3GPP TSG-RAN WG2 Meeting #114 electronic R2-2106472

Online, May 19th - 27th, 2021

**Agenda item: 10.2**

**Source: Vice Chairman (ZTE Corporation)**

**Title: Report from Break-out session on R17 NTN and REDCAP**

**Document for: Approval**

General

Recording of voice or video at meetings is not used in 3GPP. This applies also to this e-Meeting. At this e-Meeting, no specific actions are taken to prevent the recording of web conferences. Companies that have concerns related to recordings, if any, may express those by email in the main meeting organizational thread [AT114-e][000]

Organizational

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

* [AT114-e][100] ****Organizational - NTN & REDCAP session (RAN2 VC)****

Scope:

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

Schedule/Plan

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Wednesday May 19** | | | |
| 12:15-13:05 | NR17 eMIMO (Johan) | NR16 Pos (Nathan) | **NR17 NTN (Sergio)**  **[8.10.1]**  **[8.10.2.1]**  **[8.10.2.2]**  **- [Pre114-e][103] Summary**  **[8.10.2.3]** |
| 13:05-14:25 | NR15 NR16 NR17 Main session early items (Johan) | NR17 SL Relay (Nathan) | **NR17 NTN (Sergio)**  **[8.10.3.1]**  **[8.10.3.2]**  **- [Post113bis-e][101] Summary**  **[8.10.3.3]**  **- [Pre114-e][104] Summary**  **[8.10.3.4]** |
| 14:25-15:45 | NR17 Multicast (Johan) | NR16 DCCA (Tero)  NRLTE16 MOB (Tero)  LTE16e (Tero) | LTE17 IoT (Brian) |
| **Thursday May 20** | | | |
| 12:15-13:05 | NR17 IoT NTN SI (Johan) | 12:15 – 13:25 NR17 eURLLC (Diana)  13:25-14:25 NR17 Small Data Enh (Diana) | NR17 RAN Slicing (Tero) |
| 13:05-14:25 | NR17 eIAB | NR17 Multi-SIM (Tero), *end early*  NR17 SL enh (Kyeongin) |
| 14:25-15:45 | R17 Other (Johan) | **NR17 RedCap (Sergio)**  **[8.12.1]**  **[8.12.2.1]**  **- [Pre114-e][105] Summary**  **[8.12.2.2]**  **- [Pre114-e][106] Summary**  **[8.12.3.1]**  **[8.12.3.2]**  **- [Post113bis-e][102] Summary** | NR17 SL enh (Kyeongin) |
| **Friday May 21** | | | |
| 04:00-05:00 | NR17 Multicast (Johan) | NR17 SONMDT (HuNan) | NR17 Pos (Nathan) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday May 24** | | | |
| 12:15-13:05 | NR17 QoE (Johan) | NR17 DCCA (Tero) | NR16 V2X (Kyeongin) |
| 13:05-14:25 | R17 Other Cont.(Johan) if needed | LTE17 (Tero)  NR16 DCCA (Tero)  NRLTE16 MOB (Tero) | NR16 V2X (Kyeongin) |
| 14:25-15:45 | R15 R16 (Johan) | **CB Sergio** | NR17 Pos (Nathan) |
| **Tuesday May 25** | | | |
| 12:15-13:05 | CB Johan (IoT NTN if needed) | NR16 SONMDT (HuNan) | CB Kyeongin |
| 13:05-14:25 | NR17 eNPN (Johan)  CB Johan | NR17 Pos (Nathan)  CB Nathan | LTE16e IoT (Brian, Emre) |
| 14:25-15:45 | CB Johan | CB Diana | CB Brian Emre |
| **Wednesday May 26** | | | |
| 04:00-05:00 | CB TBD | **CB Sergio** | CB Kyeongin |
| **Thursday May 27** | | | |
| 04:00-05:00 | CB Johan | CB Tero | CB Nathan |

List and status of offline email discussions

NOTE: No offline email discussions will be kicked off before Wednesday May 19th, 07:00 UTC

* [AT114-e][105][RedCap] Definition of RedCap UE and reduced capabilities (Intel)

Initial scope: Discuss the proposals from [R2-2106462](file:///C:\Data\3GPP\Extracts\R2-2106462_Summary%20AI%208.12.2.1%20v01.docx)

Initial intended outcome: Summary of the offline discussion with e.g.:

* + - List of proposals for agreement (if any)
    - List of proposals that require online discussions
    - List of proposals that should not be pursued (if any)

Initial deadline (for companies' feedback): Thursday 2021-05-20 07:00 UTC

Initial deadline (for rapporteur's summary in R2-2106521): Thursday 2021-05-20 09:00 UTC

Status: Ongoing

* [AT114-e][106][RedCap] Identification and access restrictions (Huawei)

Initial scope: Discuss the proposals from [R2-2106487](file:///C:\Data\3GPP\Extracts\R2-2106487%20Summary%208.12.2.2%20-%20Identification%20and%20access%20restrictions%20(Huawei)_v3.doc)

Initial intended outcome: Summary of the offline discussion with e.g.:

* + - List of proposals for agreement (if any)
    - List of proposals that require online discussions
    - List of proposals that should not be pursued (if any)

Initial deadline (for companies' feedback): Thursday 2021-05-20 07:00 UTC

Initial deadline (for rapporteur's summary in R2-2106522): Thursday 2021-05-20 09:00 UTC

Status: Ongoing

## 8.10 NR Non-Terrestrial Networks (NTN)

(NR\_NTN\_solutions-Core; leading WG: RAN2; REL-17; WID: [RP-210908](file:///C:\Data\3GPP\archive\RAN\RAN%2391\Tdocs\RP-210908.zip))

Time budget: 1.5 TU

Tdoc Limitation: 5 tdocs

Email max expectation: 5 threads

### 8.10.1 Organizational

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

incoming LSs

[R2-2104703](file:///C:\Data\3GPP\Extracts\R2-2104703_C1-212539.doc) LS to ITU-T on extraterritorial use of MCC+MNC for satellite networks (C1-212539; contact: Qualcomm) CT1 LS in Rel-17 5GSAT\_ARCH-CT To:ITU-T SG 2 Cc:CT, SA, SA1, SA2, RAN2, SA3LI

* Noted (no action for RAN2)

Workplan

[R2-2104963](file:///C:\Data\3GPP\Extracts\R2-2104963-Rel17%20NR-NTN%20workplan%20updated%20v28.docx) NR-NTN-solutions work plan THALES Work Plan Rel-17 NR\_NTN\_solutions

running CRs

[R2-2104962](file:///C:\Data\3GPP\Extracts\R2-2104962_Stg%202%20Running%20CR_38.300_NR-NTN_v15.docx) NTN Stage2 running CR 38.300 THALES draftCR Rel-17 38.300 16.5.0 NR\_NTN\_solutions [R2-2102049](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113\Tdocs\R2-2102049.zip)

[R2-2104806](file:///C:\Data\3GPP\Extracts\R2-2104806_Stage-3%20running%20304%20CR%20for%20NTN.docx) Stage-3 running 304 CR for NTN ZTE corporation, Sanechips draftCR Rel-17 38.304 16.4.0 NR\_NTN\_solutions-Core

[R2-2105953](file:///C:\Data\3GPP\Extracts\38331_runningCR_R2-2105953_Stage3%20NTN.docx) Stage-3 running RRC CR for NTN Rel-17 Ericsson draftCR Rel-16 38.331 16.4.1 NR\_NTN\_solutions-Core

[R2-2106049](file:///C:\Data\3GPP\Extracts\R2-2106049%20(R17%20NTN%20WI%20AI%208.10.1)%20NTN%2038.321%20running%20CR.docx) Stage 3 NTN running CR for 38.321 - RAN2#114 InterDigital discussion Rel-17 NR\_NTN\_solutions-Core Late

### 8.10.2 User Plane

[R2-2106048](file:///C:\Data\3GPP\Extracts\R2-2106048%20(R17%20NTN%20WI%20AI%208.10.2)%20MAC%20Open%20Issues.docx) MAC open issues in NTN - RAN2#114 InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

#### 8.10.2.1 RACH aspects

This agenda item will be deprioritized during this meeting. The only discussion will be on resolving the first FFS (and in case the last) in: "[Post113bis-e][000]: It is FFS whether the UE reports the UE specific TA pre-compensation at the RACH procedure (MSG3 or MSG5) using a MAC CE. Actual content is FFS and also depends on further RAN1 input. Configurability is FFS"

[R2-2106362](file:///C:\Data\3GPP\Extracts\R2-2106362%20%20Discussion%20on%20TA%20Report%20-%20V3.doc) Discussion On TA report Xiaomi, Saumsung, Qualcomm Incorporated, Asia Pacific Telecom, Huawei, HiSilicon, OPPO, Lenovo, Motorola Mobility discussion Rel-17

Proposal 1 The UE reports the UE specific TA pre-compensation during RACH procedure in MsgA and, Msg3/ Msg5 using MAC CE

[R2-2106090](file:///C:\Data\3GPP\Extracts\R2-2106090%20-%20Reporting%20information%20about%20UE%20specific%20TA%20pre-compensation.docx) Reporting information about UE specific TA pre-compensation Ericsson. Apple discussion Rel-17 NR\_NTN\_solutions-Core

Observation 1 Koffset affects both UL and DL scheduling.

Observation 2 For UL where a UE is not experiencing the maximum propagation RTT, the UE reporting the TA/position enables the gNB to adapt Koffset+k2 to match the TA and decrease the delay for all dynamic UL grants and the UL HARQ RTT.

Observation 3 For DL where a UE is not experiencing the maximum propagation RTT, the UE reporting the TA/position enables the gNB to adapt Koffset+k1 to match the TA and decrease the DL HARQ RTT when DL HARQ feedback is enabled.

Observation 4 A UE may experience different UL delay and UL/DL HARQ RTT as the satellite moves.

Observation 5 Only UEs not experiencing the maximum propagation RTT have a potential gain from adapting Koffset.

Observation 6 To minimize the UL scheduling delay and the UL/DL HARQ RTT in a GEO cell with 1 ms slots, up to 21 different Koffset values are needed and up to 7 different Koffset values in a LEO cell. For Higher SCSs the number of Koffset values needed will be even larger.

Observation 7 Not all UEs in a cell and not all cells of a satellite will have a gain by adapting Koffset compared to all UEs in a cell using the same Koffset.

Observation 8 The UE reported TA can be used to accurately estimate the UE position.

Observation 9 Reporting TA and TA drift will give faster estimation of UE position.

Observation 10 Reporting TA or UE position in a MAC CE will enable any entity to estimate the UE position.

Proposal 1 If the UE shall report during random access, then the UE reporting of information about UE specific TA pre-compensation uses MAC CE signalling.

Proposal 2 If the UE shall report after random access, then the UE reporting of information about UE specific TA pre-compensation uses RRC signalling after security has been activated.

Observation 11 With the UE position and the satellite ephemeris, the gNB can predict TA variations with less signalling than the UE reporting TA or TA+TA drift.

Observation 12 If MAC CE is used for Koffset signalling there will be a delay, of about one HARQ RTT plus 3 slots, before a new Koffset takes effect.

Observation 13 If RRC is used for Koffset signalling there will be a delay, longer than if MAC CE is used, before a new Koffset takes effect.

Observation 14 In connected mode, for cases where the UE has very little data to transmit or receive, the UE may finish the transmission/reception before an updated Koffset takes effect.

Observation 15 For both Msg3 and Msg5, coverage is an issue. Adding to the TB size may require increased frequency resources, and for Msg5 to increased delay as the gNB may need to segment the transmission.

Proposal 3 The UE shall not report information about UE specific TA pre-compensation during random access.

Observation 16 With earth moving cells, each cell can broadcast a Koffset that will not need to be changed.

Observation 17 With earth fixed cells, the maximum propagation RTT in the cell and the differential delay within the cell will change when the satellite moves.

Observation 18 With earth fixed cells, updating the broadcasted Koffset is difficult as gNB may not know when each UE reads the system information, or it causes increased signalling and UE power consumption.

Observation 19 With earth fixed cells, the Koffset broadcasted in a cell can match the maximum propagation RTT that will be experienced by any UE in the cell during the total time that the satellite coverage the cell.

Observation 20 The network impact from handling UE specific Koffset will lead to spectral efficiency loss and lower QoS fulfilment.

Proposal 4 The UE shall not report information about UE specific TA pre-compensation to the gNB.

Proposal 5 If Proposal 4 is not agreed, then the UE reporting of information about UE specific TA pre-compensation shall be under network control.

Proposal 6 If Proposal 4 nor Proposal 3 is agreed, then reporting TA during random access shall be under network control.

[R2-2104812](file:///C:\Data\3GPP\Extracts\R2-2104812%20-%20Discussion%20on%20RACH%20in%20NTN.doc) Discussion on RACH in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2104966](file:///C:\Data\3GPP\Extracts\._R2-2104966%20Discussion%20on%20UE-specific%20TA%20report_final.docx) Discussion on UE-specific TA report Asia Pacific Telecom, FGI discussion

[R2-2105118](file:///C:\Data\3GPP\Extracts\._R2-2105118%20On%20reporting%20UE%20specific%20TA%20pre-compensation%20during%20RACH%20in%20NTN.docx) On reporting UE specific TA pre-compensation during RACH in NTN Apple discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105199](file:///C:\Data\3GPP\Extracts\R2-2105199%20Discussion%20of%20RACH%20in%20NTN.doc) Discussion of RACH in NTN China Telecommunication discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105381](file:///C:\Data\3GPP\Extracts\R2-2105381%20Discussion%20on%20LCH-based%20RA%20type%20selection.docx) Discussion on LCH-based RA type selection ASUSTeK discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105382](file:///C:\Data\3GPP\Extracts\R2-2105382%20BSR%20over%202-step%20RA.doc) BSR over 2-step RA ASUSTeK discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105412](file:///C:\Data\3GPP\Extracts\R2-2105412%20On%20RACH%20Aspects%20for%20NTN.docx) On RACH aspects for NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105817](file:///C:\Data\3GPP\Extracts\R2-2105817%20Considerations%20on%20new%20criteria%20for%20RA%20type%20selection%20(Revision%20of%20R2-2103407).docx) Considerations on new criteria for RA type selection Lenovo, Motorola Mobility discussion Rel-17

[R2-2106015](file:///C:\Data\3GPP\Extracts\R2-2106015_NTN%20Remaining%20RACH%20issues.docx) NTN Remaining RACH issues NEC Telecom MODUS Ltd. discussion

[R2-2106197](file:///C:\Data\3GPP\Extracts\R2-2106197_Discussion%20on%20RACH%20and%20TA%20report%20aspects.docx) Discussion on RACH and TA report aspects LG Electronics Inc. discussion NR\_NTN\_solutions-Core

[R2-2106385](file:///C:\Data\3GPP\Extracts\R2-2106385%20NTN%20MAC%20enhancements.docx) NTN MAC enhancements Convida Wireless discussion

#### 8.10.2.2 Other MAC aspects

The discussion will focus on possible different behaviours per UL HARQ process, including possible LCP restrictions.

[R2-2106488](file:///C:\Data\3GPP\RAN2\Inbox\R2-2106488.zip) [Pre114-e][103][NTN] Summary 8.10.2.2 - Other MAC aspects InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1: The following configurations are supported for drx-HARQ-RTT-TimerUL in NTN per HARQ process: 1) Timer length is extended by offset; 2) Timer set to zero; and 3) Timer disabled (i.e. not started).

Proposal 2: RAN2 working assumption: offset for drx-HARQ-RTT-TimerUL is equal to UE-gNB RTT (if RAN1 decides something that requires to change this we can revisit it as in DL).

Proposal 3: RAN2 to discuss whether value of drx-HARQ-RTT-TimerUL is connected to UL HARQ retransmission scheme (e.g. as in DL for HARQ feedback enabled/disabled).

Proposal 4: Which drx-HARQ-RTT-TimerUL value is applied for each HARQ process is up to network implementation (e.g. to support NW scheduling strategy to avoid HARQ stalling).

Proposal 5: RAN2 to discuss whether indication of HARQ retransmission scheme is: 1) via semi-static RRC configuration; 2) determined implicitly, e.g. via current HARQ RTT Timer behaviour; 3) via DCI; or 4) not needed.

Proposal 6: If RAN2 agrees to indication of HARQ retransmission scheme, granularity of indication is per HARQ process

Proposal 7: No new CG-specific LCP restriction is introduced for NTN.

Proposal 8: Discuss the following options for LCP in NTN:

1. allowedPHY-PriorityIndex is re-used;

2. allowedPHY-PriorityIndex is re-used and extended;

3. A new LCP restriction is introduced to map LCH to one or more HARQ process(es). HARQ processes can be classified as having retransmission “enabled” or “disabled”;

4. A new LCP restriction is introduced to map LCH to one or more HARQ process(es). HARQ processes can be classified as having retransmission “enabled based on PUSCH decoding result”, “enabled based on blind retransmission” or “disabled”.

5. A new LCP restriction is introduced to map LCH to one or more HARQ process(es) . And NW can still configure UE with one or more transmission schemes for each HARQ process based on it's implementation.

Proposal 9: RAN2 to discuss if new LCP restriction also applies to MAC CEs.

[R2-2106089](file:///C:\Data\3GPP\Extracts\R2-2106089%20-%20On%20DRX%20LCP%20timing%20HARQ%20SR%20BSR%20and%20CG%20and%20SPS.docx) On DRX, LCP, timing, HARQ, SR/BSR, and CG and SPS Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

drx-RetransmissionTimerDL

Proposal 4 For HARQ processes with disabled HARQ feedback, there is no need to change the start of drx-RetransmissionTimerDL.

Proposal 5 There is no need to extend the drx-RetransmissionTimerDL.

Alternative proposals from [R2-2104851](file:///C:\Data\3GPP\Extracts\R2-2104851%20Discussion%20on%20HARQ%20Aspects%20and%20UL%20Scheduling%20Enhancement%20in%20NTN.docx):

Proposal 6: The modified trigger condition of drx-RetransmissionTimerDL can be a MAC PDU is received in a configured downlink assignment or the PDCCH indicates a DL transmission when a DRX group is in Active Time.

Proposal 7: The start of the drx-RetransmissionTimerUL(DL) can be offset by UE-specific RTD (UE-gNB delay) in LEO/GEO adding the value of drx-HARQ-RTT-TimerUL(DL) only when HARQ feedback is disabled and the blind retransmission is configured.

Additional proposal from [R2-2105490](file:///C:\Data\3GPP\Extracts\R2-2105490%20DRX%20impact%20of%20disabling%20HARQ%20feedback.docx):

Proposal 1: To minimize specification impact, UE would rely on drx-InactivityTimer to support blind retransmission when DL HARQ feedback is disabled and not start drx-RetrasnmissionTimerDL.

sr-ProhibitTimer

Proposal 20 The values added to sr-ProhibitTimer in NTN shall include values lower than the round-trip time.

Alternative proposals from [R2-2104851](file:///C:\Data\3GPP\Extracts\R2-2104851%20Discussion%20on%20HARQ%20Aspects%20and%20UL%20Scheduling%20Enhancement%20in%20NTN.docx):

Proposal 1: Extend SR-prohibitTimer by UE derived RTD.

[R2-2104851](file:///C:\Data\3GPP\Extracts\R2-2104851%20Discussion%20on%20HARQ%20Aspects%20and%20UL%20Scheduling%20Enhancement%20in%20NTN.docx) Discussion on HARQ Aspects and UL Scheduling Enhancement in NTN CATT discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed jointly with [R2-2106089](file:///C:\Data\3GPP\Extracts\R2-2106089%20-%20On%20DRX%20LCP%20timing%20HARQ%20SR%20BSR%20and%20CG%20and%20SPS.docx)

[R2-2105490](file:///C:\Data\3GPP\Extracts\R2-2105490%20DRX%20impact%20of%20disabling%20HARQ%20feedback.docx) DRX impact of disabling HARQ feedback PANASONIC R&D Center Germany discussion [R2-2103446](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103446.zip)

* Discussed jointly with [R2-2106089](file:///C:\Data\3GPP\Extracts\R2-2106089%20-%20On%20DRX%20LCP%20timing%20HARQ%20SR%20BSR%20and%20CG%20and%20SPS.docx)

[R2-2105529](file:///C:\Data\3GPP\Extracts\R2-2105529%20Discussion%20on%20extending%20of%20SR-prohibitTimer.doc) Discussion on extending of SR-prohibitTimer Spreadtrum Communications discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed jointly with [R2-2106089](file:///C:\Data\3GPP\Extracts\R2-2106089%20-%20On%20DRX%20LCP%20timing%20HARQ%20SR%20BSR%20and%20CG%20and%20SPS.docx)

[R2-2105249](file:///C:\Data\3GPP\Extracts\R2-2105249%20Round%20trip%20delay%20offset%20for%20configured%20grant%20timer.docx) Round trip delay offset for configured grant timers MediaTek Inc. discussion [R2-2102823](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102823.zip)

Proposal: UE specific pre-compensation offset for round trip delay (RTD) is applied to CGT and CGRT (if configured), i.e. the configured CGT/CGRT value is extended by UE-specific RTD.

[R2-2104813](file:///C:\Data\3GPP\Extracts\R2-2104813%20-%20Discussion%20on%20UL%20HARQ%20operation%20in%20NTN.doc) Discussion on UL HARQ operation in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2104850](file:///C:\Data\3GPP\Extracts\R2-2104850-about%20HARQ%20for%20NTN.docx) About HARQ for NTN THALES discussion Rel-17

[R2-2104967](file:///C:\Data\3GPP\Extracts\._R2-2104967%20HARQ%20retransmission%20schemes%20in%20NTN_final.docx) HARQ retransmission schemes in NTN Asia Pacific Telecom, FGI discussion

[R2-2105119](file:///C:\Data\3GPP\Extracts\._R2-2105119%20Other%20MAC%20Aspects%20of%20NR%20NTN.docx) Other MAC aspects for NR NTN Apple discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105250](file:///C:\Data\3GPP\Extracts\R2-2105250%20On%20Disabling%20uplink%20HARQ%20retransmission%20and%20Associated%20LCP%20Impacts_v1.docx) On disabling uplink HARQ retransmission and associated LCP impacts MediaTek Inc. discussion [R2-2102824](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102824.zip)

[R2-2105413](file:///C:\Data\3GPP\Extracts\R2-2105413%20On%20LCP%20and%20DRX%20impact%20for%20NTN.docx) On LCP and DRX impact for NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105414](file:///C:\Data\3GPP\Extracts\R2-2105414%20Discussion%20on%20UL%20scheduling%20enhancements%20for%20NTN.docx) Discussion on UL scheduling enhancements for NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core [R2-2103232](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103232.zip)

[R2-2105431](file:///C:\Data\3GPP\Extracts\R2-2105431%20LCP%20in%20UL%20HARQ.doc) LCP restriction for an UL HARQ process Qualcomm Incorporated, Xiaomi, Huawei, HiSilicon, Samsung discussion Rel-17 NR\_NTN\_solutions-Core

R2-2105488 DRX impact of disabling HARQ feedback PANASONIC R&D Center Germany discussion [R2-2103446](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103446.zip) Withdrawn

R2-2105489 DRX impact of disabling HARQ feedback PANASONIC R&D Center Germany discussion [R2-2103446](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103446.zip) Withdrawn

[R2-2105498](file:///C:\Data\3GPP\Extracts\R2-2105498%20Discussion%20on%20Co-existence%20issue%20of%20BSR%20over%20CG%20and%20BSR%20over%202-step%20RACH.docx) Co-existence issue of BSR over CG and BSR over 2-step RACH PANASONIC R&D Center Germany discussion [R2-2103445](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103445.zip)

[R2-2105528](file:///C:\Data\3GPP\Extracts\R2-2105528%20LCP%20enhancement%20for%20NTN.doc) LCP enhancement for NTN Spreadtrum Communications discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105612](file:///C:\Data\3GPP\Extracts\R2-2105612%20Discussion%20on%20remaining%20MAC%20issues%20in%20NTN.DOC) Discussion on remaining MAC issues in NTN Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105698](file:///C:\Data\3GPP\Extracts\R2-2105698.doc) Other MAC enhancements in NTN Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105836](file:///C:\Data\3GPP\Extracts\R2-2105836%20Consideration%20on%20LCP%20in%20NTN.doc) Considerations on LCP in NTN ZTE Corporation, Sanechips discussion Rel-17

[R2-2106047](file:///C:\Data\3GPP\Extracts\R2-2106047%20(R17%20NTN%20WI%20AI%208.10.2.2)%20UL%20HARQ%20RTT%20Timer.docx) UL HARQ RTT timer in NTN InterDigital, MediaTek, Samsung discussion Rel-17 NR\_NTN\_solutions-Core

* Revised in [R2-2106444](file:///C:\Data\3GPP\Extracts\R2-2106444%20(R17%20NTN%20WI%20AI%208.10.2.2)%20UL%20HARQ%20RTT%20Timer.docx)

[R2-2106444](file:///C:\Data\3GPP\Extracts\R2-2106444%20(R17%20NTN%20WI%20AI%208.10.2.2)%20UL%20HARQ%20RTT%20Timer.docx) UL HARQ RTT timer in NTN InterDigital, MediaTek, Samsung, ZTE discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106068](file:///C:\Data\3GPP\Extracts\R2-2106068_For8.10.2.2_HARQStalling_RNTI_ULScheduling_LCP_UL_HARQ_Behaviors_Samsung.doc) Remaining Issues on HARQ Stalling, RNTI Capacity, UL Scheduling, LCP, and UL HARQ Behaviors for an NTN Samsung Research America discussion

[R2-2106201](file:///C:\Data\3GPP\Extracts\R2-2106201_Discussion%20on%20other%20MAC%20aspects_r1.DOCX) Discussion on other MAC aspects LG Electronics Inc. discussion NR\_NTN\_solutions-Core

[R2-2106245](file:///C:\Data\3GPP\Extracts\R2-2106245%20Left%20Issues%20for%20HARQ%20operation%20in%20NTN.docx) Left Issues for HARQ operation in NTN CMCC discussion Rel-17 NR\_NTN\_solutions-Core

#### 8.10.2.3 RLC and PDCP aspects

Including discussion on the SA2 LS on PDB for new 5QI.

Incoming LS (moved here from 8.10.1)

[R2-2104731](file:///C:\Data\3GPP\Extracts\R2-2104731_S2-2103552.doc) LS on PDB for new 5QI (S2-2103552; contact: Ericsson) SA2 LS in Rel-17 5GSAT\_ARCH To:RAN1, RAN2 Cc:RAN3

* Noted (already seen at RAN2#113bis-e)

Draft reply LSs

[R2-2106091](file:///C:\Data\3GPP\Extracts\R2-2106091%20-%20DRAFT%20Reply%20LS%20on%20PDB%20for%20new%205QI.docx) DRAFT Reply LS on PDB for new 5QI Ericsson LS out Rel-17 5GSAT\_ARCH, NR\_NTN\_solutions-Core To:SA2 Cc:RAN1, RAN3

Draft reply LS text:

"RAN2 would like to thank SA2 for sending their LS on PDB for new 5QI.

According to TR 38.821, the max round trip delay (propagation delay only) for GEO satellite access with transparent payload is 541.46 ms. Thus, the AN PDB of 812 ms is about 1.5 RTT of the maximum round trip delay. 1.5 RTT can only cover one transmission with HARQ acknowledgement, it will not be possible with RLC retransmissions.

Further the PER of 10-6 while meeting a PDB of about 1.5 RTT will be challenging and may require excess resources and thus lead to low spectral efficiency."

[R2-2104814](file:///C:\Data\3GPP\Extracts\R2-2104814%20PDB%20for%20new%205QI.doc) Discussion on PDB for new 5QI OPPO discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1 Send reply LS to SA2 and ask SA2 to consider the following two options for the new 5QI:

Option 1: Increasing the AN-PDB to accommodate more re-transmissions while keeping the PER target of 10-6 unchanged;

Option 2: Loosening the PER target while keeping the AN-PDB of 812ms unchanged.

[R2-2106016](file:///C:\Data\3GPP\Extracts\R2-2106016_RLC%20and%20PDCP%20timers%20extension.docx) RLC and PDCP timers extension NEC Telecom MODUS Ltd. discussion

Regarding RLC t-Reassembly timer

Proposal 1: Introduce a new t-ReassemblyExt-r17 IE, which is optional present for NTN network scenario.

Observation 1: For GEO case, HARQ retransmission based on HARQ feedback is likely disabled and hence 1 or 2 retransmissions can be assumed just to determine the maximum timer value.

Observation 2: it is better to support smaller granularity for gNB implementation to consider various processing delay and various RTD due to e.g., UE position.

Observation 3: To sum up the value of legacy t-Reassembly and new t-ReassemblyExt-r17 if present can increase the granularity and reduce the number of added values.

Proposal 2: The new IE t-ReassemblyExt-r17 could include these values {ms210, ms420, ms630, ms840, ms1050, ms1260, ms1470, spare}, and if it presents, UE applies the sum of legacy t-Reassembly and new t-ReassemblyExt-r17 if present.

Regarding PDCP discardTimer:

Proposal 3: Introduce a new discardTimerExt-r17 IE with a new value ms2000 and several spare bits for future extension.

Regarding PDCP t-Reordering timer:

Observation 4: we do not see strong need to extend the PDCP t-Reordering timer. If necessary, one or more spare bits of existing t-Reordering IE can be used to add several possible values up to 4400ms

Proposal 4: RAN2 consider not to extend PDCP t-Reordering timer or use several spare bits in legacy IE to add several greater values up to 4400ms.

[R2-2105837](file:///C:\Data\3GPP\Extracts\R2-2105837%20Considerations%20on%20RLC%20and%20PDCP%20aspects.doc) Considerations on RLC/PDCP aspects ZTE Corporation, Sanechips discussion Rel-17

[R2-2106055](file:///C:\Data\3GPP\Extracts\R2-2106055_On%20RLC%20t-Reassembly%20for%20NTN.docx) On RLC t-Reassembly for NTN Sequans Communications discussion Rel-17 NR\_NTN\_solutions-Core [R2-2103964](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103964.zip)

[R2-2106088](file:///C:\Data\3GPP\Extracts\R2-2106088%20-%20On%20RLC%20and%20PDCP%20for%20NTNs.docx) On RLC and PDCP for NTNs Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

### 8.10.3 Control Plane

#### 8.10.3.1 Earth fixed/moving beams related issues

Including TAC update aspects

[R2-2105432](file:///C:\Data\3GPP\Extracts\R2-2105432%20TAC%20update.doc) Hard and soft TAC update timing Qualcomm Incorporated discussion Rel-17 NR\_NTN\_solutions-Core

Observation 1. SI update procedure to notify UE of the change in TAC is very inefficient. The SI change notification should not be triggered just for the purpose of updating TAC.

Observation 2. In SIB, time for the next TAC update can be broadcast. Based on time information, UE will read SIB and get updated on TAC.

Observation 3. In soft TAC update, next update time nextUpdateTime-r17 can be broadcast per cell or per TAC so that UE becomes aware when cell is going to stop broadcasting old TAC(s).

Observation 4. Additional 8 bits signalling in a SIB to indicate next TAC update time should be more efficient than paging all UEs during a SI modification period.

Proposal 1 To reduce signalling overhead due to TAC update in SIB, a reference time is specified (e.g., SFN = 0) and length of remaining time for the next TAC update is signalled in SIB.

Proposal 2 The remaining time information is provided in terms of number of remaining SFN wrap arounds plus number of remaining SI modification periods.

Proposal 3 Define a default remaining time if remaining time information is not signalled in SIB.

Proposal 4 RAN2 discuss whether to signal the remaining time per TAC or per cell and whether to signal in SIB1 or NTN specific SIB.

[R2-2105611](file:///C:\Data\3GPP\Extracts\R2-2105611%20Discussion%20on%20remaining%20issues%20on%20soft%20TAU.DOC) Discussion on remaining issues on soft TAU Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

Observation 1: Paging frequency caused by TAC change in SI depends on TAC list planning, cell size and moving speed of LEO satellite.

Observation 2: in order to avoid unreachable UEs, network can continue broadcasting some TACs which are not covered by current cell.

Observation 3: it will lead to large signalling overhead to provide valid timer related to each TAC.

Observation 4: UE cannot determine which TAC should be reported to NAS only by TAC valid timer.

And we propose:

Proposal 1: short message is used as legacy when network stops broadcasting a TAC in NTN.

[R2-2105610](file:///C:\Data\3GPP\Extracts\R2-2105610%20Discussion%20on%20decoupled%20cell%20ID.doc) Discussion on decoupled cell ID Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1: RAN2 to discuss whether to apply V2X-like zone ID to enable approach b).

[R2-2104826](file:///C:\Data\3GPP\Extracts\R2-2104826.docx) Signalling Solution for Feeder Link Switching of NTN VODAFONE Group Plc discussion

[R2-2104852](file:///C:\Data\3GPP\Extracts\R2-2104852%20Discussion%20on%20TAC%20update.docx) Discussion on TAC update in NTN CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105117](file:///C:\Data\3GPP\Extracts\._R2-2105117%20Satellite%20Cell%20ID%20Mapping%20to%20Earth%20Fixed%20Locations.docx) Satellite cell ID mapping to earth fixed locations for efficient cell selection and cell reselection in NTN Apple discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105252](file:///C:\Data\3GPP\Extracts\R2-2105252_TAU_NR-NTN_v3.0.DOCX) On Soft-switch based Tracking Area Updates in NR-NTN MediaTek Inc. discussion [R2-2102826](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102826.zip)

[R2-2105530](file:///C:\Data\3GPP\Extracts\R2-2105530%20Discussion%20on%20TAC%20updating%20in%20NTN.doc) Discussion on TAC updating in NTN Spreadtrum Communications discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105571](file:///C:\Data\3GPP\Extracts\R2-2105571%20Discussion%20on%20TAC%20aspects%20for%20NTN.doc) Discussion on TAC aspects for NTN Beijing Xiaomi Electronics discussion

[R2-2106069](file:///C:\Data\3GPP\Extracts\R2-2106069_For8.10.3.1_VTA_SamsungAppleRakutenMobile.doc) Tracking Area Management using Virtual Tracking Areas in an NTN Samsung Research America, Apple, Rakuten Mobile discussion

[R2-2106070](file:///C:\Data\3GPP\Extracts\R2-2106070_For8.10.3.1_SoftTACUpdate_Samsung.doc) Enhancements for the Soft TAC Update for Earth-moving Beams in an NTN Samsung Research America discussion

#### 8.10.3.2 Idle/Inactive mode

Idle/inactive mode specific issues.

Including the outcome of [POST113bis-e][101][NTN] cell reselection (ZTE). No company inputs expected on aspects covered by [POST113bis-e][101]. It's possible to contribute on other aspects, but the discussion will likely be depriorited during this meeting.

[R2-2104805](file:///C:\Data\3GPP\Extracts\R2-2104805_Report%20of%20%5bPOST113bis-e%5d%5b101%5d%5bNTN%5d%20cell%20reselection.docx) Report of [POST113bis-e][101][NTN] cell reselection ZTE corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

Timing info assisted cell reselection

Proposal 1: [20/23] The timing information on when a cell is going to stop serving the area is needed to assist cell reselection in NTN for earth fixed scenario.

Proposal 2: [17/23] The timing information on when a cell is going to stop serving the area is used to decide when to perform measurement on neighbor cells.

Proposal 3: [21/23] The timing information on when a cell is going to stop serving the area for earth fixed scenario is broadcast to UE via system information.

Ephemeris/Location assisted cell reselection

Proposal 4: [13/23] Location assisted cell reselection should be introduced in NTN.

Proposal 5: [11/21] In location assisted cell reselection in NTN, the distance between the UE and the reference location of the cell (serving cell and/or neighbor cell) should be considered.

[R2-2104815](file:///C:\Data\3GPP\Extracts\R2-2104815%20NTN%20Idle%20inactive%20mode%20procedures.doc) Discussion on idle/inactive mode procedures in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2104857](file:///C:\Data\3GPP\Extracts\R2-2104857_Leftover%20issues%20on%20IDLE%20and%20inactive%20mode.docx) Leftover issues on IDLE and inactive mode CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105251](file:///C:\Data\3GPP\Extracts\R2-2105251_Cell-Reselection_NR-NTN_v3.0.docx) On Cell-Reselection in NR-NTN MediaTek Inc. discussion [R2-2102825](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102825.zip)

[R2-2105487](file:///C:\Data\3GPP\Extracts\R2-2105487%20Discussion%20on%20IDLE%20issues.doc) Discussion on IDLE issues Xiaomi communications discussion

[R2-2105531](file:///C:\Data\3GPP\Extracts\R2-2105531%20Issue%20on%20cell%20selection%20and%20reselection%20in%20NTN.doc) Issue on cell selection and reselection in NTN Spreadtrum Communications discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105699](file:///C:\Data\3GPP\Extracts\R2-2105699.doc) Idle mode enhancement in NTN Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105786](file:///C:\Data\3GPP\Extracts\R2-2105786%20Cell%20reselection%20based%20on%20time%20and%20location%20condition.doc) Cell reselection based on time and location condition LG Electronics Inc. discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105818](file:///C:\Data\3GPP\Extracts\R2-2105818%20Considerations%20on%20ephemeris%20provision%20for%20NTN.docx) Considerations on ephemeris provision for NTN Lenovo, Motorola Mobility discussion Rel-17

[R2-2106171](file:///C:\Data\3GPP\Extracts\R2-2106171.docx) NTN Idle/Inactive mode cell re-selection ITL discussion Rel-17

[R2-2106231](file:///C:\Data\3GPP\Extracts\R2-2106231%20Discussion%20on%20GNSS%20tracking%20for%20cell%20(re)selection%20and%20ephemeris%20division&provision%20.docx) Discussion on GNSS tracking for cell (re)selection and ephemeris division&provision CMCC discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106387](file:///C:\Data\3GPP\Extracts\R2-2106387%20NTN%20Indication.docx) NTN type and scenario indication Convida Wireless discussion

[R2-2106392](file:///C:\Data\3GPP\Extracts\R2-2106392%20NTN%20cell%20(re)selection%20enhancements.docx) NTN Cell (re)selection enhancements Convida Wireless discussion

moved here from 8.10.2

[R2-2105116](file:///C:\Data\3GPP\RAN2\Docs\R2-2105116.zip) Way forward for NTN Ephemeris Discussions for pre-compensation, idle mode and connected mode procedures Apple discussion Rel-17 NR\_NTN\_solutions-Core

#### 8.10.3.3 Connected mode

Connected mode specific issues.

[R2-2106489](file:///C:\Data\3GPP\Extracts\R2-2106489%20%20%5bPre114-e%5d%5b104%5d%5bNTN%5d%20Summary%208.10.3.3%20-%20CHO%20and%20service%20continuity%20(Ericsson).docx) Feature summary for 8.10.3.3 - CHO and service continuity Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

Proposals to be discussed first:

* CHO

Proposal 1B (VC rewording of P1): Discuss whether the location based execution triggering for NTN is defined based on:

a) The distance between UE and the serving cell reference location

b) The distance between UE and the candidate target cell reference location

c) A combination of a) and b)

(P1 was:

Proposal 1 Discuss whether shape of CHO trigger area is

a. Circle/ellipse with serving cell related reference point

b. Circle/ellipse with candidate cell related reference point

c. Polygon

d. Either as per configuration)

Proposal 3 Discuss whether the reference location is

a. Center of a cell

b. Center of a beam or beams

Proposal 9 RAN2 to discuss whether information related to when candidate target cell becomes available is a timer, UTC, or a time range.

Proposal 10 RAN2 to understand joint configuration of location and RSRP as well as time and RSRP triggers are supported.

Proposal 11 RAN2 to discuss whether RAN2 allows the options that the network configures location or time CHO trigger without measurement trigger.

Proposal 12 RAN2 not to consider further joint location and timer based trigger

* Service continuity

Proposal 16 NTN capable UE shall support NTN -TN mobility

Proposal 17 No limitations are specified for NTN -TN mobility thus same trigger conditions can be used within NTN and NTN -NT mobility

Proposal 18 NTN UE prioritises TN over NTN

Proposal 19 Discuss whether and what kind of idle mode enhanacements are needed in order to realise the TN priorization

Other proposals:

Proposal 2 Discuss whether RRM location reporting event is defined as CHO event or UE ’s reference location could be considered, as a configurable option or as an alternative(only one is supprted )

Proposal 4 Discuss whether measurement reports can be configured to be piggybacked when location based event triggers

Proposal 5 Discuss the format of the location report

a. Follow the existing format for location information

b. Discuss if a less granular and lighter location information suitable for NTN is defined.

Proposal 6 RAN2 to discuss whether periodic or request/response type of location reporting should be supported for NTN .

Proposal 7 RAN2 to discuss how the time based CHO should work and what is the relevant information UE needs for efficient operation.

Proposal 8 RAN2 to discuss how to address the issue of RACH congestion in a target cell.

Proposal 13 RAN2 to discuss whether it is feasible that UE keeps part of another gNB/cell configuration after accessing the target cell.

Proposal 14 RAN2 to discuss how to enhance the efficiency of the potential need to concatenate HOs in NTN . E.g. by UE not to discard filtered measurements after successful HO.

Proposal 15 RAN2 to discuss whether there is a need to optimize signalling overhead for HO/CHO .

CHO related aspects

[R2-2104816](file:///C:\Data\3GPP\Extracts\R2-2104816%20NTN%20connected%20mode%20mobility.doc) Discussion on mobility management for connected mode UE in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2104853](file:///C:\Data\3GPP\Extracts\R2-2104853%20Discussion%20on%20connected%20mode%20in%20NTN.docx) Discussion on connected mode in NTN CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2104999](file:///C:\Data\3GPP\Extracts\R2-2104999%20Further%20thoughts%20on%20connected%20mode%20mobility%20in%20NTN.docx) Further thoughts on connected mode mobility in NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105120](file:///C:\Data\3GPP\Extracts\._R2-2105120%20On%20Connected%20Mode%20Issues%20for%20NR%20NTN.docx) On connected mode issues for NR NTN Apple discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105383](file:///C:\Data\3GPP\Extracts\R2-2105383%20Location-based%20measurement%20report.doc) Location-based measurement report ASUSTeK discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105384](file:///C:\Data\3GPP\Extracts\R2-2105384%20Discussion%20on%20measurement%20event%20triggering%20in%20NTN.docx) Discussion on measurement event triggering in NTN ASUSTeK discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105433](file:///C:\Data\3GPP\Extracts\R2-2105433%20CHO.doc) Open issues in CHO Qualcomm Incorporated discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105460](file:///C:\Data\3GPP\Extracts\R2-2105460%20Discussion%20on%20connected%20mode%20aspects%20for%20NTN.docx) Discussion on connected mode aspects for NTN Xiaomi Communications discussion

[R2-2105613](file:///C:\Data\3GPP\Extracts\R2-2105613%20Discussion%20on%20remaining%20issues%20for%20CHO%20in%20NTN.doc) Discussion on remaining issues for CHO in NTN Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105700](file:///C:\Data\3GPP\Extracts\R2-2105700.docx) Signaling storm during HOs and Timer based trigger details Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105787](file:///C:\Data\3GPP\Extracts\R2-2105787%20Further%20considerations%20on%20NTN%20CHO.DOC) Further considerations on NTN CHO LG Electronics Inc. discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105820](file:///C:\Data\3GPP\Extracts\R2-2105820%20NTN%20specific%20CHO%20trigger%20condition%20v1.1.doc) NTN specific CHO trigger condition Lenovo, Motorola Mobility discussion Rel-17

[R2-2105923](file:///C:\Data\3GPP\Extracts\R2-2105923_Further%20consideration%20on%20CHO%20in%20NTN.docx) Further consideration on CHO in NTN ZTE corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105936](file:///C:\Data\3GPP\Extracts\R2-2105936%20Connected%20mode%20aspects%20for%20NTN.docx) Connected mode aspects for NTN Ericsson discussion NR\_NTN\_solutions-Core

[R2-2106024](file:///C:\Data\3GPP\Extracts\R2-2106024_%20Further%20discussion%20on%20CHO%20in%20NTN.docx) Further discussion on CHO in NTN NEC Telecom MODUS Ltd. discussion

[R2-2106045](file:///C:\Data\3GPP\Extracts\R2-2106045%20(R17%20NTN%20WI%20AI%208.10.3.3)%20Location-based%20CHO.docx) Location-based CHO in NTN InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106046](file:///C:\Data\3GPP\Extracts\R2-2106046%20(R17%20NTN%20WI%20AI%208.10.3.3)%20Time-based%20CHO.docx) Time-based CHO for soft feeder-link switch InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

Service continuity

[R2-2105006](file:///C:\Data\3GPP\Extracts\R2-2105006%20%20-%20A%20resubmission%20of%20R2-2103976%20and%20R2-2101298%20on%20Service%20Continuity%20between%20NTN%20and%20TN.docx) Service continuity between NTN and TN Hughes/EchoStar, Thales, BT Plc, Turkcell, Vodafone, ESA, Inmarsat discussion Rel-17

[R2-2105253](file:///C:\Data\3GPP\Extracts\R2-2105253%20-%20Mobility%20for%20TN-NTN%20scenarios.docx) Mobility for NTN-TN scenarios MediaTek Inc. discussion [R2-2102827](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102827.zip)

[R2-2105614](file:///C:\Data\3GPP\Extracts\R2-2105614%20Discussion%20on%20Service%20continuity%20between%20NTN%20and%20TN.doc) Discussion on service continuity between NTN and TN Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106234](file:///C:\Data\3GPP\Extracts\R2-2106234%20Discussion%20on%20NTN-TN%20mobility%20.docx) Discussion on NTN-TN mobility CMCC discussion Rel-17 NR\_NTN\_solutions-Core

SMTC and gaps

[R2-2105000](file:///C:\Data\3GPP\Extracts\R2-2105000%20Further%20views%20on%20SMTC%20configurations%20for%20NTN.docx) Further views on SMTC configurations for NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105389](file:///C:\Data\3GPP\Extracts\R2-2105389%20Method%20for%20SMTC%20and%20GAP%20measurement.doc) Discussion on UE feedback based SMTC and GAPS measurement configuration Rakuten Mobile, Inc discussion Rel-17

[R2-2105434](file:///C:\Data\3GPP\Extracts\R2-2105434%20SMTC%20and%20MG.doc) SMTC and MG enhancements Qualcomm Incorporated discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105702](file:///C:\Data\3GPP\Extracts\R2-2105702.docx) SMTC enhancement in NTN Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105819](file:///C:\Data\3GPP\Extracts\R2-2105819%20UE%20assistance%20for%20measurement%20gap%20and%20SMTC%20configuration%20in%20NTN.docx) UE assistance for measurement gap and SMTC configuration in NTN Lenovo, Motorola Mobility discussion Rel-17

[R2-2106232](file:///C:\Data\3GPP\Extracts\R2-2106232%20SMTC%20and%20measurement%20Gap%20configuration%20for%20NTN%20.docx) SMTC and measurement Gap configuration for NTN CMCC discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106347](file:///C:\Data\3GPP\Extracts\R2-2106347%20Measurement%20window%20enhancements%20for%20NTN%20cell.doc) Measurement window enhancements for NTN cell LG Electronics Inc. discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106386](file:///C:\Data\3GPP\Extracts\R2-2106386%20SMTC%20and%20MG%20configuration%20for%20NTN.docx) SMTC and MG configuration for NTN Convida Wireless discussion

Misc

[R2-2105701](file:///C:\Data\3GPP\Extracts\R2-2105701.doc) Cell coverage spillage over multiple countries issue in NTN Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106071](file:///C:\Data\3GPP\Extracts\R2-2106071_For8.10.3.3_HandoverEnhancements_Samsung.doc) Handover Enhancements and Power-saving Neighbor Search for an NTN Samsung Research America discussion

[R2-2106233](file:///C:\Data\3GPP\Extracts\R2-2106233%20Signaling%20issues%20resolution%20for%20connected%20mobility%20.docx) Signaling issues resolution for connected mobility CMCC discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2106388](file:///C:\Data\3GPP\Extracts\R2-2106388%20NTN%20ANR%20enhancements.docx) NTN ANR enhancements Convida Wireless discussion

#### 8.10.3.4 LCS aspects

Potential issues associated to the use of the existing Location Services (LCS) application protocols to locate UE in the context of NTN.

Including discussion on reply LSs on UE location aspects in NTN.

Incoming LS (moved here from 8.10.1)

[R2-2104730](file:///C:\Data\3GPP\Extracts\R2-2104730_S2-2103550.docx) Reply to LS on UE location aspects in NTN (S2-2103550; contact: Thales) SA2 LS in Rel-17 5GSAT\_ARCH To:RAN2 Cc:SA3-LI, RAN3, SA3, CT1

[R2-2104854](file:///C:\Data\3GPP\Extracts\R2-2104854%20Discussion%20on%20reply%20LSs%20on%20UE%20location%20aspects%20in%20NTN.docx) Discussion on reply LSs on UE location aspects in NTN CATT discussion Rel-17 NR\_NTN\_solutions-Core

Observation 1: any solution based on UE-generated location information for network selection purposes without verification by network is not trusted according to SA3LI.

Observation 2: Open issue 1: How to ensure that the UE is using a correct core network of the country in which the UE is physically located should be faced by network in Rel-17 NTN.

Observation 3: It is feasible that network(LMF) is able to verify UE’s location by UE’s report of GNSS-SignalMeasurementInformation via existing LPP protocol.

Proposal 1: RAN2 to discuss if there is open issue in RAN2: how to ensure that the UE is using a correct core network of the country in which the UE is physically located should be faced by network in Rel-17 NTN.

Proposal 2: AMF may initiate UE location procedure as specified in TS 23.273 to get the sufficient accuracy of UE location from LMF after finishing the registration procedure in NTN Rel-17 as SA3LI reply LS specified.

Observation 4: Open issue 2: The requirement from SA2 on NG-RAN providing an accurate CGI to 5GC after UE has entered CONNECTED state is not feasible in NG-RAN because the UE’s geographical area info reported from UE should be verified by network at first according to the reply LS SA3-LI.

Proposal 3: RAN2 to discuss if there is open issue 2: The requirement from SA2 on NG-RAN providing an accurate CGI to 5GC after UE has entered CONNECTED state is not feasible in NG-RAN because the UE’s geographical area info reported from UE should be verified by network at first according to the reply LS SA3-LI.

Proposal 4: If AMF wants any UE’s location info for an emergency services call in CONNECTED mode, the best way is invocation of LCS procedures via LMF, instead of asking for the accurate CGI from NG-RAN.

Proposal 5: RAN2 to disccus if we send an LS to SA3/SA3LI to further check:

1. If NG-RAN is permitted to retrieve the UE’s location info from LMF which is verified by LMF and what the granularity is;

2. If NG-RAN is permitted to retrieve the UE’s location info directly from UE which is UE-negnerated location info, but not for network selection purpose, and what the granularity is.

Proposal 5bis: RAN2 to disccus if we send an reply LS to SA2 on the accurate CGI requirement.

Observation 5: A-GNSS method including UE-based and UE-assisted, LMF-based meets the LCS request in NTN because of the outdoor coverage.

Proposal 6: RAN2 to discuss A-GNSS is the mandatory positioning method in NTN. And other RAT-Dependent positioning methods should be postponed in NTN Rel-17.

[R2-2105924](file:///C:\Data\3GPP\Extracts\R2-2105924_Understanding%20on%20the%20UE%20location%20aspects%20in%20NTN.docx) Understanding on the UE location aspects in NTN ZTE corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

Observation 1: UE location with comparable levels of assurance and granularity to TN cells are needed to support services provided in 5GC.

Observation 2: The core network would be aware of the UE location with sufficient accuracy based either on the Cell ID in ULI or the CN initiated UE location procedure.

Observation 3: The requirement for UE location with finer granularity than a NTN cell mainly comes from the core network and there has been ongoing discussion in SA2 on CN initiated UE location procedure to meet such requirements.

Proposal 1: RAN2 to discuss if AS layer solution is needed for UE location acquisition with finer granularity than a NTN cell.

Proposal 2: If AS layer solution is needed, UE served by a NTN cell should acquire system information from a detected TN cell and report the Cell identity information of the TN cell to the serving NTN cell as assistance information.

[R2-2105435](file:///C:\Data\3GPP\Extracts\R2-2105435%20UE%20positioning.docx) UE positioning methods for NTN Qualcomm Incorporated discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2105558](file:///C:\Data\3GPP\Extracts\R2-2105558%20Discussion%20on%20location%20service%20for%20NTN.doc) Discussion on location service for NTN Xiaomi discussion

[R2-2105935](file:///C:\Data\3GPP\Extracts\R2-2105935%20Discussion%20on%20LS%20response%20onNTN%20location.docx) NTN location reporting aspects Ericsson discussion NR\_NTN\_solutions-Core

[R2-2106072](file:///C:\Data\3GPP\Extracts\R2-2106072_For8.10.3.4_AreaManagement_SamsungThales.doc) Area Management in an NTN Samsung Research America and Thales discussion

## 8.12 Reduced Capability

(NR\_redcap-Core; leading WG: RAN1; REL-17; WID: [RP-210918](file:///C:\Data\3GPP\archive\RAN\RAN%2391\Tdocs\RP-210918.zip))

Time budget: 1 TU

Tdoc Limitation: 4 tdocs

Email max expectation: 4 threads

### 8.12.1 Organizational

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

[R2-2104702](file:///C:\Data\3GPP\Extracts\R2-2104702_C1-212395.doc) Reply LS on Unified Access Control (UAC) for RedCap (C1-212395; contact: vivo) CT1 LS in Rel-17 NR\_redcap-Core To:RAN, RAN2 Cc:SA1

[R2-2105233](file:///C:\Data\3GPP\Extracts\R2-2105233%20Revised%20WI%20work%20plan%20for%20RedCap.docx) Revised WI work plan for RedCap Ericsson discussion NR\_redcap-Core

### 8.12.2 Framework for reduced capabilities

No contribution is expected to this agenda item but directly to the sub-agenda items.

#### 8.12.2.1 Definition of RedCap UE type and reduced capabilities

Definition of one RedCap UE type and related UE capability design.

How to constrain the use of RedCap capabilities only for RedCap UEs and prevent RedCap UEs from using capabilities not intended for RedCap UEs.

[R2-2106462](file:///C:\Data\3GPP\Extracts\R2-2106462_Summary%20AI%208.12.2.1%20v01.docx) Summary 8.12.2.1 - Definition of RedCap UE and reduced capabilities (Intel) Intel discussion Rel-17 NR\_redcap-Core

* [AT114-e][105][RedCap] Definition of RedCap UE and reduced capabilities (Intel)

Initial scope: Discuss the proposals from [R2-2106462](file:///C:\Data\3GPP\Extracts\R2-2106462_Summary%20AI%208.12.2.1%20v01.docx)

Initial intended outcome: Summary of the offline discussion with e.g.:

* + - List of proposals for agreement (if any)
    - List of proposals that require online discussions
    - List of proposals that should not be pursued (if any)

Initial deadline (for companies' feedback): Thursday 2021-05-20 07:00 UTC

Initial deadline (for rapporteur's summary in R2-2106521): Thursday 2021-05-20 09:00 UTC

R2-2106521 [offline 105] Definition of RedCap UE and reduced capabilities (Intel) Intel discussion Rel-17 NR\_redcap-Core

[R2-2104774](file:///C:\Data\3GPP\Extracts\R2-2104774_Definition%20and%20constrained%20use%20of%20RedCap%20UEs.docx) Definition and constrained use of RedCap UEs Qualcomm Incorporated discussion Rel-17 FS\_NR\_redcap

[R2-2104808](file:///C:\Data\3GPP\Extracts\R2-2104808%20constraining%20of%20RedCap.doc) Discussion on constraining of reduced capabilities OPPO discussion Rel-17 NR\_redcap-Core

[R2-2104910](file:///C:\Data\3GPP\Extracts\R2-2104910_UE%20type%20definition%20and%20constraining%20for%20RedCap%20UEs.doc) UE type definition and constraining for RedCap UEs vivo, Guangdong Genius discussion Rel-17 FS\_NR\_redcap

[R2-2104927](file:///C:\Data\3GPP\Extracts\R2-2104927%20RedCap%20UE%20capability%20and%20constraining%20of%20reduced%20capabilities.docx) RedCap UE capability and constraining of reduced capabilities Intel Corporation discussion Rel-17 NR\_redcap

[R2-2105136](file:///C:\Data\3GPP\Extracts\._R2-2105136-redcap-basic-capability.docx) Resolution on some basic mandatory capabilities for RedCap UEs for faster product development Apple Inc discussion Rel-17 NR\_redcap-Core

[R2-2105160](file:///C:\Data\3GPP\Extracts\R2-2105160%20Define%20and%20Constrain%20Reduced%20Capability%20for%20RedCap.docx) Define and Constrain Reduced Capability for RedCap ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2105234](file:///C:\Data\3GPP\Extracts\R2-2105234%20-%20Definition%20of%20RedCap%20UEs.docx) Definition of RedCap UE and first look on capability signaling Ericsson discussion NR\_redcap-Core

[R2-2105319](file:///C:\Data\3GPP\Extracts\R2-2105319.doc) On Redcap UE capabilities and type CATT discussion Rel-17 NR\_redcap-Core

[R2-2105471](file:///C:\Data\3GPP\Extracts\R2-2105471.docx) Capability for RedCap UEs and its early indication Samsung discussion Rel-17 FS\_NR\_redcap

[R2-2105539](file:///C:\Data\3GPP\Extracts\R2-2105539%20Discussion%20on%20L2%20buffer%20size%20reduction%20for%20Redcap%20UE-updated2.doc) Discussion on L2 buffer size reduction for Redcap UE Spreadtrum Communications discussion Rel-17 NR\_redcap-Core

[R2-2105634](file:///C:\Data\3GPP\Extracts\R2-2105634%20Definition%20of%20RedCap%20UE%20type%20and%20reduced%20capabilities.doc) Definition of RedCap UE type and reduced capabilities Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

[R2-2105882](file:///C:\Data\3GPP\Extracts\R2-2105882%20How%20to%20prevent%20RedCap%20UEs%20from%20using%20capabilities%20not%20intended%20for%20RedCap%20UE.docx) How to prevent RedCap UEs from using capabilities not intended for RedCap Ues LG Electronics UK discussion Rel-17

[R2-2105910](file:///C:\Data\3GPP\Extracts\R2-2105910%20On%20REDCAP%20UE%20capabilities.docx) On RedCap UE capabilities Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

[R2-2106053](file:///C:\Data\3GPP\Extracts\R2-2106053%20(R17%20RedCap%20WI%20AI%208.12.2.1)%20Constrained%20capabilities.docx) Constraint of RedCap UE to intended use cases InterDigital discussion Rel-17 NR\_redcap-Core

R2-2106098 RedCap UE capability and constraining of reduced capabilities Intel Corporation discussion Rel-17 NR\_redcap Withdrawn

[R2-2106230](file:///C:\Data\3GPP\Extracts\R2-2106230.docx) Discussion on the definition and constraining of reduced capabilities CMCC discussion Rel-17 NR\_redcap

[R2-2106276](file:///C:\Data\3GPP\Extracts\R2-2106276%20The%20capability%20and%20the%20constrain%20of%20RedCap%20UE.docx) The capability and the constrain of RedCap UE China Telecommunications discussion

#### 8.12.2.2 Identification, access and camping restrictions

Early identification of RedCap UEs (e.g. msg1/msgA vs msg3).

System information indication for camping restrictions.

[R2-2106487](file:///C:\Data\3GPP\Extracts\R2-2106487%20Summary%208.12.2.2%20-%20Identification%20and%20access%20restrictions%20(Huawei)_v3.doc) [Pre114-e][106][RedCap] Summary 8.12.2.2 - Identification and access restrictions (Huawei) Huawei discussion Rel-17 FS\_NR\_redcap

* [AT114-e][106][RedCap] Identification and access restrictions (Huawei)

Initial scope: Discuss the proposals from [R2-2106487](file:///C:\Data\3GPP\Extracts\R2-2106487%20Summary%208.12.2.2%20-%20Identification%20and%20access%20restrictions%20(Huawei)_v3.doc)

Initial intended outcome: Summary of the offline discussion with e.g.:

* + - List of proposals for agreement (if any)
    - List of proposals that require online discussions
    - List of proposals that should not be pursued (if any)

Initial deadline (for companies' feedback): Thursday 2021-05-20 07:00 UTC

Initial deadline (for rapporteur's summary in R2-2106522): Thursday 2021-05-20 09:00 UTC

[R2-2106487](file:///C:\Data\3GPP\Extracts\R2-2106487%20Summary%208.12.2.2%20-%20Identification%20and%20access%20restrictions%20(Huawei)_v3.doc) [Offline 106] Identification and access restrictions (Huawei) Huawei discussion Rel-17 FS\_NR\_redcap

[R2-2104775](file:///C:\Data\3GPP\Extracts\R2-2104775_Access%20and%20camping%20restriction%20for%20RedCap%20UEs.docx) Access and camping restrictions for RedCap UEs Qualcomm Incorporated discussion Rel-17 FS\_NR\_redcap

[R2-2104777](file:///C:\Data\3GPP\Extracts\R2-2104777.docx) Discussion on early identification and SI indication CAICT discussion Rel-17

[R2-2104790](file:///C:\Data\3GPP\Extracts\R2-2104790.docx) NR-REDCAP identification and SI indication THALES discussion

[R2-2104809](file:///C:\Data\3GPP\Extracts\R2-2104809%20RedCap%20access%20control.doc) Discussion on RedCap UE’s access control OPPO discussion Rel-17 NR\_redcap-Core

[R2-2104911](file:///C:\Data\3GPP\Extracts\R2-2104911_Identification%20and%20access%20restrictions%20for%20RedCap%20UEs.docx) Identification and access restrictions for RedCap UEs vivo, Guangdong Genius discussion Rel-17 FS\_NR\_redcap [R2-2102859](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102859.zip)

[R2-2104928](file:///C:\Data\3GPP\Extracts\R2-2104928%20Early%20identification%20and%20camping%20restrictions%20%20for%20RedCap%20UE.docx) Early identification and camping restrictions for RedCap UE Intel Corporation discussion Rel-17 NR\_redcap

[R2-2105014](file:///C:\Data\3GPP\Extracts\R2-2105014%20RedCap_2.docx) Methods for barring and for capability reporting Sierra Wireless, S.A. discussion

[R2-2105071](file:///C:\Data\3GPP\Extracts\R2-2105071%20Discussion%20on%20UAC%20for%20Redcap%20devices.doc) Discussion on UAC for Redcap devices Xiaomi Communications discussion

[R2-2105072](file:///C:\Data\3GPP\Extracts\R2-2105072%20Discussion%20on%20Identification%20and%20UE%20access%20restrictions%20for%20Redcap%20devices.doc) Discussion on Identification and UE access restrictions for Redcap devices Xiaomi Communications discussion

[R2-2105137](file:///C:\Data\3GPP\Extracts\._R2-2105137-Cell-Access.docx) Power-saving aspects from cell access and camping of RedCap UEs Apple Inc discussion Rel-17 NR\_redcap-Core

[R2-2105161](file:///C:\Data\3GPP\Extracts\R2-2105161%20Identification%20and%20Access%20Restriction%20for%20RedCap.docx) Identification and Access Restriction for RedCap ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2105235](file:///C:\Data\3GPP\Extracts\R2-2105235%20-Early%20indication%20and%20access%20restriction%20for%20RedCap%20UEs.docx) Early indication & access restriction for RedCap UEs Ericsson discussion NR\_redcap-Core

[R2-2105320](file:///C:\Data\3GPP\Extracts\R2-2105320.doc) Early Identification and camping restrictions for Redcap UEs CATT discussion Rel-17 NR\_redcap-Core

[R2-2105399](file:///C:\Data\3GPP\Extracts\R2-2105399%20Camping%20restrictions%20of%20RedCap%20UE.doc) Camping restrictions of RedCap UE Fujitsu discussion Rel-17 NR\_redcap-Core

[R2-2105443](file:///C:\Data\3GPP\Extracts\R2-2105443.docx) Camping restriction and cell selection criterion DENSO CORPORATION discussion Rel-17 NR\_redcap-Core [R2-2102947](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102947.zip)

[R2-2105472](file:///C:\Data\3GPP\Extracts\R2-2105472.docx) Access control for RedCap UEs Samsung discussion Rel-17 FS\_NR\_redcap

[R2-2105540](file:///C:\Data\3GPP\Extracts\R2-2105540%20Discussion%20on%20early%20indication%20design%20for%20RedCap%20UE.docx) Discussion on early indication design for Redcap UE Spreadtrum Communications discussion Rel-17 NR\_redcap-Core

[R2-2105635](file:///C:\Data\3GPP\Extracts\R2-2105635%20Identification%20and%20access%20restriction%20of%20RedCap%20UE-v2.docx) Identification and access restriction of RedCap UE Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

[R2-2105793](file:///C:\Data\3GPP\Extracts\R2-2105793_early%20ind.docx) Early identification and SI indication NEC discussion Rel-17 NR\_redcap-Core [R2-2103506](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103506.zip)

[R2-2105814](file:///C:\Data\3GPP\Extracts\R2-2105814.docx) Cell barring for REDCAP UEs Lenovo, Motorola Mobility discussion Rel-17

[R2-2105879](file:///C:\Data\3GPP\Extracts\R2-2105879%20Access%20for%20REDCAP%20UE.docx) Access for REDCAP UE Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

[R2-2105883](file:///C:\Data\3GPP\Extracts\R2-2105883%20Identification%20and%20access%20restrictions%20of%20RedCap%20UEs.docx) Identification and access restrictions of RedCap Ues LG Electronics UK discussion Rel-17

[R2-2105957](file:///C:\Data\3GPP\Extracts\R2-2105957%20Discussion%20on%20access%20and%20camping%20restrictions%20for%20RedCap%20UEs.docx) Discussion on access and camping restrictions for RedCap UEs Futurewei Technologies discussion Rel-17 NR\_redcap-Core

[R2-2106052](file:///C:\Data\3GPP\Extracts\R2-2106052%20(R17%20RedCap%20WI%20AI%208.12.2.2)%20Identification%20and%20Restriction%20of%20RedCap%20UE.docx) Identification and restriction of RedCap UE InterDigital discussion Rel-17 NR\_redcap-Core [R2-2103973](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103973.zip)

R2-2106099 Early identification and camping restrictions for RedCap UE Intel Corporation discussion Rel-17 NR\_redcap Withdrawn

[R2-2106243](file:///C:\Data\3GPP\Extracts\R2-2106243.docx) Access control for RedCap UEs cmcc discussion Rel-17 NR\_redcap-Core

[R2-2106244](file:///C:\Data\3GPP\Extracts\R2-2106244.docx) Discussion on early identification cmcc discussion Rel-17 NR\_redcap-Core

[R2-2106274](file:///C:\Data\3GPP\Extracts\R2-2106274%20Early%20identification%20and%20camping%20restrictions%20of%20RedCap%20UE.docx) Early identification and camping restrictions of RedCap UE China Telecommunications discussion

### 8.12.3 UE power saving and battery lifetime enhancement

No contribution is expected to this agenda item but directly to the sub-agenda items.

#### 8.12.3.1 eDRX cycles

Specification of extended DRX enhancements for RRC Inactive and Idle, according to the WI objectives

This agenda item may be deprioritized during this meeting. Company contributions are possible but, if there will be time, the discussion will likely focus only on:

* Resolving the FFS in: "At least for eDRX cycle, the configurations of the eDRX for RRC\_IDLE and RRC\_INACTIVE can be different (FFS for PTW, e.g. length and starting point, when eDRX cycles are longer than 10.24s)"
* Discussing the minimum value allowed for the eDRX cycle

[R2-2105236](file:///C:\Data\3GPP\Extracts\R2-2105236%20-%20PTW%20and%20min%20eDRX%20cycle.docx) PTW configuration and minimum cycle length for eDRX Ericsson discussion NR\_redcap-Core

[R2-2105321](file:///C:\Data\3GPP\Extracts\R2-2105321.doc) Discussion on eDRX for NR RRC Inactive and Idle CATT discussion Rel-17 NR\_redcap-Core

[R2-2105135](file:///C:\Data\3GPP\RAN2\Docs\R2-2105135.zip) RedCap UE power-saving with 2.56 DRX cycle Apple Inc, FaceBook Inc, MediaTek Inc discussion Rel-17 NR\_redcap-Core [R2-2103887](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103887.zip)

[R2-2104810](file:///C:\Data\3GPP\Extracts\R2-2104810%20-%20Discussion%20on%20eDRX%20for%20RedCap%20UEs.doc) Discussion on eDRX for RedCap UEs OPPO discussion Rel-17 NR\_redcap-Core

[R2-2104912](file:///C:\Data\3GPP\Extracts\R2-2104912_Discussions%20on%20eDRX%20for%20RedCap%20UEs.doc) Discussion on eDRX for RedCap UEs vivo, Guangdong Genius discussion Rel-17 FS\_NR\_redcap

[R2-2104929](file:///C:\Data\3GPP\Extracts\R2-2104929_NR-eDRX_Intel.docx) Leftover issues for eDRX Intel Corporation discussion Rel-17 NR\_redcap

[R2-2105070](file:///C:\Data\3GPP\Extracts\R2-2105070%20Discussion%20on%20e-DRX%20for%20Redcap%20Devices.doc) Discussion on e-DRX for Redcap Devices Xiaomi Communications discussion

[R2-2105162](file:///C:\Data\3GPP\Extracts\R2-2105162%20On%20eDRX%20for%20RedCap.docx) On eDRX for RedCap ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2105464](file:///C:\Data\3GPP\Extracts\R2-2105464.docx) Open issues on eDRX cycles DENSO CORPORATION discussion Rel-17 NR\_redcap-Core

[R2-2105636](file:///C:\Data\3GPP\Extracts\R2-2105636%20eDRX%20for%20RedCap%20UE-v4.docx) eDRX for RedCap UE Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

[R2-2105671](file:///C:\Data\3GPP\Extracts\R2-2105671%20Remaining%20issues%20for%20eDRX.docx) Remaining issues for eDRX MediaTek Inc. discussion Rel-17 NR\_redcap-Core [R2-2103783](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103783.zip)

[R2-2105813](file:///C:\Data\3GPP\Extracts\R2-2105813.docx) Consideration on eDRX for RedCap UE Lenovo, Motorola Mobility discussion Rel-17

[R2-2105869](file:///C:\Data\3GPP\Extracts\R2-2105869%20eDRX%20for%20REDCAP.docx) eDRX for REDCAP Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

[R2-2105881](file:///C:\Data\3GPP\Extracts\R2-2105881%20Support%20for%20eDRXs%20for%20RRC%20Inactive%20and%20Idle.docx) Support for eDRXs for RRC Inactive and Idle LG Electronics UK discussion Rel-17

R2-2106100 Leftover issues for eDRX Intel Corporation discussion Rel-17 NR\_redcap Withdrawn

#### 8.12.3.2 RRM relaxations

Continue the investigation of RRM measurement relaxation criteria for neighbouring cells, with the intention to provide recommendation for a WID update for the RRM relaxations objective.

Including the outcome of [POST113bis-e][102][RedCap] RRM relaxations (Qualcomm). No company inputs expected on aspects covered by [POST113bis-e][102]. Company contributions should focus on the measurement-based R17 stationarity criterion and the related not-at-cell-edge criterion.

[R2-2105418](file:///C:\Data\3GPP\Extracts\R2-2105418_Summary%20of%20%5bPost103bis-e%5d%5b102%5d%5bREDCAP%5d%20RRM%20relaxations%20(Qualcomm).docx) Summary of [Post103bis-e][102][REDCAP] RRM relaxations (Qualcomm) Qualcomm Wireless GmbH discussion Rel-17

[R2-2105637](file:///C:\Data\3GPP\Extracts\R2-2105637%20RRM%20measurement%20relaxation%20for%20RedCap%20UE-V3.doc) RRM measurement relaxation for RedCap UE Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

[R2-2106403](file:///C:\Data\3GPP\Extracts\R2-2106403.doc) RRM relaxation criteria in RRC\_Idle/Inactive Samsung discussion Rel-17

[R2-2104776](file:///C:\Data\3GPP\Extracts\R2-2104776_RRM%20measurement%20relaxations%20for%20stationary%20UEs.docx) RRM measurement relaxations for stationary UEs Qualcomm Incorporated discussion Rel-17 FS\_NR\_redcap

[R2-2104811](file:///C:\Data\3GPP\Extracts\R2-2104811%20-%20Discussion%20on%20RRM%20relax%20%20for%20RedCap%20UEs.doc) Discussion on RRM relax for RedCap UEs OPPO discussion Rel-17 NR\_redcap-Core

[R2-2104913](file:///C:\Data\3GPP\Extracts\R2-2104913_RRM%20Relaxation%20for%20Neighboring%20Cells%20in%20Connected%20State.docx) RRM relaxation for neighboring cell for RedCap UEs vivo, Guangdong Genius discussion Rel-17 FS\_NR\_redcap

[R2-2104926](file:///C:\Data\3GPP\Extracts\R2-2104926%20RRM%20measurement%20relaxation%20criteria%20for%20RedCap%20devices.docx) RRM measurement relaxation criteria for RedCap devices Intel Corporation discussion Rel-17 NR\_redcap [R2-2102853](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102853.zip)

[R2-2105138](file:///C:\Data\3GPP\Extracts\._R2-2105138-RRM-confined-mob.docx) Confined Mobility impact on RRM Relaxation Apple Inc discussion Rel-17 NR\_redcap-Core

[R2-2105159](file:///C:\Data\3GPP\Extracts\R2-2105159%20RRM%20relaxation%20for%20RedCap%20UE.docx) RRM relaxation for RedCap UEs ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2105229](file:///C:\Data\3GPP\Extracts\R2-2105229_RRM%20relaxation%20enhancement%20for%20RedCap%20UE.docx) RRM Relaxation for RedCap UE NTT DOCOMO INC. discussion

R2-2105237 Triggering conditions for Rel-17 RRM relaxation Ericsson discussion NR\_redcap-Core Withdrawn

[R2-2105246](file:///C:\Data\3GPP\Extracts\R2-2105246%20-%20RRM%20relaxation.docx) RRM Relaxation Ericsson discussion Rel-17 NR\_redcap-Core

[R2-2105296](file:///C:\Data\3GPP\Extracts\R2-2105296%20Discussion%20on%20RRM%20relaxations%20for%20RedCap%20UE.docx) Discussion on RRM relaxations for RedCap UE Xiaomi Communications discussion Rel-17 NR\_redcap

[R2-2105521](file:///C:\Data\3GPP\Extracts\R2-2105521%20RRM%20relaxation%20in%20RRC_CONNECTED%20for%20RedCap%20UEs.doc) RRM relaxation in RRC\_CONNECTED for RedCap UEs SHARP Corporation discussion [R2-2103206](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2103206.zip)

[R2-2105705](file:///C:\Data\3GPP\Extracts\R2-2105705_RedcapRRM.docx) Redcap relaxed measurements and number of beams Sony discussion Rel-17 NR\_redcap-Core

[R2-2105706](file:///C:\Data\3GPP\Extracts\R2-2105706_RedCap_Stationary_Final.docx) RedCap Relaxed measurements, stationary definition Sony discussion Rel-17 NR\_redcap-Core

[R2-2105788](file:///C:\Data\3GPP\Extracts\R2-2105788%20RRM%20relaxation%20for%20stationary%20RedCap%20UEs.DOC) RRM relaxation for stationary RedCap Ues LG Electronics Inc. discussion Rel-17 NR\_redcap-Core

[R2-2105812](file:///C:\Data\3GPP\Extracts\R2-2105812.docx) RRM relaxation for stationary UE with reduced capability Lenovo, Motorola Mobility discussion Rel-17

[R2-2105909](file:///C:\Data\3GPP\Extracts\R2-2105909%20On%20RRM%20relaxation%20for%20REDCAP%20UE.docx) On RRM relaxations for REDCAP Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

[R2-2105959](file:///C:\Data\3GPP\Extracts\R2-2105959%20Discussion%20on%20R17%20stationarity%20criterion%20and%20not-at-cell-edge%20criterion%20for%20RedCap%20UEs.docx) Discussion on R17 stationarity criterion and not-at-cell-edge criterion for RedCap UEs Futurewei Technologies discussion Rel-17 NR\_redcap-Core

R2-2106097 RRM measurement relaxation criteria for RedCap devices Intel Corporation discussion Rel-17 NR\_redcap [R2-2102853](file:///C:\Data\3GPP\archive\RAN2\RAN2%23113bis\Tdocs\R2-2102853.zip) Withdrawn

[R2-2106229](file:///C:\Data\3GPP\Extracts\R2-2106229.docx) Discussion on the RRM relaxation for RedCap Ues CMCC discussion Rel-17 NR\_redcap

[R2-2106272](file:///C:\Data\3GPP\Extracts\R2-2106272%20RRM%20relaxation%20of%20RedCap%20UE.docx) RRM relaxation of RedCap UE China Telecommunications discussion

[R2-2106404](file:///C:\Data\3GPP\Extracts\R2-2106404.doc) RRM relaxation criteria in RRC\_Connected Samsung discussion Rel-17

## Summary

Agreed CRs

TBD

Approved LSs out

TBD

[POST114-e] Email discussions

Short

TBD

Long

TBD