB%20periodicity.docx))

Intended outcome: summary of the offline discussion

Offline time: Wednesday 2025-05-2 afternoon coffee break in BO1

Deadline for offline discussion summary (in R2-2504775): Thursday 2025-05-22 08:00

R2-2504775 Report of [AT130][304][R19 NR NTN] DL CE Xiaomi discussion NR\_NTN\_Ph3-Core

[R2-2503352](file:///C:\Data\3GPP\Extracts\R2-2503352%20Further%20Discussion%20on%20DL%20Coverage%20in%20NTN.docx) Further Discussion on DL Coverage in NTN vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503458](file:///C:\Data\3GPP\Extracts\R2-2503458%20Discussion%20on%20downlink%20coverage%20enhancements.docx) Discussion on downlink coverage enhancements CATT discussion

[R2-2503459](file:///C:\Data\3GPP\Extracts\R2-2503459%20Discussion%20on%20the%20need%20of%20cell%20(re)selection%20enhancement%20for%20DL%20CE.docx) Discussion on the need of cell (re)selection enhancement for DL CE CATT discussion

[R2-2503559](file:///C:\Data\3GPP\Extracts\R2-2503559%20Discussions%20on%20downlink%20coverage%20enhancement.doc) Discussions on downlink coverage enhancement Fujitsu discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503671](file:///C:\Data\3GPP\Extracts\R2-2503671_The%20consideration%20of%20location%20based%20SMTC%20in%20NR%20NTN.doc) The consideration of location based SMTC in NR NTN China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503884](file:///C:\Data\3GPP\Extracts\R2-2503884%20Discussion%20on%20NR%20NTN%20DL%20Coverage%20Enh.docx) Discussion on NR NTN downlink coverage enhancements DENSO CORPORATION discussion NR\_NTN\_Ph3-Core

[R2-2503905](file:///C:\Data\3GPP\Extracts\R2-2503905%20On%20DL-CE%20aspects%20for%20NR%20NTN.docx) Further considerations on NR NTN DL-CE Lenovo discussion Rel-19

[R2-2503943](file:///C:\Data\3GPP\Extracts\R2-2503943%20Discussion%20on%20DL%20coverage%20enhancements.docx) Discussion on DL coverage enhancements Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503958](file:///C:\Data\3GPP\Extracts\R2-2503958_NTN_SMTC.docx) Discussions on the assistance information for supporting location-based SMTC selection ITRI discussion NR\_NTN\_Ph3-Core

[R2-2504006](file:///C:\Data\3GPP\Extracts\R2-2504006%20Discussion%20on%20DL%20coverage%20enhancement%20for%20NTN.doc) Discussion on DL coverage enhancement for NTN OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504010](file:///C:\Data\3GPP\Extracts\R2-2504010_Remaining%20issues%20on%20DL%20CE%20in%20NR%20NTN.docx) Remaining issues on DL CE in NR NTN ETRI discussion NR\_NTN\_Ph3-Core

[R2-2504035](file:///C:\Data\3GPP\Extracts\R2-2504035.docx) Details on SMTC enhancement NEC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504057](file:///C:\Data\3GPP\Extracts\R2-2504057.docx) SMTC impacts due to NTN downlink coverage enhancements Sony discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504079](file:///C:\Data\3GPP\Extracts\R2-2504079%20Consideration%20on%20DL%20Coverage%20enhancement.doc) Consideration on downlink coverage enhancements ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504172](file:///C:\Data\3GPP\Extracts\R2-2504172_DL%20coverage%20enhancement.doc) DL coverage enhancement in NTN Apple discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504178](file:///C:\Data\3GPP\Extracts\R2-2504178%20(R19%20NR%20NTN%20WI%20AI%208.8.2)%20DL%20coverage.docx) Downlink coverage enhancement for NTN InterDigital Washington DC discussion Rel-19

[R2-2504207](file:///C:\Data\3GPP\Extracts\R2-2504207%20DL%20CE%20v2.docx) Open issues on Downlink Coverage Enhancement Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504357](file:///C:\Data\3GPP\Extracts\R2-2504357-Discussion_on_DL_coverage_enhancement.docx) Discussion on Downlink Coverage Enhancements Sharp discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504506](file:///C:\Data\3GPP\Extracts\R2-2504506%20Further%20consideration%20on%20downlink%20coverage%20enhancements.docx) Further consideration on downlink coverage enhancements NERCDTV discussion Rel-19

[R2-2504595](file:///C:\Data\3GPP\Extracts\R2-2504595%20Discussion%20on%20downlink%20coverage%20enhancement.docx) Discussion on downlink coverage enhancement LG Electronics Inc. discussion Rel-19

[R2-2504653](file:///C:\Data\3GPP\Extracts\R2-2504653%20-%20DL%20coverage%20enhancements.docx) DL coverage enhancements Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

### 8.8.3 Uplink Capacity/Throughput Enhancement

Contributions can be submitted on the possible RAN2 aspects of the agreements reached in RAN1.

[R2-2504080](file:///C:\Data\3GPP\Extracts\R2-2504080%20Consideration%20on%20UL%20capacity%20enhancement.doc) Consideration on uplink capacity enhancements ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504183](file:///C:\Data\3GPP\Extracts\R2-2504183%20(R19%20NR%20NTN%20WI%20AI%208.8.3)%20UL%20capacity%20throughput%20enhancement.docx) Discussion on Uplink Capacity/Throughput Enhancement for NTN InterDigital Washington DC discussion Rel-19

[R2-2504276](file:///C:\Data\3GPP\Extracts\R2-2504276%20Discussion%20on%20Uplink%20Capacity%20Enhancements.docx) Discussion on Uplink Capacity Enhancements Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504352](file:///C:\Data\3GPP\Extracts\R2-2504352%20On%20RAN2%20aspects%20of%20uplink%20OCC.docx) On RAN2 aspects for Uplink OCC Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504391](file:///C:\Data\3GPP\Extracts\R2-2504391%20Discussion%20on%20uplink%20capacity%20and%20throughput%20enhancement%20for%20NR%20NTN.docx) Discussion on uplink capacity/throughput enhancement for NR NTN CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504511](file:///C:\Data\3GPP\Extracts\R2-2504511%20Discussion%20on%20UL%20Capacity%20and%20Throughput%20Enhancement.docx) Discussion on UL Capacity and Throughput Enhancement Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_NTN\_Ph3-Core

### 8.8.4 Support of Broadcast service

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

[R2-2504173](file:///C:\Data\3GPP\Extracts\R2-2504173_MBS%20over%20NTN_v1.doc) Discussion on broadcast service continuity over NTN Apple, Lenovo, ZTE Corporation, Sanechips, Samsung, Huawei, HiSilicon discussion Rel-19 NR\_NTN\_Ph3-Core

Observation 1: UE cannot acquire accurate association between intended service area and frequencies when multiple frequencies have different intended service areas for one broadcast service, therefore UE may prioritize a frequency which does not broadcast the interested service at the UE location (which is within the intended service area illuminated by another frequency).

Observation 2: There is no issue observed on how RAN node maps the intended service area and FSAI(s).

Observation 3: Whether to support service continuity with extra signaling overhead is fully up to network implementation.

Proposal 1: The targeting scenarios for service continuity with intended service area considered comprise of multiple frequencies served by either the same or different satellites, where broadcast services are transmitted on either single or multiple frequencies.

Proposal 2: To assist UE to acquire the association between intended service area and frequencies, the intended service areas illuminated by each frequency is provided for FSAI(s) in SIB21.

[R2-2503460](file:///C:\Data\3GPP\Extracts\R2-2503460%20Further%20discussion%20on%20support%20of%20broadcast%20service%20in%20NR%20NTN.docx) Further discussion on support of broadcast service in NR NTN CATT discussion

Observation 1: If service areas were to be introduced specifically for FSAI in SIB21, they should be provided per FSAI and per MBS session. This brings excessively huge signalling overhead for the system information, and the signalling design is unacceptable due to the SI size limitation concern.

Observation 2: It was agreed that the intended service area for an MBS session may include geographic areas within neighbour cell(s). If the UE is still within the service area and the reselected cell is within the neighbour cell list provided in MCCH, the UE can consider the neighbour cell providing this MBS session.

Proposal 1: Do not introduce service area information specific for FSAI in SIB21.

Proposal 1a: Information in existing SIB21 and USD in the current Specs is already sufficient for the UE to determine the frequency(ies) associated with the intended service area and perform the frequency (de)prioritization operations as agreed in RAN2#129bis.

Proposal 2: Do not introduce service area per neighbour cell in MCCH.

Proposal 2a: In addition to the neighbour cell list provided in MCCH, it can be left to UE implementation whether/how the UE considers the intended service area configured in MCCH for the MBS session, when the UE determines whether the reselected cell is providing its interested MBS session at its location. RAN2 discusses whether any informative text is needed in the Spec.

[R2-2504063](file:///C:\Data\3GPP\Extracts\R2-2504063.doc) Discussion on the remaining issues for the intended service area Xiaomi discussion Rel-19 NR\_NTN\_Ph3-Core

* Service continuity

Observation 1: The ISAs for an MBS session in MCCH are only for the frequency that is broadcasting the MBS session of the serving cell.

Observation 2: The UE can’t acquire the ISA for an MBS session that is broadcasting in the neighboring cells if the MBS session is not being broadcast in the serving cell.

Observation 3: The UE needs the ISAs of an MBS service broadcasted by the neighboring cells to determine the priority of the frequency that provides the MBS service if the MBS service is not being broadcasted by the serving cell.

Observation 4: The ISAs for the same MBS service may be different for different cells since the core network may provide different ISAs for an MBS service for different gNBs, considering the different locations of the gNBs (satellites).

Proposal 1: (RRC-Service continuity) The serving cell should provide the mapping between ISAs and MBS services of neighboring cells in the MCCH.

* Area specific SIB

Observation 5: Broadcasting only ISAs that are within the coverage of the serving cell will lead to frequent system information updates for the earth moving cell.

Observation 6: Broadcasting ISAs that are outside the coverage of the serving cell will avoid frequent system information updates for the earth moving cell.

Proposal 2: (Area specific SIB) The serving cell can broadcast the ISAs that are outside the coverage of the serving cell, and this is up to network implementation.

Proposal 3: (Area specific SIB) The new SIB for carrying the ISAs should be area-specific SIB.

[R2-2504081](file:///C:\Data\3GPP\Extracts\R2-2504081%20Consideration%20on%20broadcast%20service%20enhancements.doc) Consideration on broadcast service ehancements ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: A list of area identities can be included per FSAIs in SIB21, where each area identity identifies an intended service area in the new SIB.

Proposal 2: RAN2 understands the new SIBxx can include ISA(s) of additional MBS service provided in neighbor frequency, which is up to NW implementation (no spec impacts).

Proposal 3: The new SIBxx containing MBS ISA(s) can be cell or area specific, which is up to NW implementation (No specs change).

[R2-2503560](file:///C:\Data\3GPP\Extracts\R2-2503560%20Discussions%20on%20supporting%20broadcast%20service.doc) Discussions on supporting broadcast service Fujitsu discussion Rel-19 NR\_NTN\_Ph3-Core

Observation 1: Behaviours with respect to the initiation of MII procedure upon entering or leaving the area of broadcast service has already been defined.

Proposal 1: RAN2 to confirm that, with respect to the MBS service, the term ‘broadcast service area’ refers to the ‘intended service area’. It could be captured in Stage 2 specification.

Proposal 2: The UE follows legacy specification to initiate MII procedure when it enters or leaves MBS intended service area.

Proposal 3: ISA(s) of MBS service provided via FSAI frequencies other than the MBS services provided by serving cell should be indicated to the UE, either via USD or the new SIB signalled by serving cell.

[R2-2503353](file:///C:\Data\3GPP\Extracts\R2-2503353%20Remaining%20Issues%20on%20MBS%20Broadcast%20Provision%20in%20NTN.docx) Remaining Issues on MBS Broadcast Provision in NTN vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503672](file:///C:\Data\3GPP\Extracts\R2-2503672_The%20signaling%20design%20of%20service%20area%20for%20PWS.doc) The signaling design of service area for PWS China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503748](file:///C:\Data\3GPP\Extracts\R2-2503748_Remaining%20issues%20on%20the%20support%20of%20broadcast%20service%20in%20NTN.docx) Remaining issues on the support of broadcast service in NTN ETRI discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2503749](file:///C:\Data\3GPP\Extracts\R2-2503749%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

[R2-2503906](file:///C:\Data\3GPP\Extracts\R2-2503906%20Some%20remaining%20issues%20for%20MBS%20broadcast%20in%20NR%20NTN.docx) Some remaining issues for MBS broadcast in NR NTN Lenovo discussion Rel-19

[R2-2503907](file:///C:\Data\3GPP\Extracts\R2-2503907%20Further%20considerations%20on%20ETWS%20support%20in%20NR%20NTN%20(Revision%20of%20R2-2502354).docx) Further considerations on ETWS support in NR NTN Lenovo discussion Rel-19

[R2-2504134](file:///C:\Data\3GPP\Extracts\R2-2504134%20Open%20issues%20for%20MBS%20in%20Rel-19%20NR%20NTN.docx) Open issues for MBS in Rel-19 NR NTN Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504147](file:///C:\Data\3GPP\Extracts\R2-2504147%20Discussion%20on%20MBS%20broadcast%20over%20NTN.docx) Discussion on MBS broadcast over NTN Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504201](file:///C:\Data\3GPP\Extracts\R2-2504201.docx) Remaining issues for MBS service continuity over NTN Continental Automotive discussion

[R2-2504208](file:///C:\Data\3GPP\Extracts\R2-2504208%20BC%20service%20area%20v2.docx) Open issues on Broadcast service area Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504311](file:///C:\Data\3GPP\Extracts\R2-2504311%20MBS%20broadcast%20in%20NTN.docx) MBS broadcast service continuity Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504356](file:///C:\Data\3GPP\Extracts\R2-2504356-NTN_MBS_ISA.docx) Remaining issues on intended service area Sharp discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504392](file:///C:\Data\3GPP\Extracts\R2-2504392%20Considerations%20on%20broadcast%20service%20for%20NR%20NTN.docx) Considerations on broadcast service for NR NTN CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504421](file:///C:\Data\3GPP\Extracts\R2-2504421.docx) Discussion on Supporting of MBS Broadcast Service TCL discussion

[R2-2504477](file:///C:\Data\3GPP\Extracts\R2-2504477%20Discussion%20on%20the%20support%20of%20broadcast%20service.docx) Discussion on the support of broadcast service HONOR discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504529](file:///C:\Data\3GPP\Extracts\R2-2504529%20-%20Discussion%20on%20support%20for%20broadcast%20service%20in%20NTN.docx) Discussion on support for broadcast service in NTN LG Electronics Inc. discussion

[R2-2504652](file:///C:\Data\3GPP\Extracts\R2-2504652%20-%20Support%20for%20broadcast%20services%20in%20NR%20NTN.docx) Support for broadcast services in NR NTN Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504662](file:///C:\Data\3GPP\Extracts\R2-2504662%20-%20MBS%20signalling%20details%20in%20NR%20NTN.docx) MBS signalling details in NR NTN Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

### 8.8.5 Support of regenerative payload

Contributions, if any, should focus on the needed updates for Stage 2 description and on whether any other existing essential features (not considered so far) would be affected - and potentially need any modifications - in a regenerative payload architecture.

[R2-2503986](file:///C:\Data\3GPP\Extracts\R2-2503986%208.8.5%20Regenerative%20payload%20-%20NTN%20Ph3.docx) Regenerative payload for NTN for NR Ph3 TOYOTA ITC discussion

[R2-2504033](file:///C:\Data\3GPP\Extracts\R2-2504033.docx) Stage 2 updates for regenerative payload NEC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504058](file:///C:\Data\3GPP\Extracts\R2-2504058.docx) Satellite switch with re-sync in regenerative payload Sony discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504064](file:///C:\Data\3GPP\Extracts\R2-2504064.doc) Discussion on the t-service for the regenerative payload Xiaomi discussion Rel-19 NR\_NTN\_Ph3-Core

### 8.8.6 LTE to NR NTN mobility

Contributions, if any, should focus on any possible missing aspects for the support of idle mode mobility between LTE and NR NTN.

[R2-2503673](file:///C:\Data\3GPP\Extracts\R2-2503673_NTN%20mobility%20redirection%20signalling%20design.doc) NTN mobility redirection signalling design China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2504007](file:///C:\Data\3GPP\Extracts\R2-2504007%20Discussion%20on%20dedicated%20priority%20via%20RRCConnectionRelease.doc) Discussion on dedicated priority via RRCConnectionRelease OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

## 8.9 IoT NTN Ph3

(IoT\_NTN\_Ph3-Core; leading WG: RAN2; REL-19; WID: [RP-243278](file:///C:\Data\3GPP\archive\RAN\RAN%23106\Tdocs\RP-243278.zip))

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 8.9.1 Organizational

LS, Rapporteur input, including workplan, running CRs, open issues lists, etc.

Rapporteur inputs do not count towards the tdoc limitation.

Incoming LSs

[R2-2503306](file:///C:\Data\3GPP\Extracts\R2-2503306_C4-251432.docx) Reply LS on maximum warning message size (C4-251432; contact: CICT Mobile) CT4 LS in Rel-19 IoT\_NTN\_Ph3-Core To:RAN2 Cc:CT1, SA2, RAN3

Running CRs and lists of open issues

[R2-2504646](file:///C:\Data\3GPP\Extracts\R2-2504646%20-%2036300_(Rel-19)%20-%20Draft%20Introduction%20of%20IoT%20NTN%20phase%203.docx) Draft Introduction of IoT NTN phase 3 Ericsson draftCR Rel-19 36.300 18.4.0 B IoT\_NTN\_Ph3-Core

[R2-2504068](file:///C:\Data\3GPP\Extracts\R2-2504068%20RRC%20Runing%20CR%20for%20IoT%20NTN.docx) RRC Running CR for IoT NTN Huawei, HiSilicon draftCR Rel-19 36.331 18.5.0 B IoT\_NTN\_Ph3-Core

[R2-2504069](file:///C:\Data\3GPP\Extracts\R2-2504069%20RRC%20open%20issues%20list%20for%20IoT%20NTN.docx) RRC open issue list for IoT NTN Huawei, HiSilicon discussion Rel-19 IoT\_NTN\_Ph3-Core

Proposal 1: (RRC-1) RAN2 to further discuss which of the following options to choose for indicating the transition time from normal mode to S&F mode:

Option 1: (5/9) It is up to NW implementation to set the legacy t-Service as the transition time from normal mode to S&F mode.

Option 2: (5/9) Using the agreed time information in SIB31 for both directions of transition. UE determines which direction it is based on whether the S&F indication is present.

Proposal 2: (RRC-2) RAN2 to further discuss whether to introduce the following assistance information for the neighbour cells:

- (5/9) Operation mode.

- (3/9) Mode transition time

Proposal 3: (RRC-4) RAN2 to further discuss whether to reduce the paging monitoring for an S&F UE to save power consumption.

Proposal 4: (RRC-5) RAN2 to further discuss whether to allow the UE to skip reading SIB1-NB to shorten the latency of PWS acquisition.

Proposal 5: (RRC-6) RAN2 to further discuss whether to allow UE to receive and assemble PWS segments from different cells during mobility.

Proposal 6: (RRC-7) RAN2 to further discuss whether to differentiate CB-Msg3 EDT for CP solution and UP solution in the procedure.

Proposal 7: (RRC-8) RAN2 to further discuss whether to model CB-Msg3 EDT as one sub-category of legacy EDT or as a separate concept in a separate section.

[R2-2504525](file:///C:\Data\3GPP\Extracts\R2-2504525%20MAC%20Running%20CR%20for%20R19%20IoT%20NTN.docx) MAC Running CR for Rel-19 IoT NTN MediaTek Inc. draftCR Rel-19 36.321 18.4.0 B IoT\_NTN\_Ph3-Core R2-2502768

[R2-2504526](file:///C:\Data\3GPP\Extracts\R2-2504526%20IoT%20NTN%20MAC%20Open%20issues.docx) Remaining MAC open issues in IoT NTN MediaTek Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[Proposals for easy agreement]

Proposal 1 (7/8): The maximum TBS could be different for different CE levels.

- Ericsson thinks we could have just one TBS and hopes that if we have different TBSs in different CE levels we don’t go for a complicated solution

1. Agreed

Proposal 3 (9/9): For NB-IoT, the configurations of CB-Msg3-EDT for non-anchor carriers are put in the ul-ConfigList of SIB22-NB.

* CB Wednesday

Proposal 5 (9/9): Revise the agreement that, due to only CE mode A is supported for eMTC NTN, only 1 separate RSRP thresholds and 2 CE levels can be supported.

1. Agreed

[Proposals for discussion]

Proposal 2: For NB-IoT, RAN2 to discuss the mapping of NPUSCH resource to enhanced coverage levels.

• Alt-1 (as legacy RACH): enhanced coverage levels are numbered from 0 and the mapping of PRACH resources to enhanced coverage levels are done in increasing [number of repetition] order.

• Alt-2 : The mapping of NPUSCH resource to enhanced coverage levels is configured in ASN.1 directly.

Proposal 4: For NB-IoT, when multiple carriers carriers provide CB-Msg3-EDT resources for the same enhanced coverage level, RAN2 to select one of below two alternatives:

• Alt-1 (7/11): (as legacy RACH): the NB-IoT UE selects the carrier based on the probabilities of each carrier. A new probability parameter for anchor carrier is introduced in SIB22-NB. The remaining probability is evenly split among the non-anchor carriers.

• Alt-2 (4/11): (up to implementation): it is up to UE implementation to select any of the carriers.

Proposal 6: When max re-attempt number for current CE level has been reached, RAN2 to discuss whether the the UE should be in next CE level.

[Proposal for open issue]

Proposal 7: RAN2 to discuss below open issues for CB-Msg3-EDT procedure.

• MAC-2: CB-RNTI calculation

• MAC-7: Whether the HARQ operation is applicable to transmit CB-Msg3.

• MAC-9: Whether NW/UE processing time is needed when determine the Msg4 monitoring starts.

• MAC-10: FFS it will also be possible for the NW to configure that the Msg4 monitoring window starts in the subframe containing the last (N)PUSCH repetition of the first replica plus UE-eNB RTT.

• MAC-11: Whether a CB-Msg4 without RRC message is allowed as the complete response to the CB-Msg3 in CP solution.

• MAC-12: FFS how the multiplexing is organized for CB-MSG4.

1. To be initially discussed in offline 301

• MAC-13: FFS new MAC PDU format for CB-Msg4

1. To be initially discussed in offline 301

• MAC-14: FFS for the detail of HARQ operation on CB-Msg4.

1. To be initially discussed in offline 301

• MAC-15: What should be the UE behavior (e.g. the can initiate the legacy 4-step RA) when the CB-Msg3 procedure fails.

• MAC-17: Whether to allow multiple TBSs as in EDT.

• MAC-18: How to model the CB-Msg3 response window (i.e. MSG4 monitoring window) ? Should it be a timer as in legacy RA response window, and what should be the value range.

* [AT130][301][R19 IoT NTN] CB-msg4 design (Mediatek)

Scope: discuss open issues MAC-12, MAC-13, MAC-14

Intended outcome: summary of the offline discussion

Offline time: Monday 2025-05-19 afternoon coffee break in BO3

Deadline for offline discussion summary: Tuesday 2025-05-20 11:00

[R2-2504762](file:///C:\Data\3GPP\RAN2\Inbox\R2-2504762.zip) Report of [AT130][301][R19 IoT NTN] CB-msg4 design Mediatek discussion IoT\_NTN\_Ph3-Core

* Easy

Proposal 1: (MAC-12) Multiple contention resolution IDs could be included in CB-MSG4, the information related to the UE can be assembled in the MAC PDU.

1. Multiple contention resolution IDs could be included in CB-MSG4, the information related to multiple UEs can be multiplexed in the MAC PDU.

Proposal 2: (MAC-12) The number of Msg3 replies in one Msg4 can be left to eNB implementation. Expect no SPEC impact.

1. Agreed

Proposal 3: (MAC-14) The HARQ feedback resource information can be included in the CB-Msg4 together with contention resolution ID which identity the specific UE. RAN2 could revisit this proposal if RAN1 has some concern.

1. Agreed

Proposal 5: (MAC-14) Whether to send the HARQ feedback for CB-Msg4 can be controlled by NW. UE does not send HARQ NACK.FFS whether the HARQ feedback field should always present.

1. Agreed

Proposal 6: (MAC-14) For NB-IoT, the SubCarrierSpacing of the HARQ feedback for CB-Msg4 is same as the CB-Msg3.

1. Agreed

Proposal 7: (MAC-14) Reuse the existing format of HARQ ACK allocation signalling in the DCI. There is 2-bit HARQ ACK resource for eMTC and 4-bit HARQ ACK resource for NB-IoT. Reuse the meaning of DCI field in R1 SPEC. Send LS to RAN1 for information on all RAN2 decisions related to HARQ feedback

1. Agreed

* Potential easy

Proposal 8: Introduce a new MAC PDU for CB-Msg4 including new types of MAC subheader and a new type of MAC payload without introducing new types of MAC CE.

1. Introduce a new MAC PDU for CB-Msg4 including new types of MAC subheader and a new type of MAC payload

Proposal 9: (MAC-13) The MAC PDU for CB-Msg4 is consist of sub-header(s) follow by MAC payload and optional padding if needed. FFS whether contention resolution ID is put in sub-header or payload.

1. The MAC PDU for CB-Msg4 consists of sub-header(s) followed by MAC payload and optional padding if needed. FFS whether contention resolution ID is put in sub-header or payload.

Proposal 10: (MAC-13) Introduce a new CB BI MAC sub-header in CB-MSg4 for backoff parameter. There is 4 bits BI for backoff indication.

1. Agreed

Need more discussion

Proposal 11: (MAC-13) Introduce a new CB-Msg3 Response (CBR) MAC sub-header in CB-Msg4. It has 1bit E for subhead/payload indication, 2 bits T for subhead type, 1bit T2 for HARQ ACK resource present, 1 bit T3 for TAC present, 1 bit T4 for C-RNTI present and 2bit R for reservation.

- HW thinks there could be an alternative but can accept to go for the rapporteur’s proposal

- Samsung thinks we can put the CBR in the sub-header. Ericsson supports Samsung proposal.

- Xiaomi thinks this needs a bit more discussion

- Nokia supports this proposal

- QC thinks MAC sub-header should be fixed. Also thinks the retransmission should be FFS

- ZTE can accept p11

1. Agreed

Proposal 12: (MAC-13) Introduce a new CB Data MAC sub-header in CB-MSg4 for MAC SDU. It has 1 bit E for subhead/payload indication, 2 bits T for subhead type, 5 bits LCID, 8 bits bits L for MAC SDU length.

* CB Wednesday

Proposal 14: (MAC-13) The TAC is used in the in the CB-Msg3 response. RAN2 assume the the length of the TAC field is 6 bits. We can revisit this if there is major R1 impact on TA calculation.

* CB Wednesday

Agreements:

1. The maximum TBS could be different for different CE levels.

2. Due to only CE mode A is supported for eMTC NTN, only 1 separate RSRP thresholds and 2 CE levels are supported (revised agreement)

3. Multiple contention resolution IDs could be included in CB-MSG4, the information related to multiple UEs can be multiplexed in the MAC PDU.

4. The number of Msg3 replies in one Msg4 can be left to eNB implementation. Expect no SPEC impact.

5. The HARQ feedback resource information can be included in the CB-Msg4 together with contention resolution ID which identity the specific UE. RAN2 could revisit this proposal if RAN1 has some concern.

6. Whether to send the HARQ feedback for CB-Msg4 can be controlled by NW. UE does not send HARQ NACK.FFS whether the HARQ feedback field should always present.

7. For NB-IoT, the SubCarrierSpacing of the HARQ feedback for CB-Msg4 is same as the CB-Msg3.

8. Reuse the existing format of HARQ ACK allocation signalling in the DCI. There is 2-bit HARQ ACK resource for eMTC and 4-bit HARQ ACK resource for NB-IoT. Reuse the meaning of DCI field in R1 SPEC. Send LS to RAN1 for information on all RAN2 decisions related to HARQ feedback

9. Introduce a new MAC PDU for CB-Msg4 including new types of MAC subheader and a new type of MAC payload

10. The MAC PDU for CB-Msg4 consists of sub-header(s) followed by MAC payload and optional padding if needed. FFS whether contention resolution ID is put in sub-header or payload.

11. Introduce a new CB BI MAC sub-header in CB-MSg4 for backoff parameter. There is 4 bits BI for backoff indication.

12. Introduce a new CB-Msg3 Response (CBR) MAC sub-header in CB-Msg4. It has 1bit E for subhead/payload indication, 2 bits T for subhead type, 1bit T2 for HARQ ACK resource present, 1 bit T3 for TAC present, 1 bit T4 for C-RNTI present and 2bit R for reservation.

[R2-2504149](file:///C:\Data\3GPP\Extracts\R2-2504149-Running-CR-TS36304.docx) Running CR for TS36.304 for IoT-NTN Nokia Solutions & Networks (I) draftCR Rel-19 36.304 18.3.0 B IoT\_NTN\_Ph3-Core

[R2-2504140](file:///C:\Data\3GPP\Extracts\R2-2504140%20open%20issues%20list%20for%20IoT%20NTN-Idle-mode.docx) Remaining Open Issues for idle mode operation for IoT-NTN (TS 36.304) Nokia,Nokia Shanghai Bells discussion

Issue 1: Acceptable camping for NB-IoT for ETWS/PWS reception

Observation 1: Support of acceptable cell camping requires additional UE functionality over the capability for PWS/ETWS reception from suitable cells.

Observation 2: The additional power consumption for idle mode operation without emergency call (only for ETWS reception) support needs to be justified.

Proposal 1: RAN2 to discuss and conclude whether ETWS/PWS/CMAS reception for NB-IoT can be limited only to suitable cells.

Issue 2: Emergency call support in SF operation

Proposal 2: RAN2 to down-select any of the following option related to emergency call support in SF mode operation.

O1:Specification text can indicate that emergency calls are not supported when cell is operating in store and forward mode

O2:It is upto SA2 to clarify the support for IMS services and emergency services for SF operation. EN can be removed and updated if needed based on SA2 specification status.

[R2-2504321](file:///C:\Data\3GPP\Extracts\R2-2504321%20Rel-19%2036306%20Running%20CR.docx) UE capability Running CR for Rel-19 IoT NTN Qualcomm Inc. CR Rel-19 36.306 18.4.0 1912 - B IoT\_NTN\_Ph3-Core

Other

[R2-2504631](file:///C:\Data\3GPP\Extracts\R2-2504631%20Discussion%20k-mac%20IoT%20NTN.docx) Discussion to align IoT NTN k-Mac with IoT NTN TDD k-Mac THALES

### 8.9.2 Support of Store & Forward

Contributions should focus on possible impacts to the radio interface.

[R2-2503346](file:///C:\Data\3GPP\Extracts\R2-2503346_S&F.doc) Discussion on Store and Forward operation Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503354](file:///C:\Data\3GPP\Extracts\R2-2503354%20Further%20Discussion%20on%20S&F%20Operation.docx) Further Discussion on S&F Operation vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503496](file:///C:\Data\3GPP\Extracts\R2-2503496_892_Panasonic_IoT-NTN_SnF_Remaining_Open_Issues.docx) Remaining S&F Open Issues PANASONIC discussion

[R2-2503499](file:///C:\Data\3GPP\Extracts\R2-2503499%20Remaining%20issues%20for%20S&F%20operation%20in%20IoT%20NTN.docx) Remaining issues for S&F operation in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503528](file:///C:\Data\3GPP\Extracts\R2-2503528%20-%20Discussion%20on%20Store%20&%20Forward%20satellite%20operation.docx) Discussion on Store & Forward satellite operation OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503598](file:///C:\Data\3GPP\Extracts\R2-2503598.docx) Discussion on Store & Forward satellite operation TCL discussion

[R2-2503674](file:///C:\Data\3GPP\Extracts\R2-2503674_Remaining%20issues%20for%20IoT%20NTN%20S&F.doc) Remaining issues for IoT NTN S&F China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503768](file:///C:\Data\3GPP\Extracts\R2-2503768%20Discussion%20on%20Store%20and%20Forward.docx) Discussion on Store & Forward operation DENSO CORPORATION discussion IoT\_NTN\_Ph3-Core

[R2-2503798](file:///C:\Data\3GPP\Extracts\R2-2503798%20Open%20issues%20on%20the%20S&F%20mode%20transition%20time.docx) Open issues on the S&F mode transition time Google discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503908](file:///C:\Data\3GPP\Extracts\R2-2503908%20Mode%20transition%20time%20for%20S&F%20operation%20(Revision%20of%20R2-2502355).docx) Mode transition time for S&F operation Lenovo discussion Rel-19

[R2-2504034](file:///C:\Data\3GPP\Extracts\R2-2504034.docx) Remaining issues on S&F NEC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504046](file:///C:\Data\3GPP\Extracts\R2-2504046.docx) Discussion on support of Store&Forward Transsion Holdings discussion Rel-19

[R2-2504090](file:///C:\Data\3GPP\Extracts\R2-2504090%20Open%20issues%20on%20Store%20and%20Forward%20operation.docx) Open issues on Store and Forward operation Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504097](file:///C:\Data\3GPP\Extracts\R2-2504097.docx) Discussion on Paging and Mode Switching Toyota ITC discussion Rel-19 R2-2502620

[R2-2504138](file:///C:\Data\3GPP\Extracts\R2-2504138-Store-Forward-RAN-Aspects.docx) On RAN2 aspects of SF Operation Nokia , Nokia Shanghai Bells discussion

[R2-2504174](file:///C:\Data\3GPP\Extracts\R2-2504174_Store%20and%20Forward.doc) Support of S&F operation in IoT NTN Apple discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504179](file:///C:\Data\3GPP\Extracts\R2-2504179%20(R19%20IoT-NTN%20AI%208.9.2)%20-%20Support%20of%20S+F.docx) Store and Forward open issues Interdigital, Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504202](file:///C:\Data\3GPP\Extracts\R2-2504202.docx) Further considerations on S&F operations Continental Automotive discussion

[R2-2504277](file:///C:\Data\3GPP\Extracts\R2-2504277%20Further%20consideration%20on%20Store%20and%20Forward.docx) Further consideration on Store and Forward Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504317](file:///C:\Data\3GPP\Extracts\R2-2504317%20store%20and%20forward.docx) Switching of S&F mode Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504351](file:///C:\Data\3GPP\Extracts\R2-2504351.doc) CIoT UP solution for Store & Forward satellite operation SHARP Corporation discussion

[R2-2504366](file:///C:\Data\3GPP\Extracts\R2-2504366%20Discussion%20on%20RAN2%20impacts%20due%20to%20the%20MME-configured%20satellite%20list.docx) Discussion on RAN2 impacts due to MME-configured satellite list CATT, Google, Sateliot, Thales discussion Rel-19

[R2-2504367](file:///C:\Data\3GPP\Extracts\R2-2504367%20Discussion%20on%20IoT%20NTN%20Store%20and%20Forward.docx) Discussion on IoT NTN Store and Forward CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504478](file:///C:\Data\3GPP\Extracts\R2-2504478%20Discussion%20on%20the%20Store%20and%20Forward%20satellite%20operation.docx) Discussion on the Store and Forward satellite operation HONOR discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504497](file:///C:\Data\3GPP\Extracts\R2-2504497%20Discussion%20on%20time%20information%20for%20S&F.docx) Discussion on time information for S&F ASUSTeK discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504527](file:///C:\Data\3GPP\Extracts\R2-2504527%20RAN2%20impact%20on%20SF%20mode.docx) RAN2 impact on S&F mode MediaTek Inc. discussion IoT\_NTN\_Ph3-Core R2-2502769

[R2-2504550](file:///C:\Data\3GPP\Extracts\R2-2504550.docx) Remaining issues on Store and Forward satellite operation ETRI, Korea University discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504617](file:///C:\Data\3GPP\Extracts\R2-2504617%20-%20“S&F%20Monitoring%20List”%20and%20“S&F%20Wait%20Timer”%20and%20potential%20RAN2%20impacts_v02.docx) Discussion on “S&F Monitoring List” and “S&F Wait Timer” and potential RAN2 impacts Sateliot, Thales, Novamint discussion

[R2-2504654](file:///C:\Data\3GPP\Extracts\R2-2504654%20-%20Support%20for%20store%20and%20forward%20in%20IoT%20NTN.docx) Support for store and forward in IoT NTN Ericsson discussion Rel-19 IoT\_NTN\_Ph3-Core

### 8.9.3 Uplink Capacity Enhancement

Contributions should 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).

[R2-2503347](file:///C:\Data\3GPP\Extracts\R2-2503347_UL%20capacity%20IoT%20NTN.doc) Discussion on uplink capacity enhancements for IoT NTN Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503355](file:///C:\Data\3GPP\Extracts\R2-2503355%20Discussion%20on%20CB-Msg3%20Mechanism.docx) Further Discussion on CB-msg3-EDT Mechanism vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503461](file:///C:\Data\3GPP\Extracts\R2-2503461%20Discussion%20on%20open%20issues%20for%20CB-Msg3%20EDT.docx) Discussion on open issues for CB-Msg3 EDT CATT discussion

[R2-2503500](file:///C:\Data\3GPP\Extracts\R2-2503500%20Remaining%20issues%20for%20CB-msg3-EDT%20in%20IoT%20NTN.docx) Remaining issues for CB-msg3-EDT in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503529](file:///C:\Data\3GPP\Extracts\R2-2503529-%20Discussion%20on%20CB-msg3%20EDT%20and%20msg4%20enhancement.docx) Discussion on CB-msg3 EDT and msg4 enhancement OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503599](file:///C:\Data\3GPP\Extracts\R2-2503599.docx) Discussion on UL Capability Enhancement for IOT NTN TCL discussion

[R2-2503662](file:///C:\Data\3GPP\Extracts\R2-2503662%20Further%20discussion%20on%20UL%20capacity%20enhancement%20for%20IoT%20NTN.docx) Further discussion on UL capacity enhancement for IoT NTN Nokia, Nokia Shanghai Bell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503675](file:///C:\Data\3GPP\Extracts\R2-2503675_Discussion%20of%20UL%20capacity%20in%20IoT%20NTN.doc) Discussion of UL capacity in IoT NTN China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503880](file:///C:\Data\3GPP\Extracts\R2-2503880%20Discussion%20on%20UL%20Capacity%20Enhancement%20for%20IoT-NTN.docx) Discussion on UL Capacity Enhancement for IoT-NTN NEC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503909](file:///C:\Data\3GPP\Extracts\R2-2503909%20EDT%20for%20uplink%20capacity%20enhancement%20in%20NTN%20(Revision%20of%20R2-2502356).docx) EDT for uplink capacity enhancement in NTN Lenovo discussion Rel-19

[R2-2503959](file:///C:\Data\3GPP\Extracts\R2-2503959%20Remaining%20issues%20on%20CB-msg3-EDT.doc) Remaining issues on CB-msg3-EDT Spreadtrum, UNISOC discussion Rel-19

[R2-2504047](file:///C:\Data\3GPP\Extracts\R2-2504047.docx) Discussion on uplink capacity enhancement Transsion Holdings discussion Rel-19

[R2-2504065](file:///C:\Data\3GPP\Extracts\R2-2504065%20Further%20consideration%20on%20UL%20capacity%20enhancement.docx) Further consideration on UL capacity enhancement Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504091](file:///C:\Data\3GPP\Extracts\R2-2504091%20On%20procedures%20and%20open%20issues%20for%20CB-Msg3-EDT.docx) On procedures and open issues for CB-Msg3-EDT Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504098](file:///C:\Data\3GPP\Extracts\R2-2504098.docx) Discussion on Diversity Slotted ALOHA Randomization Toyota ITC discussion Rel-19

[R2-2504175](file:///C:\Data\3GPP\Extracts\R2-2504175_Contention%20based%20MSG3.doc) Uplink capacity enhancement in IoT NTN Apple discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504180](file:///C:\Data\3GPP\Extracts\R2-2504180%20(R19%20IoT-NTN%20AI%208.9.3)%20-%20EDT%20enhancements.docx) CB-EDT Interdigital, Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504318](file:///C:\Data\3GPP\Extracts\R2-2504318%20EDT%20enh.docx) CB-Msg3-EDT and Msg4 multicast Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504338](file:///C:\Data\3GPP\Extracts\R2-2504338-IoT-NTN%20uplink%20capacity%20enhancement.docx) IoT-NTN uplink capacity enhancement Nordic Semiconductor ASA discussion Rel-19

[R2-2504393](file:///C:\Data\3GPP\Extracts\R2-2504393%20Further%20discussion%20on%20uplink%20capacity%20enhancement%20for%20IoT-NTN.docx) Further discussion on uplink capacity enhancement for IoT-NTN CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504479](file:///C:\Data\3GPP\Extracts\R2-2504479%20Discussion%20on%20UL%20capacity%20enhancement.docx) Discussion on UL capacity enhancement HONOR discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504528](file:///C:\Data\3GPP\Extracts\R2-2504528%20Discussion%20on%20CB-Msg3-EDT.docx) Discussion on CB-Msg3 procedure MediaTek Inc. discussion IoT\_NTN\_Ph3-Core R2-2502771

[R2-2504645](file:///C:\Data\3GPP\Extracts\R2-2504645%20-%20UL%20capacity%20enhancements%20for%20IoT%20NTN.docx) UL capacity enhancements for IoT NTN Ericsson discussion Rel-19 IoT\_NTN\_Ph3-Core

R2-2503478 Further discussion on CB-Msg3 and Msg-4 enhancement NTU discussion Rel-19 Late

### 8.9.4 Support of PWS

Contributions should focus on the introduction of support for broadcast of PWS messages for NB-IoT, re-using the LTE mechanisms.

[R2-2503348](file:///C:\Data\3GPP\Extracts\R2-2503348_PWS%20for%20NB-IoT.doc) PWS support for NB-IoT over NTN Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503356](file:///C:\Data\3GPP\Extracts\R2-2503356%20Remaining%20Issues%20on%20PWS%20Support%20for%20NB-IoT.docx) Remaining Issues on PWS Support for NB-IoT vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503501](file:///C:\Data\3GPP\Extracts\R2-2503501%20Remaining%20issues%20for%20PWS%20support%20in%20IoT%20NTN.docx) Remaining issues for PWS support in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503503](file:///C:\Data\3GPP\Extracts\R2-2503503%20Support%20of%20PWS%20for%20NB-IoT.docx) Remaining issues on PWS support for NB-IoT Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503530](file:///C:\Data\3GPP\Extracts\R2-2503530%20-%20Discussion%20on%20PWS%20for%20NB-IoT.docx) Discussion on PWS for NB-IoT OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503663](file:///C:\Data\3GPP\Extracts\R2-2503663%20Remaining%20issues%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN.docx) Remaining issues on support of PWS for NB-IoT NTN Nokia, Nokia Shanghai Bell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503676](file:///C:\Data\3GPP\Extracts\R2-2503676_The%20PWS%20related%20consideration%20of%20NB-IoT%20NTN.doc) The PWS related consideration of NB-IoT NTN China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503799](file:///C:\Data\3GPP\Extracts\R2-2503799%20Open%20issues%20on%20the%20support%20for%20PWS%20in%20NB-IoT.docx) Open issues on the support for PWS in NB-IoT Google discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2503910](file:///C:\Data\3GPP\Extracts\R2-2503910%20Further%20considerations%20on%20PWS%20broadcast%20support%20in%20IoT%20NTN%20(Revision%20of%20R2-2502357).docx) Further considerations on PWS broadcast support in IoT NTN Lenovo discussion Rel-19

[R2-2504092](file:///C:\Data\3GPP\Extracts\R2-2504092%20Acceptable%20cell%20camping%20for%20NB-IoT.docx) Acceptable cell camping for NB-IoT Samsung, Iridium, Vivo, Thales discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504319](file:///C:\Data\3GPP\Extracts\R2-2504319%20PWS%20NB-IoT.docx) Discussion on PWS in NB-IoT NTN Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504362](file:///C:\Data\3GPP\Extracts\R2-2504362%20Remaining%20issue%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN%20UE.docx) Remaining issue on support of PWS for NB-IoT NTN UE CATT discussion

[R2-2504394](file:///C:\Data\3GPP\Extracts\R2-2504394%20Support%20of%20PWS%20messages%20for%20NB-IoT.docx) Support of PWS messages for NB-IoT CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2504655](file:///C:\Data\3GPP\Extracts\R2-2504655%20-%20Enhancements%20to%20support%20PWS%20in%20NB-IoT%20NTN.docx) Enhancements to support PWS in NB-IoT NTN Ericsson discussion Rel-19 IoT\_NTN\_Ph3-Core

## 8.17 IoT-NTN TDD mode

(IoT\_NTN\_TDD; leading WG: RAN1; REL-19; WID [RP-243293](file:///C:\Data\3GPP\archive\RAN\RAN%23106\Tdocs\RP-243293.zip))

Time budget: 0.5 TU

Tdoc Limitation: 1 tdoc

[R2-2503350](file:///C:\Data\3GPP\Extracts\R2-2503350_Discussion%20on%20the%20IoT%20NTN%20TDD%20mode.doc) Discussion on support of IoT-NTN TDD mode Xiaomi discussion Rel-19 IoT\_NTN\_TDD

[R2-2503357](file:///C:\Data\3GPP\Extracts\R2-2503357%20Further%20Discussion%20on%20IoT-NTN%20TDD%20mode.docx) Further Discussion on IoT-NTN TDD mode vivo discussion Rel-19 IoT\_NTN\_TDD-Core

[R2-2503389](file:///C:\Data\3GPP\Extracts\R2-2503389%20SI%20transmission%20for%20IoT%20NTN%20TDD%20mode.docx) SI transmission of IoT-NTN TDD mode NEC discussion Rel-19 IoT\_NTN\_TDD

[R2-2503462](file:///C:\Data\3GPP\Extracts\R2-2503462%20Discussion%20on%20support%20of%20NB-IoT%20NTN%20TDD.docx) Discussion on support of NB-IoT NTN TDD CATT discussion

[R2-2503531](file:///C:\Data\3GPP\Extracts\R2-2503531%20-%20Discussion%20on%20IoT%20NTN%20TDD%20mode.docx) Discussion on IoT NTN TDD mode OPPO discussion Rel-19 IoT\_NTN\_TDD

[R2-2503689](file:///C:\Data\3GPP\Extracts\R2-2503689.docx) IoT-NTN TDD mode SI scheduling and UE procedures Iridium Satellite LLC discussion Rel-19 IoT\_NTN\_TDD

[R2-2503911](file:///C:\Data\3GPP\Extracts\R2-2503911%20DL%20and%20UL%20impacts%20of%20TDD%20pattern%20in%20IoT%20NTN.docx) DL and UL impacts of TDD pattern in IoT NTN Lenovo discussion Rel-19

[R2-2503987](file:///C:\Data\3GPP\Extracts\R2-2503987%20IoT-NTN%20TDD%20mode.docx) Discussion on NTN IoT-NTN TDD mode TOYOTA ITC discussion

[R2-2504070](file:///C:\Data\3GPP\Extracts\R2-2504070%20Discussion%20on%20RAN2%20impacts%20of%20IoT-NTN%20TDD.docx) Discussion on RAN2 impacts of IoT-NTN TDD Huawei, HiSilicon discussion Rel-19 IoT\_NTN\_TDD

[R2-2504082](file:///C:\Data\3GPP\Extracts\R2-2504082%20Consideration%20on%20IoT-NTN%20TDD%20mode.docx) Consideration on IoT-NTN TDD mode ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_TDD

[R2-2504093](file:///C:\Data\3GPP\Extracts\R2-2504093%20On%20RAN2%20aspects%20of%20IoT%20NTN%20TDD.docx) On RAN2 aspects for IoT NTN TDD Samsung discussion Rel-19 IoT\_NTN\_TDD

[R2-2504320](file:///C:\Data\3GPP\Extracts\R2-2504320%20NB-IoT%20TDD.docx) Discussion on new NB-IoT NTN TDD mode Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_TDD

[R2-2504334](file:///C:\Data\3GPP\Extracts\R2-2504334-iot-ntn-tdd.docx) On SI scheduling, postponing impacts, and early implementation of the IoT-NTN TDD mode Nordic Semiconductor ASA discussion Rel-19

[R2-2504395](file:///C:\Data\3GPP\Extracts\R2-2504395%20Support%20of%20IoT-NTN%20TDD%20mode.docx) Support of IoT-NTN TDD mode CMCC discussion Rel-19 IoT\_NTN\_TDD

[R2-2504510](file:///C:\Data\3GPP\Extracts\R2-2504510%20%20Further%20discussion%20on%20support%20of%20TDD%20mode%20for%20IoT-NTN.docx) Further discussion on support of TDD mode for IoT-NTN Nokia, Nokia Shanghai Bell discussion Rel-19 IoT\_NTN\_TDD

[R2-2504633](file:///C:\Data\3GPP\Extracts\R2-2504633%20Discussion%20on%20IoT%20TDD_v3.docx) Discussion on support of IoT-NTN TDD mode THALES discussion Rel-17 IoT\_NTN\_TDD-Core

## 8.18 TEI19

Time budget: 1 TU

Tdoc Limitation: 1 tdoc for new proposals and 1 tdoc for old proposals.

1 additional tdoc for primary co-sourcing company on top of the limit is allowed for co-sourced contribution with 4 or more companies.

Companies are encouraged to submit co-sourced contributions, which will have priority for discussion in RAN2#129bis.

[R2-2503369](file:///C:\Data\3GPP\Extracts\R2-2503369_Draft%20CR_36306_Rel19_Introduction%20of%20LTE%20TN%20to%20IoT%20NTN%20Mobility%20UE%20Capability.docx) Introduction of LTE TN to NB-IoT NTN Mobility UE Capability vivo, Samsung, Google, THALES, MediaTek Inc. draftCR Rel-19 36.306 18.4.0 B TEI19 R2-2501781

[R2-2503829](file:///C:\Data\3GPP\Extracts\R2-2503829%2036331CR%20for%20the%20inclusion%20of%20NB-IoT%20satellite%20information%20in%20E-UTRAN.docx) 36331CR for the inclusion of NB-IoT satellite information in E-UTRAN Google, Samsung, vivo, THALES, MediaTek Inc. draftCR Rel-19 36.331 18.5.0 B TEI19

[R2-2503832](file:///C:\Data\3GPP\Extracts\R2-2503832%2036300CR%20for%20the%20inclusion%20of%20NB-IoT%20satellite%20information%20in%20E-UTRAN.docx) 36300CR for the inclusion of NB-IoT satellite information in E-UTRAN Google, Samsung, vivo, THALES, MediaTek Inc. draftCR Rel-19 36.300 18.4.0 B TEI19

[R2-2504071](file:///C:\Data\3GPP\Extracts\R2-2504071%20ETWS%20geo-fencing%20for%20eMTC%20NTN%20and%20for%20TN.docx) ETWS geo-fencing for eMTC NTN and for TN Huawei, HiSilicon, China Southern Power Grid, Turkcell discussion Rel-19 TEI19

[R2-2504094](file:///C:\Data\3GPP\Extracts\R2-2504094%20Redirection%20from%20TN%20to%20IoT%20NTN%20and%20NR%20NTN.docx) Redirection from TN to IoT NTN and NR NTN Samsung, Google discussion Rel-19 TEI19

[R2-2504347](file:///C:\Data\3GPP\Extracts\R2-2504347%20NR-NTN%20to%20NB-IoT%20NTN%20mobility.docx) NR-NTN to NB-IoT NTN inter-RAT mobility EchoStar, Boost Mobile, Terrestar, Qualcomm, TTP discussion Rel-19

# Summary

Agreed CRs

R17 IoT NTN (LTE\_NBIOT\_eMTC\_NTN)

R17 NR NTN (NR\_NTN\_solutions-Core)

R18 IoT NTN (IoT\_NTN\_enh-Core)

R18 NR NTN (NR\_NTN\_enh-Core)

Approved LSs out

[Post130] Email discussions

Short

Long