3GPP TSG-RAN WG2 Meeting #129 R2-2501333

Athens, Greece, Feb. 17th – 21st, 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

All organization emails and notes will be shared over the following email discussion throughout the meeting:

* [AT129][300] Organizational – NR-NTN and IoT-NTN session

Scope:

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

Schedule/Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Main room** | **Brk 1 room** | **Brk 2 room** | **Brk 3 room** |
| **Monday** | | | | |
| 09:00 – 10:30 | **[1], [2], [3],**  **[7.0] R18 common (Diana)**  [7.0.1] UE capabilities  **Break out**  **[8.0] NR19 General**  **@NR151617 UP (Diana)**  **[7.0.2] Other Rel-18 corrections cont** | Breakout to start after completion of 7.0.1  **[6.6] NR17 SL (Kyeongin)**  **[7.6] NR18 SL (Kyeongin)** | Breakout to start after completion of 7.0.1  **NRLTE151617 Pos (Nathan)**  [4.3] LTE positioning  [5.3] NR Rel-16 and earlier  [6.4] NR Rel-17  **[7.1] NR18 Pos (Nathan)**  - All agenda items in order |  |
| 11:00 – 13:00 |
| 14:30 – 16:30 | **[7.0.2] Other Rel-18 corrections cont**  **[7.0.2.11] NR TEI18**  **[7.8] Other Rel-18 corrections** | **[7.6] NR18 SL cont (Kyeongin)** (if needed)  **[7.2] NR18 Mob (Kyeongin)** | **[7.1] NR18 Pos (Nathan)**  - Any overflow from earlier sessions  **[6.2][7.5] NR1718 SL Relay (Nathan)**  - All agenda items (with documents) in order |
| 17:00 – 19:00 | **[8.2] NR19 Ambient IoT [2.5] (Diana)** | **[8.5] NR19 NES (Kyeongin)**  [8.5] is only to set offline discussion scopes  **[7.2] NR18 Mob** (**Kyeongin)** (17:15 - ) (if needed)  **[8.6] NR19 Mob (Kyeongin)**  [8.6.1] Organizational (including setting offline discussion scopes)  [8.6.4] C-LTM | **[7.0.2.13] NR18 MIMO (Erlin)**  **[8.12] NR19 MIMO (Erlin)**  [8.12.1] Organizational  [8.12.2] MAC CE design, other aspects if time allows  [8.12.3] UE-initiated beam reporting if time allows |
| **Tuesday** | | | | |
| 08:30 – 10:30 | **[8.3] NR19 AI/ML Mobility [2] (Diana)** | **[8.4] NR19 LP-WUS [1] (Erlin)**  [8.4.1] Organizational  [8.4.2] Separate band issues, subgrouping, and issues related to SA2 LS R2-2500050  [8.4.3] RRM relaxation criteria  [8.4.4] if time allows | **[8.13] NR19 SL Relay (Nathan)**  - [8.13.1] Organizational  - [8.13.2] Discovery and (re)selection  - [8.13.3] Control plane and SRAP (start) |  |
|  |
| 11:00 – 13:00 | **[8.1] NR19 AI/ML PHY [2.5] (Diana)** | **NR18 NTN NR /IoT(Sergio)**  [4.1], [6.1.1], [6.1.3] R17 NTN corrections  [7.3] R18 IoT NTN corrections  [7.4] R18 NR NTN corrections | **NR18 MBS/QoE (Dawid)**  [7.0.2.14] MBS (around 30 minutes)  [7.0.2.15] QoE (around 30 minutes)  **EUTRA&NR151617 (Mattias)**  Except 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)** | **[8.8] NR19 NR NTN (Sergio) [2]**  [8.8.1] Organizational  [8.8.2] Downlink coverage enhancements  [8.8.4] Support of Broadcast service | **EUTRA&NR151617 (Mattias) cont’**  **NR18 SON/MDT**  [7.0.2.11]  **NR19 SONMDT [0.5] (Mattias)**  [8.10.1], [8.10.2.1], [8.10.2.2], [8.10.3], [8.10.4], [8.10.5.1], [8.10.5.3] |  |
| 17:00– 19:00 | **[8.6] NR19 Mob [2] (Kyeongin)**  [8.6.4] C-LTM (if needed)  [8.6.3] L1 event triggered MR | **[8.7] NR19 XR [2] (Dawid)**  [8.7.1] Organizational, LSin, running CRs  [8.7.3] RRM measurement gaps/restrictions  [8.7.5] RLC enhancements | **NR19 SONMDT [0.5] (Mattias) cont’ if needed** |  |
| **Wednesday** | | | | |
| 08:30 – 10:30 | **[8.6] NR19 Mob [2] (Kyeongin)**  [8.6.3] L1 event triggered MR (if needed)  [8.6.2] Inter-CU LTM | **[8.7] NR19 XR [2] (Dawid)**  [8.7.6] XR rate control  [8.7.4] LCP enhancements, DSR enhancements | **@9:45 [8.19] NR19 NR Other (Erlin)**  Issues related to R4 LS R4-2420410 and R4-2420383 |  |
| 11:00 – 13:00 | **[8.3] NR19 AI/ML Mobility [2] (Diana)** | **[8.5] NR19 NES [1] (Kyeongin)**  [8.5.1] Organizational  [8.5.3] Adaptation of common signal/channel transmissions  [8.5.2] OD-SSB SCell operation | **[8.11] NR19 SBFD [0.75] (Erlin)**  [8.11.1] Organizational  [8.11.2] RACH configuration/procedure  [8.11.3] If time allows |  |
| 14:30 -16:30 | **[8.1] NR19 AI/ML PHY [2.5] (Diana)** | **[8.9] NR19 IoT NTN [1] Sergio**  [8.9.1] Organizational  [8.9.2] Support of Store and Forward  [8.9.3] Uplink Capacity Enhancements  [8.9.4] Support of PWS | **[6.2][7.5] NR1718 SL relay CB (Nathan)**  **[8.13] NR19 SL relay (Nathan)**  - [8.13.4] Control plane and SRAP (cont.)  - [8.13.5] Service continuity |  |
|  |
| 17:00– 19:00 | **[8.18] TEI19** | **[8.17] NR19 IoT NTN TDD mode [0.5]**  **[8.8] NR19 NR NTN [2] (Sergio)**  [8.8.6] LTE to NR NTN mobility  [8.8.3] Uplink Capacity/Throughput Enhancement  [8.8.5] Support of regenerative payload (if time allows) | **[8.16] NR19 BDS Pos [0.25] (Nathan)**  **[8.15] NR19 NavIC Pos [0.5] (Nathan)**  **[7.1] NR18 Pos (Nathan) if needed**  **[8.18][8.19] TEI19 and R19 Other positioning/relay** |  |
|  |
| **Thursday** | | | | |
| **Colourful Polo day** | | | | |
| 08:30 – 10:30 | **[8.1] NR19 AI/ML PHY [2.5] (Diana) CB time if need** | **[7.3] R18 IoT NTN / [8.9] R19 IoT NTN CB (Sergio)**  **[8.18] TEI 19 / [8.19] NR others**  (NTN related aspects) | CB Nathan  **[7.1] NR18 Positioning**  **[7.5] NR18 SL relay (if needed)** |  |
|  |  |
| 11:00 – 13:00 | **[8.2] NR19 Ambient IoT [2.5] (Diana)** | **[7.4] NR18 NR NTN / [8.8] NR19 NR NTN CB (Sergio)** | **CB Mattias**  **CB EUTRA&NR151617 (Mattias)**  **[8.10] CB SON/MDT R19** |  |
| 14:30 -16:30 | **@14:30-15:30 CB AIoT (if needed)**  **@15:30-16:30 CB** **NR19 AI/ML Mobility (if needed)** | **CB NR1718 SL** **(Kyeongin)**  **[8.5] NR19 NES CB (Kyeongin)**  Comebacks  [8.5.3] OD-SIB1 | CB Erlin  **CB for R18 MIMOevo**  Details TBD  **[8.4] CB NR19 LP-WUS (Erlin)**  [8.4.4]  Other LP-WUS CB TBD |  |
|  |
| 17:00 – 19:00 | **CB NR 18 Diana** | **[7.2] CB NR18 Mob (Kyeongin)**  **[8.6] CB NR19 Mob (Kyeongin)**  Comebacks | CB Dawid:  **NR18 MBS/QoE**  **[8.7] NR19 XR CB:** |  |
| **Friday** | | | | |
| 08:30 – 10:30 | CB Diana TBD  **@9:30-10:30 CB Ambient IoT** | **CB Sergio**  **NTN** | CB Kyeongin  CB Nathan (TBD)  CB Erlin NR others if needed (TBD) |  |
| 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: 13:00 to 14:30

Afternoon coffee: 16:30 to 17:00

List and details of [AT129] offline discussions

NOTE: No offline email discussions will be kicked off before Monday Feb 17th, 09:00 local time

## 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))

[R2-2500462](file:///C:\Data\3GPP\Extracts\R2-2500462%20Detection%20of%20consecutive%20HARQ%20feedback%20failures%20in%20NB-IoT%20NTN.docx) Detection of consecutive HARQ feedback failures in NB-IoT NTN Google discussion Rel-17 36.321 LTE\_NBIOT\_eMTC\_NTN

[R2-2500938](file:///C:\Data\3GPP\Extracts\R2-2500938%2036331_CR5091%20R17%20Clarification%20on%20Inclination.docx) Clarification on Inclination value description THALES CR Rel-17 36.331 17.11.0 5091 - D LTE\_NBIoT\_eMTC\_NTN\_req-Core

## 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))

### 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)

[R2-2500597](file:///C:\Data\3GPP\Extracts\R2-2500597_38300_CR0961_(Rel-17)_Definition%20of%20NTN%20Cell_v0.docx) Definition of NTN Cell Apple CR Rel-17 38.300 17.11.0 0961 - F NR\_NTN\_solutions-Core

[R2-2500598](file:///C:\Data\3GPP\Extracts\R2-2500598_36300_CR1416_(Rel-17)_Definition%20of%20NTN%20Cell_v0.docx) Definition of NTN Cell Apple CR Rel-17 36.300 17.9.0 1416 - F LTE\_NBIOT\_eMTC\_NTN

### 6.1.3 Control Plane corrections

Moved here from 6.1.2

[R2-2500941](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_129\Docs\R2-2500941.zip) Clarification on Inclination value description THALES CR Rel-17 38.331 17.11.0 5247 - D NR\_NTN\_solutions-Core

[R2-2500882](file:///C:\Data\3GPP\Extracts\R2-2500882%20NTNConfig%20R17.docx) Corrections to ntn-PolarizationUL Ericsson CR Rel-17 38.331 17.11.0 5237 - F NR\_NTN\_solutions-Core

[R2-2500883](file:///C:\Data\3GPP\Extracts\R2-2500883%20NTNConfig%20R18.docx) Corrections to ntn-PolarizationUL Ericsson CR Rel-18 38.331 18.4.0 5238 - A NR\_NTN\_solutions-Core, TEI18

#### 6.1.3.1 NR RRC

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

[R2-2500696](file:///C:\Data\3GPP\Extracts\R2-2500696%20Correction%20to%20smtc2%20(R17).docx) Correction to smtc2 Huawei, HiSilicon CR Rel-17 38.331 17.11.0 5217 - F NR\_NTN\_solutions-Core

[R2-2500697](file:///C:\Data\3GPP\Extracts\R2-2500697%20Correction%20to%20smtc2%20(R18).docx) Correction to smtc2 Huawei, HiSilicon CR Rel-18 38.331 18.4.0 5218 - A NR\_NTN\_solutions-Core

[R2-2500767](file:///C:\Data\3GPP\Extracts\R2-2500767%20Corrections%20to%20NTN%20SMTC%20Configuration-R17.docx) Corrections to NTN SMTC configuration ZTE Corporation, Ericsson, Sanechips CR Rel-17 38.331 17.11.0 5223 - F NR\_NTN\_solutions-Core

[R2-2500768](file:///C:\Data\3GPP\Extracts\R2-2500768%20Corrections%20to%20NTN%20SMTC%20Configuration-R18.docx) Corrections to NTN SMTC configuration ZTE Corporation, Ericsson, Sanechips CR Rel-18 38.331 18.4.0 5224 - A NR\_NTN\_solutions-Core

#### 6.1.3.2 UE capabilities

UE cap corrections 38306, 38331.

[R2-2500711](file:///C:\Data\3GPP\Extracts\R2-2500711%20Clarification%20on%20FRx_xDD%20Differentiation%20in%20per%20UE%20Capability%20for%20NTN%20bands.docx) Clarification on FRx\_xDD Differentiation in per UE Capability for NTN bands vivo, Xiaomi CR Rel-17 38.306 17.11.0 1233 - F NR\_NTN\_solutions-Core

[R2-2500712](file:///C:\Data\3GPP\Extracts\R2-2500712%20Clarification%20on%20FRx_xDD%20Differentiation%20in%20per%20UE%20Capability%20for%20NTN%20bands.docx) Clarification on FRx\_xDD Differentiation in per UE Capability for NTN bands vivo, Xiaomi CR Rel-18 38.306 18.4.0 1234 - A NR\_NTN\_solutions-Core, NR\_NTN\_enh-Core

#### 6.1.3.3 Other

Including idle and inactive behaviour specified in 38.304 or 36.304.

[R2-2500599](file:///C:\Data\3GPP\Extracts\R2-2500599_38304_CR0427_(Rel-17)_Definition%20of%20NTN%20Cell_v0.docx) Definition of NTN Cell Apple CR Rel-17 38.304 17.10.0 0427 - F NR\_NTN\_solutions-Core

[R2-2500600](file:///C:\Data\3GPP\Extracts\R2-2500600_36304_CR0878_(Rel-17)_Definition%20of%20NTN%20Cell_v0.docx) Definition of NTN Cell Apple CR Rel-17 36.304 17.5.0 0878 - F LTE\_NBIOT\_eMTC\_NTN

## 7.3 IoT NTN enhancements

(IoT\_NTN\_enh-Core; leading WG: RAN1; REL-18; WID: [RP-223519](file:///C:\Data\3GPP\archive\RAN\RAN%2398\Tdocs\RP-223519.zip))

Time budget: 0 TU

Tdoc Limitation: 1 tdocs

### 7.3.1 Organizational

LSs, rapporteur inputs.

Editorials/clarifications should not be included in any tdoc but sent to the WI spec rapporteurs

Incoming LSs

[R2-2500048](file:///C:\Data\3GPP\Extracts\R2-2500048_S2-2412665.docx) Reply LS on UE Location Information for NB-IoT NTN (S2-2412665; contact Qualcomm) SA2 LS in Rel-18 IoT\_NTN\_enh-Core To:RAN2, RAN3 Cc:CT1

[R2-2500077](file:///C:\Data\3GPP\Extracts\R2-2500077%20Discussion%20on%20SA2%20LS%20on%20UE%20Location%20Information%20for%20NB-IoT%20NTN.docx) Discussion on SA2 LS on UE Location Information for NB-IoT NTN vivo discussion Rel-18 IoT\_NTN\_enh-Core

[R2-2500547](file:///C:\Data\3GPP\Extracts\R2-2500547%20On%20SA2%20LS%20for%20coarse%20UE%20location%20reporting%20in%20NB-IoT%20NTN.docx) On SA2 LS for coarse UE location reporting in NB-IoT NTN Nokia, Nokia Shanghai Bell discussion Rel-18 IoT\_NTN\_enh-Core

[R2-2501309](file:///C:\Data\3GPP\Extracts\R2-2501309%20-%20Location%20information%20reporting%20for%20NB-IoT.docx) Location information reporting for NB-IoT Ericsson discussion Rel-18 IoT\_NTN\_enh-Core

### 7.3.2 Corrections

Corrections for all specifications.

RRC corrections

[R2-2500939](file:///C:\Data\3GPP\Extracts\R2-2500939%2036331_CR5092%20R18%20Clarification%20on%20Inclination.docx) Clarification on Inclination value description THALES CR Rel-18 36.331 18.4.0 5092 - D IoT\_NTN\_enh-Core

[R2-2501269](file:///C:\Data\3GPP\Extracts\R2-2501269%20Correction%20on%20GNSS%20procedure.docx) Correction on GNSS procedure ZTE Corporation, Sanechips CR Rel-18 36.331 18.4.0 5101 - F IoT\_NTN\_enh-Core

MAC corrections

[R2-2500203](file:///C:\Data\3GPP\Extracts\R2-2500203%20Correction%20on%20drx-inactivityTimer.docx) Correction on drx-inactivityTimer Huawei, HiSilicon CR Rel-18 36.321 18.3.0 1589 - F IoT\_NTN\_enh-Core

[R2-2501217](file:///C:\Data\3GPP\Extracts\R2-2501217%20Correction%20on%20HARQ%20process.docx) Correction on HARQ process Samsung CR Rel-18 36.321 18.3.0 1590 - F IoT\_NTN\_enh-Core

## 7.4 NR NTN enhancements

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

Time budget: 0 TU

Tdoc Limitation: 1 tdocs

### 7.4.1 Organizational

LSs, rapporteur inputs.

Editorials/clarifications should not be included in any tdoc but sent to the WI spec rapporteurs

Incoming LSs

[R2-2500033](file:///C:\Data\3GPP\Extracts\R2-2500033_R4-2419898.docx) LS on simultaneous operation between GNSS and NR NTN (R4-2419898; contact: Huawei) RAN4 LS in Rel-19 NR\_NTN\_enh-Core To:RAN2 Cc:RAN1

[R2-2500042](file:///C:\Data\3GPP\Extracts\R2-2500042_R4-2420476.docx) Reply LS to RAN1 and RAN2 on FR2-NTN inclusion to specifications (R4-2420476; contact: vivo) RAN4 LS in Rel-18 NR\_NTN\_enh-Core To:RAN1, RAN2

### 7.4.2 Corrections

Corrections for all specifications.

Simultaneous operation between GNSS and NR NTN

[R2-2500078](file:///C:\Data\3GPP\Extracts\R2-2500078%20Discussion%20on%20RAN4%20LS%20on%20Simultaneous%20Operation%20between%20GNSS%20and%20NR%20NTN.docx) Discussion on RAN4 LS on Simultaneous Operation between GNSS and NR NTN vivo discussion Rel-18 NR\_NTN\_enh-Core

[R2-2500537](file:///C:\Data\3GPP\Extracts\R2-2500537%20IDC%20issue%20in%20NTN.docx) Discussion on RAN4 LS on IDC issue in NTN Qualcomm Incorporated discussion Rel-18 NR\_NTN\_enh-Core

Moved from 8.8.1

[R2-2500584](file:///C:\Data\3GPP\Extracts\R2-2500584_simultaneous%20GNSS%20and%20NTN%20operations.doc) Discussion on simultaneous GNSS and NTN operations Apple discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500703](file:///C:\Data\3GPP\Extracts\R2-2500703%20Discussion%20on%20simultaneous%20operation%20between%20GNSS%20and%20NR%20NTN.docx) Discussion on simultaneous operation between GNSS and NR NTN Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

Soft Satellite with re-sync

[R2-2500329](file:///C:\Data\3GPP\Extracts\R2-2500329%20On%20SSBs%20from%20Source%20and%20Target%20Satellite%20in%20Soft%20Switching%20with%20Resynchronization.docx) On SSBs from Source and Target Satellite in Soft Switching with Resynchronization Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_NTN\_enh-Core

[R2-2501292](file:///C:\Data\3GPP\Extracts\R2-2501292_Remaining%20open%20issues%20of%20satellite%20switch%20with%20resync.docx) Remaining open issues of satellite switch with resync Sequans Communications discussion Rel-18 NR\_NTN\_enh-Core [R2-2410878](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410878.zip)

VSAT UE FR2 capability

[R2-2500769](file:///C:\Data\3GPP\Extracts\R2-2500769%20Consideration%20on%20VSAT%20UE%20capability%20report.docx) Consideration on VSAT UE capability report ZTE Corporation, Vivo, Sanechips discussion Rel-18 NR\_NTN\_enh-Core

* Revised in R2-2501401

R2-2501401 Consideration on VSAT UE capability report ZTE Corporation, Vivo, Sanechips discussion Rel-18 NR\_NTN\_enh-Core

Stage 2

[R2-2500695](file:///C:\Data\3GPP\Extracts\R2-2500695%20Corrections%20to%20NTN%20mobility.docx) Corrections to NTN mobility Huawei, HiSilicon CR Rel-18 38.300 18.4.0 0962 - F NR\_NTN\_enh-Core

RRC Corrections

[R2-2500942](file:///C:\Data\3GPP\Extracts\R2-2500942%2038331_CR5248%20R18%20Clarification%20on%20Inclination.docx) Clarification on Inclination value description THALES CR Rel-18 38.331 18.4.0 5248 - D NR\_NTN\_enh-Core

[R2-2501310](file:///C:\Data\3GPP\Extracts\R2-2501310%20-%20Remaining%20open%20issues%20in%20NR%20NTN.docx) Remaining open issues in NR NTN Ericsson discussion Rel-18 NR\_NTN\_enh-Core

## 8.8 NTN for NR Ph3

(NR\_NTN\_Ph3-Core; leading WG: RAN2; REL-19; WID: RP-243300)

LTE\_TN\_NR\_NTN\_mob, leading WG: RAN2, Rel-19 WID: [RP-240924](file:///C:\Data\3GPP\archive\RAN\RAN%23104\Tdocs\RP-240924.zip))

Time budget: 2 TU

Tdoc Limitation: 3 tdocs

### 8.8.1 Organizational

LS, Rapporteur input, including workplan, 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.

Incoming LSs

[R2-2500045](file:///C:\Data\3GPP\Extracts\R2-2500045_S1-244857.docx) Reply LS on requirements for ETWS primary notification (S1-244857; contact: Novamint) SA1 LS in Rel-19 NR\_NTN\_Ph3-Core To:RAN2

[R2-2500067](file:///C:\Data\3GPP\Extracts\R2-2500067_S2-2501329.doc) Reply LS on Supporting MBS broadcast service for NR NTN (S2-2501329; contact: Xiaomi) SA2 LS in Rel-19 NR\_NTN\_Ph3-Core, TEI19 To:RAN3, RAN2, CT4

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

[R2-2501284](file:///C:\Data\3GPP\Extracts\R2-2501284%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 2 B LTE\_TN\_NR\_NTN\_mob [R2-2410969](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410969.zip)

[R2-2500705](file:///C:\Data\3GPP\Extracts\R2-2500705%20Introduction%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 1 B LTE\_TN\_NR\_NTN\_mob-Core [R2-2409536](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2409536.zip)

[R2-2500529](file:///C:\Data\3GPP\Extracts\R2-2500529%20Introduction%20of%20LTE%20TN%20to%20NR%20NTN%20IDLE%20mode%20mobility%20(Rev.2).docx) Introduction of LTE TN to NR NTN IDLE mode mobility CATT CR Rel-19 36.331 18.4.0 5065 2 B LTE\_TN\_NR\_NTN\_mob-Core [R2-2410968](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410968.zip) Late

Running CRs for NR\_NTN\_Ph3-Core

[R2-2501321](file:///C:\Data\3GPP\Extracts\R2-2501321%20Stage%202%20running%20CR%20for%20NTN%20Ph3.docx) Introduction of NTN Ph3 enhancements THALES (Rapporteur) draftCR Rel-19 38.300 18.4.0 B NR\_NTN\_Ph3-Core

[R2-2501304](file:///C:\Data\3GPP\Extracts\R2-2501304%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 18.4.0 B NR\_NTN\_Ph3-Core

### 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).

[R2-2500100](file:///C:\Data\3GPP\Extracts\R2-2500100%20Discussion%20on%20DL%20coverage%20enhancement.doc) Discussion on DL coverage enhancement Xiaomi discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: Postpone the discussion on cell barring, and send a LS to RAN1 to ask whether link level enhancement( i.e. PDCCH CSS repetition, SIB1 PDSCH repetition, Msg4 PDSCH repetition) is backward compatible to legacy UE.

Proposal 2: Postpone the discussion on the mechanisms to prevent legacy UE from reselecting to a DL CE cell and wait for RAN1 reply LS on the backward compatibility of link level enhancements to legacy UE.

Observation 1: Four SMTC windows are enough to ensure that no two neighbor cells are illuminated at the same time to avoid neighbor cell interference in scenario of frequency reuse factor 1.

Observation 2: The offset between Multiple SMTC configuration due to beam hopping is fixed, there is no need for UE to acquire its location for SMTC window adjustment. However, location based SMTC selection requires UE to acquire its location, which introduce additional power consumption, making its power saving gain questionable.

Proposal 3: For scenario of multiple SMTC configuration due to beam hopping, do not support UE location based SMTC selection.

Observation 3: Under the assumption that serving cell and neighbor cells are not illuminated at the same time, SSB based SMTC selection has a gain about 12.5% SMTC measurement reduction for the scenario of 4 SSBs in one cell.

Proposal 4: Before RAN2 make decision on whether to introduce SSB based SMTC selection, ask RAN1 on whether it is a typical scenario to avoid illuminating serving cell and neighbour cells at the same time for frequency reuse factor 1.

Proposal 5: If msg4 PDSCH repetition is agreed to support, Msg3 is used to carry the indication of msg4 PDSCH repetition capability/request.

Proposal 6: RAN2 to agree on adding the following code points:

- CCCH of size 48 bits for PUCCH repetition of Msg4 HARQ-ACK & Msg4 PDSCH repetition, except for an (e)RedCap UE;

- CCCH of size 64 bits for PUCCH repetition of Msg4 HARQ-ACK & Msg4 PDSCH repetition, except for an (e)RedCap UE;

- CCCH of size 48 bits for PUCCH repetition of Msg4 HARQ-ACK & Msg4 PDSCH repetition of a RedCap UE;

- CCCH of size 64 bits for PUCCH repetition of Msg4 HARQ-ACK & Msg4 PDSCH repetition of a RedCap UE;

- CCCH of size 48 bits for PUCCH repetition of Msg4 HARQ-ACK & Msg4 PDSCH repetition of an eRedCap UE;

- CCCH of size 64 bits for PUCCH repetition of Msg4 HARQ-ACK & Msg4 PDSCH repetition of an eRedCap UE;

Proposal 7: RAN2 to agree on not adding the following code points:

- CCCH of size 48 bits for Msg4 PDSCH repetition of a RedCap UE;

- CCCH of size 64 bits for Msg4 PDSCH repetition of a RedCap UE;

- CCCH of size 48 bits for Msg4 PDSCH repetition for an eRedCap UE;

- CCCH of size 64 bits for Msg4 PDSCH repetition for an eRedCap UE;

- CCCH of size 48 bits for Msg4 PDSCH repetition, except for an (e)RedCap UE;

- CCCH of size 64 bits for Msg4 PDSCH repetition, except for an (e)RedCap UE;

and send LS to RAN1 to confirm the RAN2 understanding that Msg4 PDSCH channel is always better than PUCCH with Msg4 HARQ-ACK channel.

[R2-2500532](file:///C:\Data\3GPP\Extracts\R2-2500532%20SSB%20periodicity.docx) Default extended SSB periodicity Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1 A new barring procedure is not needed for a cell that is using new default SSB periodicity of larger than 20ms.

Proposal 2 Existing signaling ssb-PeriodicityServingCell in serving cell common configuration is sufficient to indicate the default SSB periodicity of a cell.

Proposal 3 Existing SMTC configuration is sufficient to assist UE for neigbor cell measurements.

Proposal 4 Introduce a UE capability whether the UE supports default SSB periodicity of larger than 20ms.

[R2-2500615](file:///C:\Data\3GPP\Extracts\R2-2500615%20Cell%20barring%20and%20reselection%20for%20NTN%20DL-CE%20(Revision%20of%20R2-2410267).docx) Cell barring and reselection for NTN DL-CE Lenovo discussion Rel-19

Proposal 1: RAN2 to discuss the following options of cell barring for an NTN-capable UE supporting DL-CE.

- Option 1: [2 bits] By a new cell barring indication cellBarredNTN\_DLCE with configurable value “barred” and “not barred”.

- Option 2A: [1 bit] By presence of a new flag indication cellBarredNTN\_DLCE.

- Option 2B: [1 bit] By presence of a new flag indication cellAllowedNTN\_DLCE is introduced.

Proposal 2: RAN2 to consider cell barring enhancement based on the validity duration of cell barring status for NTN DL-CE.

Proposal 3: If a neighboring NTN cell operating in DL-CE is considered as not barred, an NTN-capable UE supporting DL-CE may prioritize the frequency of the cell for cell reselection.

Proposal 4: If a neighboring NTN cell operating in DL-CE is considered as barred, an NTN-capable UE supporting DL-CE may deprioritize the frequency of the cell for cell reselection.

[R2-2500689](file:///C:\Data\3GPP\Extracts\R2-2500689%20Discussion%20on%20DL%20coverage%20enhancements.docx) Discussion on DL coverage enhancements Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: The network should be allowed to configure different periodicities for the multiple SMTCs on a single frequency.

Proposal 2: Send an LS to RAN1 asking the following questions:

Q1: Whether the SSB beams within the cell will be considered as active beam simultaneously?

Q2: Whether the active cells are selected as a cluster or scattered randomly among the footprints?

Proposal 3: RAN2 should consider UE assistance reporting (e.g. based on reference location), while the responsibility for configuring SMTCs and gaps to the UE remains with the network.

Proposal 4: The number of configured SMTC/gaps will not be increased further.

Proposal 5: RAN2 should no longer discuss DTX/DRX enhancement unless it is proven to be essential due to the extension of SSB periodicity.

Proposal 6: It is up to NW implementation to set cellBarredNTN-r17 to barred to bar UEs not supporting R19 extended SSB periodicity. A new field cellBarredNTN-r19 (value is set to barred or notBarred) is introduced for future use. UEs supporting extended SSB periodicity ignore cellBarredNTN-r17 if the new cellBarredNTN-r19 is present, and follow cellBarredNTN-r17 if the new cellBarredNTN-r19 is absent.

[R2-2501037](file:///C:\Data\3GPP\Extracts\R2-2501037%20Analysis%20on%20DL%20coverage%20enhancements%20due%20to%20extended%20SIB%20periodicity.docx) Analysis on DL coverage enhancements due to extended SIB periodicity CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

Observation 1: Since for different beam/footprint (group) in a single cell, there will be different SSB start offset, the current granulartiy of the current SMTC number and SSB pattern definition is possible not sufficient at least for the UE in idle/inactive mode, even for the serving cell measurement itself.

Observation 2: since the Rel-18 NES DTX/DRX pattern had been excluded in last RAN plenary, there is no way to combine the multiple NES DTX/DRX pattern (for example, in beam/footprint level) and current SMTC/SSB pattern in cell/carrier level.

Proposal 1: for senario1, i.e. different PCIs for mutiple beam footprints in one satellite cell (1-to-1 mapping), the current SMTC number and pattern definition is sufficient.

Proposal 2: for senario2, i.e. Single PCI for Multi-beam footprints in one satellite cell (multiple-to-1 mapping)

, RAN2 should consider the following candidates to address the issue:

Alt 1: introduce multiple SMTC/SSB patterns for each beam/footprint (group) in a single cell with different SSB start offset;

Alt 2: Remaining the current SMTC/SSB pattern defintion with some additial information, e.g., beam/footprint/location information, to enable the UE idle/inactive mode to identity the specific SSB reception location/window to avoid unnecessary power consumption.

[R2-2501160](file:///C:\Data\3GPP\Extracts\R2-2501160%20Discussion%20on%20Downlink%20Coverage%20Enhancements%20-%20CSCN.docx) "Discussion on Downlink Coverage Enhancements" CSCN discussion Rel-19

Observation 1: Increasing number of configured SMTCs will impact UE power consumption and UE capability.

Observation 2: NW assisted SMTC configuration is beneficial for UEs to search SSBs and enables NW to reduce SMTC configurations.

Proposal 1: To reduce the UE power consumption impact and the requirements on UE capabilities, the network should minimize the SMTC configuration for UEs as much as possible.

Proposal 2: RAN2 to discuss whether SSB index associated SMTC configuration can be supported for UE measurement.

Proposal 3: UE should reacquire the SMTC configuration when SSB index changes.

Proposal 4: A new NTN bar bit with the value {barred, notBarred} should be introduced to achieve selectively bar UEs supporting DL-CE. The behaviors of UEs supporting DL-CE are as follows:

- Follow the legacy mechanism if the new barring bit is not present;

- Consider the cell is not allowed for access if the new barring bit is set to "barred";

- Consider the cell is allowed for access if the new barring bit is set to "notBarred".

[R2-2501290](file:///C:\Data\3GPP\Extracts\R2-2501290_Dowlink%20coverage%20enhancements%20SMTC%20impacts.docx) Downlink coverage enhancement SMTC impacts Sequans Communications discussion Rel-19 NR\_NTN\_Ph3-Core [R2-2410804](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410804.zip)

Proposal 1: Introduce separate optional signaling for DL CE cells SMTCs (e.g. SMTC5 list)

Proposal 2: smtc5list is added to intraFreqCellReselectionInfo (SIB2), and InterFreqCarrierFreqInfo (SIB4)

Proposal 3: Legacy SMTC signaling can still be used for DL CE cells (up to NW configuration)

Observation 1: The UE should ideally consider only SMTCs corresponding to the closest neighbor cells

Proposal 4: Consider enhancements to allow location-based UE SMTC selection (broadcast of neighbor cells reference location / SSB indexes associated with SMTCs)

Observation 2: In connected, NW may not have UE location information needed to configure SMTCs to UE

Observation 3: R18 location-based CHO without associated measurement avoids SMTCs configuration, but adds complexity and may increase handover interruption time

Proposal 5: Consider location-based UE SMTC selection also in connected

[R2-2500148](file:///C:\Data\3GPP\Extracts\R2-2500148%20Discussion%20on%20downlink%20coverage%20enhancement_final.docx) Discussion on downlink coverage enhancement LG Electronics Inc. discussion Rel-19

[R2-2500219](file:///C:\Data\3GPP\Extracts\R2-2500219%20DL%20CE.docx) Discussion on Downlink Coverage Enhancement Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500459](file:///C:\Data\3GPP\Extracts\R2-2500459%20Discussion%20on%20DL%20coverage%20enhancement%20for%20NTN.doc) Discussion on DL coverage enhancement for NTN OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500483](file:///C:\Data\3GPP\Extracts\R2-2500483%20Discussions%20on%20downlink%20coverage%20enhancement.doc) Discussions on downlink coverage enhancement Fujitsu discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500524](file:///C:\Data\3GPP\Extracts\R2-2500524%20Discussion%20on%20downlink%20coverage%20enhancements.docx) Further discussion on downlink coverage enhancements CATT discussion

[R2-2500575](file:///C:\Data\3GPP\Extracts\R2-2500575_Further%20discussion%20of%20NR%20NTN%20coverage%20enhancement.doc) Further discussion of NR NTN coverage enhancement China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500582](file:///C:\Data\3GPP\Extracts\R2-2500582_DL%20coverage%20enhancement.doc) DL coverage enhancement in NTN Apple discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500656](file:///C:\Data\3GPP\Extracts\R2-2500656%20Discussion%20on%20downlink%20coverage%20enhancement.docx) Discussion on downlink coverage enhancement HONOR discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500685](file:///C:\Data\3GPP\Extracts\R2-2500685.docx) Downlink coverage enhancement NEC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500727](file:///C:\Data\3GPP\Extracts\R2-2500727%20Downlink%20coverage%20enhancement.docx) Discussion on NTN downlink coverage enhancement Nokia discussion NR\_NTN\_Ph3-Core [R2-2410213](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410213.zip)

[R2-2500749](file:///C:\Data\3GPP\Extracts\R2-2500749.docx) SMTC impacts due to NTN downlink coverage enhancements Sony discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501010](file:///C:\Data\3GPP\Extracts\R2-2501010_NTN_DL_CE.docx) Discussion on SMTC for NTN DL coverage enhancements ITRI discussion NR\_NTN\_Ph3-Core

[R2-2501179](file:///C:\Data\3GPP\Extracts\R2-2501179%20(R19%20NR%20NTN%20WI%20AI%208.8.2)%20DL%20coverage.docx) Downlink coverage enhancement for non-terrestrial networks InterDigital Communications discussion Rel-19

[R2-2501182](file:///C:\Data\3GPP\Extracts\R2-2501182-Discussion_on_DL_coverage_enhancement.docx) Discussion on Downlink Coverage Enhancements Sharp discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501280](file:///C:\Data\3GPP\Extracts\R2-2501280.doc) Discussion on NR NTN Downlink Coverage Enhancements Rakuten Mobile, Inc discussion

[R2-2501291](file:///C:\Data\3GPP\Extracts\R2-2501291_Dowlink%20coverage%20enhancements%20Access%20Control.docx) Downlink coverage enhancement access control Sequans Communications discussion Rel-19 NR\_NTN\_Ph3-Core [R2-2410806](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410806.zip)

[R2-2501318](file:///C:\Data\3GPP\Extracts\R2-2501318%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.

[R2-2500770](file:///C:\Data\3GPP\Extracts\R2-2500770%20Consideration%20on%20DL%20CE%20and%20UL%20capacity%20enhancement.doc) Consideration on DL CE and UL capacity enhancement ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 2: RAN2 will design higher layer signalling to provide OOC configuration for both DG and CG. Detailed OOC parameters (e.g., OOC sequence index) needed in RRC signalling for DG/CG respectively can wait for more input from RAN1.

Proposal 3: Confirm RAN1 agreements that separate UE capabilities are introduced for OCC length 2 and OCC length 4, where UE capability for OCC length 2 is a prerequisite for UE capability for OCC length 4.

[R2-2501032](file:///C:\Data\3GPP\Extracts\R2-2501032%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

Proposal 1: Kindly suggest RAN2 to discuss the access control mechanism for R19 UEs supporting OCC between the two options:

Option 1: introduce new bar bit in SIB1

Option 2: reuse the existing cellBarredNTN.

[R2-2500665](file:///C:\Data\3GPP\Extracts\R2-2500665%20UL%20Capacity%20enhancement%20for%20NRNTN.docx) UL Capacity enhancement for NRNTN NEC Corporation discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500690](file:///C:\Data\3GPP\Extracts\R2-2500690%20Discussion%20on%20Uplink%20Capacity%20Enhancements.docx) Discussion on Uplink Capacity Enhancements Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501281](file:///C:\Data\3GPP\Extracts\R2-2501281.docx) RAN2 related proposals for Uplink Capacity & Throughput Enhancements Rakuten Mobile, Inc discussion

### 8.8.4 Support of Broadcast service

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

[R2-2500079](file:///C:\Data\3GPP\Extracts\R2-2500079%20Further%20Discussion%20on%20MBS%20Broadcast%20Service%20Area%20Provision.docx) Further Discussion on MBS Broadcast Service Area Provision in NTN vivo discussion Rel-19 NR\_NTN\_Ph3-Core

* Network signalling for intended service area:

Proposal 1: In the new SIB, explicit network-indicated area ID is used to label an intended service area in the list.

Proposal 2: A service area ID list is used for the association between the broadcast session (in MCCH) / ETWS primary notification (in SIB6) and the intended service area.

* UE behavior on MCCH (re)acquisition:

Proposal 3: If the MCCH-based solution is adopted, RAN2 considers the following options,

Opt 1: Reuse the Rel-17 MCCH information (re)acquisition procedure, i.e., the UE attempts to acquire MCCH upon receiving a change notification for MCCH or becomes interested in receiving MBS broadcast;

Opt 2: It is up to UE implementation to use the service area info acquired in the received MCCH to avoid re-acquiring the MCCH when the UE is outside the service area.

[R2-2500220](file:///C:\Data\3GPP\Extracts\R2-2500220%20BC%20service%20area.docx) Discussion on Broadcast Service Area Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: In the new SIB, an ID is used to identify each MBS intended service area.

Proposal 2: If UE is not in any intended service areas, UE does not need to acquire MCCH.

Proposal 3: Discuss for quasi-earth-fixed or earth-moving cells how to avoid NW frequent update and UE frequent acquisition of information on MBS broadcast service and the intended service area.

Proposal 4: Introduce warningAreaCoordinatesSegment in ETWS Primary Notification (SIB6) and in ETWS Secondary Notification (SIB7).

[R2-2500331](file:///C:\Data\3GPP\Extracts\R2-2500331%20Further%20Details%20on%20MBS%20in%20Rel-19%20NR%20NTN.docx) Further Details on MBS in Rel-19 NR NTN Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1 A UE interested in an MBS broadcast service may skip MCCH acquisition when it is located outside the intended service area where this service is provided.

Proposal 2 Provide ISA ID in the MBS Service Announcement.

Proposal 3 RAN2 informs SA2. Consider the draft LS in the annex as a baseline.

Proposal 4 Service continuity enhancements due to UE movement between NTN cells are down prioritized in Rel-19.

Proposal 5 RAN2 focuses on service continuity enhancements required due to satellite movement.

Proposal 6 In a quasi-Earth fixed cell, the network provides information about the MBS broadcast configuration and MBS services provided by the upcoming satellite(s) that will serve the area.

Proposal 7 Introduce geographic information in ETWS notification for geo-fencing in NTN cells.

Proposal 8 RAN2 to study a common solution to geofence ETWS notifications in both NR NTN and NB-IoT NTN RATs.

[R2-2500583](file:///C:\Data\3GPP\Extracts\R2-2500583_MBS%20over%20NTN.doc) Discussion on broadcast serivce over NTN Apple discussion Rel-19 NR\_NTN\_Ph3-Core

* Geofencing on ETWS

Proposal 1: Introduce geofencing info into ETWS Primary Notification, which refers to area index/ID in the new SIB agreed for intended service area provision for MBS broadcast service.

* Service continutiy

Observation 1: Alt 2 can enhance UE cell re-selection based on accurate information whether the frequency supports the interested TMGI at UE’s location.

Proposal 2: In SIB21, the intended service area is provided for each MBS broadcast service session or for each FSAI.

Proposal 3: RAN2 can further discuss whether to provide intended service area for each MBS broadcast service session in MBSBroadcastConfiguration (MCCH).

[R2-2500616](file:///C:\Data\3GPP\Extracts\R2-2500616%20Further%20considerations%20on%20broadcast%20service%20area%20information%20in%20NTN.docx) Further considerations on broadcast service area information in NTN Lenovo discussion Rel-19

Proposal 1: UE may choose to skip MCCH monitoring based on the broadcast service area information provided in the new SIB (e.g., IntendedServiceArea) and its associated MBS session, e.g. when UE is not in any broadcast service area of its interested MBS sessions.

Proposal 2: UE may choose to monitor MCCH based on the broadcast service area information provided in the new SIB (e.g., IntendedServiceArea) and its associated MBS session when UE is in at least one broadcast service area of its interested MBS sessions, e.g. after re-acquiring SIB19 that overlaps with MCCH modification period boundary.

Proposal 3: A pointer (broadcast service area index or IDs) can be included in SIB21 to associate the neighbor cell frequency with the broadcast service area information for service continuity.

Proposal 4: UE can prioritize a frequency for cell reselection if UE is in the broadcast service area associated to that frequency as in SIB21.

Proposal 5: UE may report its current broadcast service area information or corresponding pointer to gNB for service continuity in RRC\_CONNECTED.

[R2-2500657](file:///C:\Data\3GPP\Extracts\R2-2500657%20Discussion%20on%20the%20support%20of%20broadcast%20service.docx) Discussion on the support of broadcast service HONOR discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: RAN2 to discuss the association of the intended service area and the broadcast service is provided by CN or gNB to UE. LS to SA2/RAN3 may be needed.

Proposal 2: List of ISAs and related index is provided in the new SIB, i.e., there is a corresponding relationship between service area and the index.

Proposal 3：The index of the intended service areas is unified assigned across cells.

Proposal 4: The MBS intended service area mechanism should not be restricted to neither NTN cells nor NTN-capable UEs.

[R2-2500966](file:///C:\Data\3GPP\Extracts\R2-2500966.docx) Discussion on MBS broadcast over NTN Huawei, HiSilicon, Turkcell discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1: If the UE knows that ISAs are used for the MBS BC service of interest but does not know which ISA(s) of the current cell apply to the service, the UE may not monitor MCCH as long as it is not in or close to any of the ISAs in the new SIB.

Proposal 2: SIB20 can provide the list of intended service area ID(s) applicable to services that may be broadcast in the serving cell. The UE may not monitor MCCH as long as it is not in or close to any of the ISAs indicated in SIB20.

Proposal 3: If the UE knows the ISAs applicable for the MBS BC service of interest (by reading such information in MCCH previously), the UE may not monitor MCCH as long as it is not in or close to the ISAs applicable for the service.

Proposal 4: Both current serving cell and neighbour cells MBS session specific intended service area ID(s) are indicated in the MCCH.

Proposal 5: To determine the ISA of an ISA ID indicated in MCCH of the serving cell for an MBS service in a neighbour cell, the UE can use the new SIB of the serving or of the neighbour cell.

Proposal 6: SIB21 can indicate the subset of ISAs used for each frequency and the UE needs not prioritize (RRC\_IDLE) or indicate (RRC\_CONNECTED) the frequency of an MBS service of interest if the UE is not in any of the ISAs used in the frequency that provides the service.

[R2-2501306](file:///C:\Data\3GPP\Extracts\R2-2501306%20-%20Support%20for%20broadcast%20services%20in%20NR%20NTN.docx) Support for broadcast services in NR NTN Ericsson discussion Rel-19 NR\_NTN\_Ph3-Core

Proposal 1 A UE interested in an MBS broadcast service may skip MCCH acquisition when it is located outside the intended service area where this service is provided.

Proposal 2 Provide ISA ID in the MBS Service Announcement.

Proposal 3 RAN2 informs SA2. Consider the draft LS in the annex as a baseline.

Proposal 4 Service continuity enhancements due to UE movement between NTN cells are down prioritized in Rel-19.

Proposal 5 RAN2 focuses on service continuity enhancements required due to satellite movement.

Proposal 6 In a quasi-Earth fixed cell, the network provides information about the MBS broadcast configuration and MBS services provided by the upcoming satellite(s) that will serve the area.

Proposal 7 Introduce geographic information in ETWS notification for geo-fencing in NTN cells.

Proposal 8 RAN2 to study a common solution to geofence ETWS notifications in both NR NTN and NB-IoT NTN RATs.

[R2-2500080](file:///C:\Data\3GPP\Extracts\R2-2500080%20Discussion%20on%20MBS%20Broadcast%20Service%20Continuity%20in%20NTN.docx) Discussion on MBS Broadcast Service Continuity in NTN vivo discussion Rel-19 NR\_NTN\_Ph3-Core [R2-2409538](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2409538.zip)

[R2-2500252](file:///C:\Data\3GPP\Extracts\R2-2500252.docx) Discussion on Support of MBS Broadcast Service TCL discussion Rel-19

[R2-2500453](file:///C:\Data\3GPP\Extracts\R2-2500453%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

[R2-2500465](file:///C:\Data\3GPP\Extracts\R2-2500465.doc) Discussion on the support of broadcast service Xiaomi discussion

[R2-2500484](file:///C:\Data\3GPP\Extracts\R2-2500484%20Discussions%20on%20supporting%20broadcast%20service.doc) Discussions on supporting broadcast service Fujitsu discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500523](file:///C:\Data\3GPP\Extracts\R2-2500523%20Further%20discussion%20on%20support%20of%20broadcast%20service%20in%20NR%20NTN.docx) Further discussion on support of broadcast service in NR NTN CATT discussion

[R2-2500530](file:///C:\Data\3GPP\Extracts\R2-2500530%20MBS%20broadcast%20in%20NTN.docx) Signaling of MBS broadcast service area information Qualcomm Incorporated discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500576](file:///C:\Data\3GPP\Extracts\R2-2500576_The%20mapping%20between%20service%20area%20information%20and%20MBS%20session.doc) The mapping between service area information and MBS session China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500675](file:///C:\Data\3GPP\Extracts\R2-2500675.docx) Remaining issues on the support of broadcast service in NTN ETRI discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500771](file:///C:\Data\3GPP\Extracts\R2-2500771%20Consideration%20on%20broadcast%20service%20support.doc) Consideration on broadcast service support ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501005](file:///C:\Data\3GPP\Extracts\R2-2501005%20Discussion%20on%20MII%20procedure%20in%20NTN.docx) Discussion on MII procedure in NTN LG Electronics France discussion Rel-19 38.331

[R2-2501033](file:///C:\Data\3GPP\Extracts\R2-2501033%20Considerations%20on%20broadcast%20service%20for%20NR%20NTN.docx) Considerations on broadcast service for NR NTN CMCC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501180](file:///C:\Data\3GPP\Extracts\R2-2501180%20(R19%20NR%20NTN%20WI%20AI%208.8.4)%20Broadcast.docx) Support for broadcast service in non-terrestrial networks InterDigital Communications discussion Rel-19

[R2-2501181](file:///C:\Data\3GPP\Extracts\R2-2501181-Remaining%20issues%20on%20intended%20service%20area.docx) Remaining issues on intended service area Sharp 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.

[R2-2500617](file:///C:\Data\3GPP\Extracts\R2-2500617%20UE%20location%20verification%20in%20NTN%20regenerative%20architecture%20(Revision%20of%20R2-2410269).docx) UE location verification in NTN regenerative architecture Lenovo discussion Rel-19

[R2-2500750](file:///C:\Data\3GPP\Extracts\R2-2500750.docx) Satellite switch with re-sync in regenerative payload Sony discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500904](file:///C:\Data\3GPP\Extracts\8.8.5%20R2-2500904%20Regenerative%20payload%20for%20NTN%20for%20NR%20Ph3.docx) Regenerative payload for NTN for NR Ph3 TOYOTA Info Technology Center discussion Rel-19

[R2-2501066](file:///C:\Data\3GPP\Extracts\R2-2501066_NTN_Regenerative.docx) Discussion on regenerative payload Fujitsu Limited discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501097](file:///C:\Data\3GPP\Extracts\R2-2501097%20Discussion%20on%20the%20impact%20of%20regenerative%20payload.docx) Discussion on the impact of regenerative payload ETRI 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.

[R2-2500526](file:///C:\Data\3GPP\Extracts\R2-2500526%20Discussion%20on%20redirection%20to%20NR%20NTN%20from%20LTE%20TN.docx) Discussion on redirection from LTE TN to NR NTN CATT discussion

Proposal 1: To resolve the remaining issue of redirection from LTE TN to NR NTN, RAN2 down-selects the following options:

- Option 1: Correct TS 36.306/TS 36.331 since Rel-17 to enable UE capability reporting of supported NR NTN band (i.e. add reference TS 38.101-5 for NR NTN bands in TS 36.306/TS 36.331), without Spec change on UE behavior.

- Option 2: Admit that redirection to NR NTN from LTE TN is not supported before Rel-19 pursuing no Rel-17/18 spec change, and make necessary enhancement to support this feature from Rel-19 with either sub-option below:

- Option 2-a: Only add the reference of TS38.101-5 in TS 36.306/TS 36.331 since Rel-19 (with no additional capability signaling needed);

- Option 2-b: Introduce a new capability signaling for LTE TN to NR NTN redirection purpose and also a satellite ID(s) in RedirectedCarrierInfo.

- Option 3: Confirm redirection to NR NTN from LTE TN is not supported. FFS whether to introduce any restriction in TS 36.331 (e.g. NR NTN frequency cannot be configured in RRCConnectionRelease) or only clarify this in the chair notes.

[R2-2500081](file:///C:\Data\3GPP\Extracts\R2-2500081%20Discussion%20on%20Redirection%20from%20E-UTRA%20TN%20to%20NR-NTN.docx) Discussion on Redirection from E-UTRA TN to NR-NTN vivo discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500330](file:///C:\Data\3GPP\Extracts\R2-2500330%20On%20E-UTRAN%20TN%20to%20NR%20NTN%20enhancements.docx) On E-UTRAN TN to NR NTN enhancements Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500460](file:///C:\Data\3GPP\Extracts\R2-2500460%20Discussion%20on%20dedicated%20priority%20and%20redirection%20via%20RRCConnectionRelease.doc) Discussion on dedicated priority and redirection via RRCConnectionRelease OPPO discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500466](file:///C:\Data\3GPP\Extracts\R2-2500466.doc) Discussion on the redirection from LTE to NR NTN Xiaomi discussion

[R2-2500531](file:///C:\Data\3GPP\Extracts\R2-2500531%20mobility%20LTE%20to%20NR%20NTN.docx) Frequency priorities and redirection from LTE to NR NTN Qualcomm Incorporated discussion Rel-19 LTE\_TN\_NR\_NTN\_mob

[R2-2500577](file:///C:\Data\3GPP\Extracts\R2-2500577_Signalling%20design%20for%20NTN%20mobility%20redirection.doc) Signalling design for NTN mobility redirection China Telecom discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500687](file:///C:\Data\3GPP\Extracts\R2-2500687.docx) Redirection from E-UTRN TN to NR NTN NEC discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2500772](file:///C:\Data\3GPP\Extracts\R2-2500772%20Consideration%20on%20LTE%20TN%20to%20NR%20NTN%20mobility.doc) Consideration on LTE TN to NR NTN mobility ZTE Corporation, Sanechips discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501272](file:///C:\Data\3GPP\Extracts\R2-2501272%20Re-direction%20from%20E-UTRAN%20to%20NR%20NTN.docx) Re-direction from E-UTRAN TN to NR NTN Samsung discussion Rel-19 NR\_NTN\_Ph3-Core

[R2-2501305](file:///C:\Data\3GPP\Extracts\R2-2501305%20-%20E-UTRAN%20TN%20to%20NR-NTN%20mobility.docx) E-UTRAN TN to NR-NTN mobility Ericsson discussion Rel-19 LTE\_TN\_NR\_NTN\_mob

## 8.9 IoT NTN Ph3

(IoT\_NTN\_Ph3-Core; leading WG: RAN2; REL-19; WID: RP-243278)

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 8.9.1 Organizational

LS, Rapporteur input, including workplan, etc.

Rapporteur inputs do not count towards the tdoc limitation.

Incoming LSs

[R2-2500010](file:///C:\Data\3GPP\Extracts\R2-2500010_R1-2410895.docx) Reply LS on OCC for CB-msg3 NPUSCH (R1-2410895; contact: Sony) RAN1 LS in Rel-19 IoT\_NTN\_Ph3-Core To:RAN2

[R2-2500044](file:///C:\Data\3GPP\Extracts\R2-2500044_S1-244757.docx) Reply LS on PWS support for NB-IoT NTN (S1-244757; contact: Novamint) SA1 LS in Rel-19 IoT\_NTN\_Ph3-Core To:RAN2 Cc:RAN3, CT1, SA2

[R2-2500061](file:///C:\Data\3GPP\Extracts\R2-2500061_S2-2501085.docx) Reply to Reply LS on FS\_5GSAT\_Ph3\_ARCH conclusions (S2-2501085; contact: China Telecom) SA2 LS in Rel-19 5GSAT\_Ph3-ARC To:SA3-LI Cc:SA3, RAN2

Running CRs

[R2-2500204](file:///C:\Data\3GPP\Extracts\R2-2500204%20RRC%20Runing%20CR%20for%20IoT%20NTN.docx) RRC Running CR for IoT NTN Huawei, HiSilicon draftCR Rel-19 36.331 18.4.0 B IoT\_NTN\_Ph3-Core

[R2-2501158](file:///C:\Data\3GPP\Extracts\R2-2501158%20MAC%20Running%20CR%20for%20Rel-19%20IoT%20NTN.docx) MAC Running CR for Rel-19 IoT NTN MediaTek Inc. draftCR Rel-18 36.321 18.3.0 B IoT\_NTN\_Ph3-Core

[R2-2501320](file:///C:\Data\3GPP\Extracts\R2-2501320%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

### 8.9.2 Support of Store & Forward

Contributions should focus on possible impacts to the radio interface.

[R2-2500309](file:///C:\Data\3GPP\Extracts\R2-2500309%20-%20Discussion%20on%20Store%20&%20Forward%20satellite%20operation.docx) Discussion on Store & Forward satellite operation OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

Proposal 1 Time information on transition from S&F operation mode to normal mode is provided in SIB31.

Proposal 2 Use absolute UTC time to broadcast the time information, and changes of it should result in system information change notifications.

Proposal 3 The time information can also be broadcasted to indicate when the current satellite operation mode will transit from normal mode to S&F operation mode.

Proposal 4 Changes of S&F operation indication should result in system information change notifications.

Proposal 5 For UE in RRC\_CONNECTED mode, from RAN2 perspective, rely on NW implementation for UE handling if NW switches between S&F operation mode and normal mode, and no special AS impact is foreseen. FFS whether there is any AS impact caused by NAS layer.

Proposal 6 No need to introduce a new release cause for feeder link becoming unavailable.

[R2-2501159](file:///C:\Data\3GPP\Extracts\R2-2501159%20RAN2%20impact%20on%20SF%20mode.docx) RAN2 impact on S&F mode MediaTek Inc. discussion IoT\_NTN\_Ph3-Core [R2-2410636](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410636.zip)

* S&F operation indication

Proposal 1: For Rel-19 UEs supporting S&F, if the S&F operation indication is present in SIB1, RRC will notify upper layer that this NTN cell is operating in S&F mode when camping on the cell or receiving updated SIB1 in Connected mode.

* Time information

Proposal 2: For Rel-19 UEs supporting S&F, the RRC will forward the remaining time of S&F mode to the upper layer upon reception and when updated.

Proposal 3: The remaining time of S&F mode is optionally broadcasted in SIB2(-NB).

Proposal 4: The remaining time of S&F mode is broadcasted in IE TimeOffsetUTC-r17.

Proposal 5: The time information when the cell will enter S&F mode can be broadcasted in system information.

* Release Cause

Proposal 6: New RRC release cause when the NW wants to release a R19 UE to RRC idle because the feeder link becomes unavailable is not needed.

* Satellite ID

Proposal 7: The RRC will notify the current satellite ID to upper layer when the UE camping on the cell.

Proposal 8: As an optional feature, during cell selection and cell reselection, UE can prioritize the cell that is included in satellite ID list.

Proposal 9: How UE do the prioritization is up to UE implementation.

Proposal 10: Network ensures that the satellite IDs provided in SIB31(-NB), SIB32(-NB), and SIB33(-NB) are globally unique within PLMN.

[R2-2500586](file:///C:\Data\3GPP\Extracts\R2-2500586_Store%20and%20Forward.doc) Support of S&F operation in IoT NTN Apple discussion Rel-19 IoT\_NTN\_Ph3-Core

Proposal 1: Re-purpose “S&F operation indication” as barring bit for Rel-19 S&F mode capable UE(s).

• Presence: S&F capable UE(s) are barred

• Absence: S&F capable UE(s) are not barred

Proposal 2: Timing info can in addition include the time duration the cell stays in S&F operation mode.

Proposal 3: Do not introduce a new release cause when the NW wants to release a R19 UE to RRC idle because the feeder link becomes unavailable.

Proposal 4: RAN2 to consider paging reception optimization if RRC idle UE can determine there is no MT data for it due to unavailability of feeder link.

[R2-2500929](file:///C:\Data\3GPP\Extracts\R2-2500929%20-%20Support%20for%20store%20and%20forward%20in%20IoT%20NTN.docx) Support of Store & Forward for IoT NTN TURKCELL discussion Rel-19 IoT\_NTN\_Ph3-Core

Proposal 1 Legacy t-service can be used as mode switching time. It indicates the remaining time of the current operating mode.

Proposal 2 UE can be informed via a new timer that the cell should stop serving.

Proposal 3 A new release cause is not needed when the feeder link is unavailable.

Proposal 4 The UE needs to be informed to save power when the network has no mobile terminating data.

Proposal 5 It is beneficial for the eNB to prioritise the UE’s access should it subsequently re-attempt to connect to the network, thereby preventing potential data loss and unnecessary power consumption.

[R2-2501273](file:///C:\Data\3GPP\Extracts\R2-2501273%20Discussion%20on%20Store%20and%20Forward%20operation.docx) Discussion on Store and Forward operation Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

Proposal 1: Send LS to CT1 regarding RAN2 decision on introducing timing information to delay NAS procedures.

Proposal 2: Timing information to delay NAS procedures can be signaled in SIB1 using TimeOffsetUTC-r17.

Proposal 3: RAN2 does not introduce an indication for when the S&F operation will start.

Proposal 4: Network implementation can take care of the case where the uplink buffer is full in S&F scenario.

Proposal 5: RAN2 does not introduced a new release cause when the network wants to release a Release 19 UE to RRC idle because the feeder link becomes unavailable, unless SA2/RAN3 indicates the need.

Proposal 6: If a satellite has not been indicated in the NAS-signalled S&F Monitoring List, the UE may be allowed to not camp on it.

Proposal 7: If no satellites that have been indicated in the NAS-signalled S&F Monitoring List are in the vicinity, the UE can decide not to perform any idle mode procedures, similar to discontinuous coverage.

Proposal 8: The S&F Monitoring list sent to a UE in NAS shall refer to a long-term ephemeris in SIB32, which can be used for UE behavior similar to discontinuous coverage.

[R2-2500071](file:///C:\Data\3GPP\Extracts\R2-2500071_S&F.doc) Discussion on Store and Forward operation Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500082](file:///C:\Data\3GPP\Extracts\R2-2500082%20Further%20Discussion%20on%20S&F%20Operation.docx) Further Discussion on S&F Operation vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500106](file:///C:\Data\3GPP\Extracts\R2-2500106_Panasonic_SnF_Enhancements.docx) S&F enhancements PANASONIC discussion

[R2-2500366](file:///C:\Data\3GPP\Extracts\R2-2500366%20Further%20consideration%20on%20S&F%20operation%20in%20IoT%20NTN.docx) Further consideration on S&F operation in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500418](file:///C:\Data\3GPP\Extracts\R2-2500418%20Discussion%20on%20time%20information%20for%20S&F.docx) Discussion on time information for S&F ASUSTeK discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500467](file:///C:\Data\3GPP\Extracts\R2-2500467%20Open%20issues%20on%20the%20S&F%20operation.docx) Open issues on the S&F operation Google discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500525](file:///C:\Data\3GPP\Extracts\R2-2500525%20Discussion%20on%20RAN2%20impacts%20for%20the%20support%20of%20S&F%20operation.docx) Discussion on RAN2 impacts for the support of S&F operation CATT discussion

[R2-2500533](file:///C:\Data\3GPP\Extracts\R2-2500533%20store%20and%20forward.docx) Switching of S&F mode Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500578](file:///C:\Data\3GPP\Extracts\R2-2500578_Time%20information%20of%20IoT%20NTN%20Store%20&%20Forward.doc) Time information of IoT NTN Store & Forward China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500618](file:///C:\Data\3GPP\Extracts\R2-2500618%20Further%20considerations%20on%20S&F%20operation.docx) Enhancements to support S&F operation Lenovo discussion Rel-19

[R2-2500658](file:///C:\Data\3GPP\Extracts\R2-2500658%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

[R2-2500686](file:///C:\Data\3GPP\Extracts\R2-2500686.docx) Radio Interface Aspect of S&F NEC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500704](file:///C:\Data\3GPP\Extracts\R2-2500704%20Further%20consideration%20on%20Store%20and%20Forward.docx) Further consideration on Store and Forward Huawei, HiSilicon discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500762](file:///C:\Data\3GPP\Extracts\R2-2500762%20Discussion%20on%20support%20of%20Store&Forward.docx) Discussion on support of Store&Forward Transsion Holdings discussion Rel-19

[R2-2500796](file:///C:\Data\3GPP\Extracts\R2-2500796-Store-Forward-RAN-Aspects.docx) RAN2 impacts for SF Operation Nokia , Nokia Shanghai Bells discussion

[R2-2500876](file:///C:\Data\3GPP\Extracts\R2-2500876%20(R19%20IoT-NTN%20AI%208.9.2)%20-%20Support%20of%20S+F.docx) Support of Store and Forward. Interdigital, Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500922](file:///C:\Data\3GPP\Extracts\R2-2500922.docx) Discussion on Paging and Mode Switching TOYOTA Info Technology Center discussion Rel-19 NR\_NTN\_Ph3

[R2-2500980](file:///C:\Data\3GPP\Extracts\R2-2500980.docx) Further considerations on S&F operations Continental Automotive discussion Rel-19

[R2-2501004](file:///C:\Data\3GPP\Extracts\R2-2501004_Discussion_on_Store_and_Forward.docx) Discussion on Store & Forward operation DENSO CORPORATION discussion IoT\_NTN\_Ph3-Core

[R2-2501012](file:///C:\Data\3GPP\Extracts\R2-2501012%20Discussion%20on%20IoT%20NTN%20Store%20and%20Forward.docx) Discussion on IoT NTN Store and Forward CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2501307](file:///C:\Data\3GPP\Extracts\R2-2501307%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).

[R2-2500367](file:///C:\Data\3GPP\Extracts\R2-2500367%20Further%20consideration%20on%20UL%20capacity%20enhancements%20in%20IoT%20NTN.docx) Further consideration on UL capacity enhancements in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2501319](file:///C:\Data\3GPP\Extracts\R2-2501319%20-%20UL%20capacity%20enhancements%20for%20IoT%20NTN.docx) UL capacity enhancements for IoT NTN Ericsson discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500981](file:///C:\Data\3GPP\Extracts\R2-2500981.docx) Discussion on EDT Enhancements for IOT NTN Skylo Technologies discussion Rel-19

[R2-2501265](file:///C:\Data\3GPP\Extracts\R2-2501265.docx) Implicit pointer for locating CB-Msg3 DSA replicas DLR, ESA, Toyota ITC, Inmarsat, Viasat, Thales, Aalyria Technologies, Echostar, Eutelsat Group Sateliot, Novamint discussion

[R2-2500072](file:///C:\Data\3GPP\Extracts\R2-2500072_UL%20capacity%20IoT%20NTN.doc) Discussion on uplink capacity enhancements for IoT NTN Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500083](file:///C:\Data\3GPP\Extracts\R2-2500083%20Discussion%20on%20CB-Msg3%20Mechanism.docx) Discussion on CB-Msg3 Mechanism vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500096](file:///C:\Data\3GPP\Extracts\R2-2500096.docx) Further discussion on CB-Msg3 Mechanism NTU discussion Rel-19

[R2-2500138](file:///C:\Data\3GPP\Extracts\R2-2500138.docx) Further considerations on Locating of Replicas for DSA NTPU discussion

[R2-2500162](file:///C:\Data\3GPP\Extracts\R2-2500162.doc) Remaining issues on CB-Msg3 transmission Spreadtrum, UNISOC discussion Rel-19

[R2-2500200](file:///C:\Data\3GPP\Extracts\R2-2500200%20%20Further%20consideration%20on%20UL%20capacity%20enhancement.docx) Further consideration on UL capacity enhancement Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500310](file:///C:\Data\3GPP\Extracts\R2-2500310-%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

[R2-2500528](file:///C:\Data\3GPP\Extracts\R2-2500528%20Further%20consideration%20on%20UL%20capacity%20enhancements.docx) Further consideration on UL capacity enhancements CATT discussion

[R2-2500534](file:///C:\Data\3GPP\Extracts\R2-2500534%20EDT%20enh.docx) CB-Msg3 and Msg4 enhancements Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500548](file:///C:\Data\3GPP\Extracts\R2-2500548%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

[R2-2500579](file:///C:\Data\3GPP\Extracts\R2-2500579_Consideration%20of%20CB%20Msg3-EDT%20in%20IoT%20NTN.doc) Consideration of CB Msg3-EDT in IoT NTN China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500585](file:///C:\Data\3GPP\Extracts\R2-2500585_Contention%20based%20MSG3.doc) Uplink capacity enhancement in IoT NTN Apple discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500619](file:///C:\Data\3GPP\Extracts\R2-2500619%20EDT%20for%20uplink%20capacity%20enhancement%20in%20NTN%20(Revision%20of%20R2-2410271).docx) EDT for uplink capacity enhancement in NTN Lenovo discussion Rel-19

[R2-2500659](file:///C:\Data\3GPP\Extracts\R2-2500659%20Discussion%20on%20UL%20capacity%20enhancement.docx) Discussion on UL capacity enhancement HONOR discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500664](file:///C:\Data\3GPP\Extracts\R2-2500664%20Discussion%20on%20UL%20Capacity%20Enhancement%20for%20IoT-NTN.docx) Discussion on UL Capacity Enhancement for IoT-NTN NEC Corporation discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500763](file:///C:\Data\3GPP\Extracts\R2-2500763%20Discussion%20on%20Uplink%20Capacity%20enhancement%20for%20IoT-NTN.docx) Discussion on uplink capacity enhancement Transsion Holdings discussion Rel-19

[R2-2500848](file:///C:\Data\3GPP\Extracts\R2-2500848-IoT-NTN%20uplink%20capacity%20enhancement.docx) IoT-NTN uplink capacity enhancement Nordic Semiconductor ASA discussion

[R2-2500877](file:///C:\Data\3GPP\Extracts\R2-2500877%20(R19%20IoT-NTN%20AI%208.9.3)%20-%20EDT%20enhancements.docx) EDT/PUR enhancements. Interdigital, Inc. discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2501034](file:///C:\Data\3GPP\Extracts\R2-2501034%20Considerations%20on%20uplink%20capacity%20enhancement%20for%20IoT-NTN.docx) Considerations on uplink capacity enhancement for IoT-NTN CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2501164](file:///C:\Data\3GPP\Extracts\R2-2501164%20Discussion%20on%20CB-Msg3.docx) Discussion on CB-Msg3 procedure MediaTek Inc. discussion IoT\_NTN\_Ph3-Core [R2-2410641](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410641.zip)

[R2-2501274](file:///C:\Data\3GPP\Extracts\R2-2501274%20Further%20issues%20on%20contention-based%20Msg3.docx) Further issues on contention-based Msg3 Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

### 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.

[R2-2500464](file:///C:\Data\3GPP\Extracts\R2-2500464%20Discussion%20on%20the%20support%20for%20PWS%20in%20NB-IoT.docx) Discussion on the support for PWS in NB-IoT Google discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2501322](file:///C:\Data\3GPP\Extracts\R2-2501322-%20Remaining%20issues%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN.docx) On PWS support for NB-IoT NTN Nokia, Nokia Shanghai Bell discussion Rel-19 IoT\_NTN\_Ph3-Core [R2-2500797](file:///C:\Data\3GPP\Extracts\R2-2500797-%20Remaining%20issues%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN.docx)

[R2-2501308](file:///C:\Data\3GPP\Extracts\R2-2501308%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

[R2-2500535](file:///C:\Data\3GPP\Extracts\R2-2500535%20PWS%20NB-IoT.docx) Discussion on PWS in NB-IoT NTN Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500073](file:///C:\Data\3GPP\Extracts\R2-2500073_PWS%20for%20NB-IoT.doc) PWS support for NB-IoT over NTN Xiaomi discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500084](file:///C:\Data\3GPP\Extracts\R2-2500084%20Further%20Discussion%20on%20PWS%20Support%20for%20NB-IoT.docx) Further Discussion on PWS Support for NB-IoT vivo discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500311](file:///C:\Data\3GPP\Extracts\R2-2500311%20-%20Discussion%20on%20PWS%20for%20NB-IoT.docx) Discussion on PWS for NB-IoT OPPO discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500342](file:///C:\Data\3GPP\Extracts\R2-2500342%20PWS%20for%20NB-IoT.docx) Remaining issues on PWS support for NB-IoT Huawei, HiSilicon, Turkcell discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500368](file:///C:\Data\3GPP\Extracts\R2-2500368%20Further%20consideration%20on%20PWS%20support%20in%20IoT%20NTN.docx) Further consideration on PWS support in IoT NTN ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500522](file:///C:\Data\3GPP\Extracts\R2-2500522%20Remaining%20issues%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN%20UE.docx) Remaining issues on support of PWS for NB-IoT NTN UE CATT discussion

[R2-2500580](file:///C:\Data\3GPP\Extracts\R2-2500580_Remaining%20issues%20for%20PWS%20in%20IoT%20NTN.doc) Remaining issues for PWS in IoT NTN China Telecom discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500620](file:///C:\Data\3GPP\Extracts\R2-2500620%20PWS%20broadcast%20support%20for%20NB-IoT%20in%20NTN%20(Revision%20of%20R2-2410272).docx) PWS broadcast support for NB-IoT in NTN Lenovo discussion Rel-19

[R2-2500641](file:///C:\Data\3GPP\Extracts\R2-2500641%20Considering%20on%20PWS%20Support%20in%20NB-IoT.docx) Considering on PWS Support in NB-IoT NEC Corporation discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2500797](file:///C:\Data\3GPP\Extracts\R2-2500797-%20Remaining%20issues%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN.docx) On PWS support for NB-IoT NTN Nokia , Nokia Shanghai Bells discussion

* Revised in [R2-2501322](file:///C:\Data\3GPP\Extracts\R2-2501322-%20Remaining%20issues%20on%20support%20of%20PWS%20for%20NB-IoT%20NTN.docx)

[R2-2500952](file:///C:\Data\3GPP\Extracts\R2-2500952.doc) Discussion on remaining issues for support of PWS message KT Corp. discussion

[R2-2501035](file:///C:\Data\3GPP\Extracts\R2-2501035%20Support%20of%20PWS%20messages%20for%20NB-IoT.docx) Support of PWS messages for NB-IoT CMCC discussion Rel-19 IoT\_NTN\_Ph3-Core

[R2-2501161](file:///C:\Data\3GPP\Extracts\R2-2501161%20Discussion%20on%20supporting%20PWS%20for%20NB-IoT.docx) Discussion on supporting PWS for NB-IoT MediaTek Inc. discussion IoT\_NTN\_Ph3-Core [R2-2410643](file:///C:\Data\3GPP\archive\RAN2\RAN2%23128\Tdocs\R2-2410643.zip)

[R2-2501275](file:///C:\Data\3GPP\Extracts\R2-2501275%20Impact%20of%20introducing%20PWS%20broadcasting%20for%20NB-IoT.docx) Impact of introducing PWS broadcasting for NB-IoT Samsung discussion Rel-19 IoT\_NTN\_Ph3-Core

## 8.17 IoT-NTN TDD mode

(IoT\_NTN\_TDD; leading WG: RAN1; REL-19; WID RP-243293)

Time budget: 0.5 TU

Tdoc Limitation: 1 tdoc

Workplan

[R2-250l175](file:///C:\Data\3GPP\Extracts\R2-2500175%20IOT_NTN_TDD%20WP.docx) Work plan for WID: introduction of IoT-NTN TDD mode Iridium Satellite LLC Work Plan Rel-19 IoT\_NTN\_TDD

[R2-2500390](file:///C:\Data\3GPP\Extracts\R2-2500390.docx) Discussion on IoT-NTN TDD mode Iridium Satellite LLC discussion Rel-19 IoT\_NTN\_TDD

[R2-2500773](file:///C:\Data\3GPP\Extracts\R2-2500773%20Consideration%20on%20IoT-NTN%20TDD%20mode.docx) Consideration on IoT-NTN TDD mode ZTE Corporation, Sanechips discussion Rel-19 IoT\_NTN\_TDD

[R2-2500587](file:///C:\Data\3GPP\Extracts\R2-2500587_TDD%20IoT%20NTN.doc) Discussion on supporting IoT NTN TDD mode Apple discussion Rel-19 IoT\_NTN\_TDD

[R2-2500936](file:///C:\Data\3GPP\Extracts\R2-2500936%20Discussion%20on%20IoT%20TDD_v1.docx) Discussion of adaptions to support IoT-NTN TDD THALES discussion Rel-19 IoT\_NTN\_TDD-Core

[R2-2500206](file:///C:\Data\3GPP\Extracts\R2-2500206%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

[R2-2500085](file:///C:\Data\3GPP\Extracts\R2-2500085%20Discussion%20on%20RAN2%20Imapcts%20of%20IoT-NTN%20TDD%20Mode.docx) Discussion on RAN2 Imapcts of IoT-NTN TDD Mode vivo discussion Rel-19 IoT\_NTN\_TDD-Core

[R2-2500312](file:///C:\Data\3GPP\Extracts\R2-2500312%20-%20Discussion%20on%20IoT%20NTN%20TDD%20mode.docx) Discussion on IoT NTN TDD mode OPPO discussion Rel-19 IoT\_NTN\_TDD

[R2-2500527](file:///C:\Data\3GPP\Extracts\R2-2500527%20Discussion%20on%20support%20of%20IoT%20NTN%20TDD.docx) Discussion on support of IoT NTN TDD CATT discussion

[R2-2500536](file:///C:\Data\3GPP\Extracts\R2-2500536%20NB-IoT%20TDD.docx) Discussion on new NB-IoT NTN TDD mode Qualcomm Incorporated discussion Rel-19 IoT\_NTN\_TDD

[R2-2500549](file:///C:\Data\3GPP\Extracts\R2-2500549%20Discussion%20on%20support%20of%20TDD%20mode%20for%20IoT-NTN.docx) Discussion on support of TDD mode for IoT-NTN Nokia, Nokia Shanghai Bell discussion Rel-19 IoT\_NTN\_TDD

[R2-2500621](file:///C:\Data\3GPP\Extracts\R2-2500621%20Discussion%20on%20TDD%20support%20in%20IoT%20NTN.docx) Discussion on TDD support in IoT NTN Lenovo discussion Rel-19

[R2-2500923](file:///C:\Data\3GPP\Extracts\R2-2500923.docx) Signaling aspects of IoT-NTN TDD mode TOYOTA Info Technology Center discussion Rel-19 IoT\_NTN\_TDD-Core

[R2-2501036](file:///C:\Data\3GPP\Extracts\R2-2501036%20Support%20of%20IoT-NTN%20TDD%20mode.docx) Support of IoT-NTN TDD mode CMCC discussion Rel-19 IoT\_NTN\_TDD

[R2-2501277](file:///C:\Data\3GPP\Extracts\R2-2501277%20On%20RAN2%20aspects%20of%20IoT%20NTN%20TDD.docx) Initial aspects on IoT NTN TDD Samsung discussion Rel-19 IoT\_NTN\_TDD

## 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#129.

[R2-2500086](file:///C:\Data\3GPP\Extracts\R2-2500086%20On%20LTE%20TN%20to%20NB-IoT%20NTN%20Mobility%20Handling.docx) On LTE TN to NB-IoT NTN Mobility Handling vivo discussion Rel-19 TEI19

[R2-2501276](file:///C:\Data\3GPP\Extracts\R2-2501276%20Re-direction%20to%20an%20NTN%20frequency.docx) Re-direction to an NTN frequency Samsung discussion Rel-19 TEI19

## 8.19 NR Others

Tdoc limit: 1

Contributions addressing LS from RAN4 R4-2420410 and any RAN4 LSs not related to any of the AIs above.

[R2-2500034](file:///C:\Data\3GPP\Extracts\R2-2500034_R4-2419902.docx) LS on Ku band numerology (R4-2419902; contact: Rumney Telecom) RAN4 LS in Rel-19 NR\_NTN\_Ku\_bands-Core To:RAN1, RAN2 Cc:RAN

[R2-2500979](file:///C:\Data\3GPP\Extracts\R2-2500979%20Reply%20LS%20to%20RAN4%20on%20Ku%20band%20numerology.docx) Reply LS on Ku band numerology Eutelsat Group LS out Rel-19 NR\_NTN\_Ku\_bands-Core

[R2-2500087](file:///C:\Data\3GPP\Extracts\R2-2500087%20Discussion%20on%20RAN4%20LS%20on%20Ku%20Band%20Numerology.docx) Discussion on RAN4 LS on Ku Band Numerology vivo discussion Rel-19 NR\_NTN\_Ku\_bands-Core

[R2-2500694](file:///C:\Data\3GPP\Extracts\R2-2500694%20Discussion%20on%20Ku%20band%20numerology.docx) Discussion on Ku band numerology Huawei, HiSilicon discussion Rel-19 NR\_NTN\_Ku\_bands-Core

[R2-2500937](file:///C:\Data\3GPP\Extracts\R2-2500937%20Draft%20reply%20on%20Ku%20band%20numerology.docx) Draft Reply LS on Ku band numerology THALES LS out Rel-19 NR\_NTN\_Ku\_bands-Core To:RAN4 Cc:RAN1, RAN

To:RAN4 Cc:RAN, RAN1

# 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

[Post129] Email discussions

Short

Long