3GPP TSG-RAN WG2 Meeting #118 electronic R2-2206152

Online, May 9th - 20th, 2022

**Agenda item: 10.2**

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

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

**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 [AT118-e][000]

Organizational

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

* [AT118-e][100] ****Organizational - NTN, REDCAP and CE session (RAN2 VC)****

Scope:

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

Schedule/Plan

WEEK 1:

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday** |  |  |  |
| 12:30-13:15 | NR17 IoT NTN (Johan) | NR17 RAN Slicing (Tero) | NR17 SL enh (Kyeongin) |
| 13:15-14:00 | NR17 IoT NTN (Johan) | NR17 Small Data Enh (Diana) | NR17 SL enh (Kyeongin) |
| 14:00-14:45 | NR17 feMIMO (Johan) | NR17 Small Data Enh (Diana) | NR17 SL Relay (Nathan) |
| 14:45-15:30 | NR17 MGE (Johan) | NR17 RACH indication / partitioning (Diana) | NR17 SL Relay (Nathan) |
| **Tuesday** |  |  |  |
| 12:30-13:15 | NR17 feMIMO (Johan) | NR17 SONMDT (HuNan) | LTE17 IoT (Brian) |
| 13:15-14:00 | NR17 eIAB (Johan) | NR17 IIOT (Diana) | **NR17 RedCap (Sergio)**  **- 6.12.1: incoming LSs & Rapp CRs**  **- 6.12.2.1: offline [105] (NCD-SSB)**  **- 6.12.2.2: offline [109] (RRM relaxation);** |
| 14:00-14:45 | NR17 ePowSav (Johan) | NR17 Pos (Nathan) | **NR17 NTN (Sergio)**  **- 6.10.1: incoming LSs & Rapp CRs, review of Rapp suggestions for RIL issues (**[**R2-2205448**](file:///C:\Data\3GPP\RAN2\Docs\R2-2205448.zip)**)**  **- 6.10.3.1: offline [107] (System information)**  **- 6.10.3.2: offline [106] (CP issues)**  **- 6.10.3.2: offline [101] (RIL handling)** |
| 14:45-15:30 | TBD | NR17 Pos (Nathan) | **NR17 NTN (Sergio)**  **- 6.10.4: offline [108] (UE capabilities)**  **- 6.10.2: offline [104] (UP corrections)** |
| **Wednesd** |  |  |  |
| 04:00-05:00 | NR17 QoE (Johan) | LTE All releases, including LTE Rel-17 ASN.1 review (Tero) | NR17 Pos or SL Relay (Nathan) |
| **Thursday** |  |  |  |
| 04:00-05:00 | NR17 MBS (Johan) | NR17 Multi-SIM (Tero) | **NR17 RedCap (Sergio)**  **- 6.12.2.2: offline [102] (RIL handling), inter-RAT mobility from LTE to NR, RedCap Capability in the UERadioPagingInformation,**  **RSRP threshold offset for 1Rx UE**  **- 6.12.4: offline [110] (UE capabilities)**  **NR17 CovEnh (Sergio)**  **- 8.19.1.1: Incoming LSs**  **- 8.19.2: offline [103] (RIL handling)** |
| **Friday** |  |  |  |
| 04:00-05:00 | NR17 MBS (Johan) | NR17 DCCA (Tero) | EUTRA legacy IoT (Emre/Brian) |

WEEK 2:

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday** |  |  |  |
| 12:30-13:15 | NR17 ASN.1 review | NR17 SONMDT (HuNan) | LTE17 IoT (Brian) |
| 13:15-14:00 | NR17 ASN.1 review | NR17 IIOT (Diana) | NR17 Pos (Nathan) |
| 14:00-14:45 | NR17 UE caps | NR17 RACH indication / partitioning (Diana) | CB Nathan |
| 14:45-15:30 | NR15 NR16 CB (Johan) | CB Diana | CB Nathan |
| **Tuesday** |  |  |  |
| 12:30-13:15 | NR17 TEI (Johan)  CB MGE Johan | **CB NR NTN (Sergio)**  **- 6.10.2: offline [104]: remaining proposals from** [**R2-2206207**](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206207.zip)**, R2-2206212**  **- 6.10.3.1: offline [107]: R2-2206413, remaining idle mode aspects: R2-2206201 (location based cell reselection aspects)** | NR17 SL enh (Kyeongin) |
| 13:15-14:00 | CB MBS Johan | **CB NR NTN (Sergio)**  **- 6.10.3.2: offline [101]: R2-2206209,**  **offline [106]: R2-2206501, R2-2205574 (coarse UE location format)**  **- 6.10.4: offline [108]: R2-2206211**  **- 6.10.1: offline [114]: R2-2206206** | NR17 SL enh (Kyeongin) |
| 14:00-14:45 | CB IoT NTN Johan | NR17 up to 71 GHz (Tero) | CB Diana |
| 14:45-15:30 | CB ePowSav Johan | CB Tero (RAN slicing, LTE) | CB Diana (until 15:10)  **CB NR NTN (Sergio) (from 15:10)**  **- remaining issues from BO1 discussion** |
| **Wednesday** |  |  |  |
| 12:30-13:15 | NR17 feMIMO | **CB RedCap (Sergio)**  **- 6.12.2.2: offline [102]: R2-2206218,** | CB Brian Emre |
| 13:15-14:00 | CB Johan | **CB RedCap (Sergio)**  **- 6.12.2.2:**  **offline [109]: R2-2206415,**  **offline [115]: R2-2206213** | CB Nathan |
| 14:00-14:45 | CB Johan | **CB RedCap (Sergio)**  **- 6.12.2.1: offline [105]: R2-2206414,**  **R2-2205512**  **- 6.12.4: offline [110]: R2-2206219** | CB Nathan |
| 14:45-15:30 | CB Johan | CB Tero (DCCA, Multi-SIM) | CB Kyeongin |
| **Thursday** |  |  |  |
| 04:00-05:00 | CB Johan | **CB (NR NTN (Sergio)**  **- 6.10.3.2: offline [101]: R2-2206508,**  **offline [106]: R2-2206505**  **CB RedCap (Sergio)**  **- 6.12.3: offline [116]: R2-2206214**  **CB Cov Enh (Sergio)**  **- 6.19.2: offline [103]: R2-2206200** | CB TBD |
| **Friday** |  |  |  |
| 04:00-05:00 | CB Johan | CB TBD | CB TBD |

List and status of offline email discussions

NOTE: No offline email discussions will be kicked off before Sunday May 08th, 19:00 UTC

* [AT118-e][101][NTN] RRC CR (Ericsson)

Updated scope: continue the discussion on p7~p9 from [R2-2206209](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206209.zip)

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

* List of proposals for agreement (if any)
* List of proposals that require online discussions

Deadline (for companies' feedback): Wednesday 2022-05-18 18:00 UTC

Deadline (for rapporteur's summary in R2-2206508): Wednesday 2022-05-18 20:00 UTC

Status: ongoing

* [AT118-e][102][RedCap] RRC CR (Ericsson)

Final scope: 1. Draft two reply LSs to RAN4 (for [R2-2204502](file:///C:\Data\3GPP\Extracts\R2-2204502_R4-2206545.doc) and for [R2-2204475](file:///C:\Data\3GPP\Extracts\R2-2204475_R4-2206951.docx)) and 2. update the 38.331 CR reflecting the meeting agreements

Final intended outcome:

1) Reply LSs

2) Agreeable 38.331 CR

1) Deadline (for companies' feedback to draft reply LSs):  Thursday 2022-05-19 16:00 UTC

1) Deadline (for reply LSs in R2-2206509 and R2-2206504):  Thursday 2022-05-19 18:00 UTC

2) Deadline (for companies' feedback to CR):  Friday 2022-05-20 08:00 UTC

2) Deadline (for final CR in R2-2206215):  Friday 2022-05-20 10:00 UTC

(Deadlines for CR are indicative. It’s likely that this discussion will move to a Post118-e discussion)

Status: ongoing

* [AT118-e][103][CovEnh] RRC CR (Huawei)

Updated scope: 1. Discuss needed changes for BWP with only CE RACH resources and 2. Continue the discussion on CFRA with PUSCH repetition

Updated intended outcome: Summary of the offline discussion with:

1. agreeable proposals/TP for 38.331 (and 38.321, if needed) for BWP with only CE RACH resources
2. Status of the discussion on CFRA with PUSCH repetition

Deadline (for companies' feedback): Wednesday 2022-05-18 0600 UTC

Deadline (for rapporteur's summary in [R2-2206200](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206200.zip)): Wednesday 2022-05-18 0800 UTC

Status: ongoing

* [AT118-e][104][NTN] UP corrections (Interdigital)

Final scope: Update the 38.321 CR reflecting the meeting agreements, and also trying to resolve the remaining issues from [R2-2206207](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206207.zip) and [R2-2206212](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206212.zip)

Final intended outcome:

1) Summary of the offline discussion with e.g.:

- List of proposals for email agreement (if any)

2) Agreeable 38.321 CR

1) Deadline (for companies' feedback to offline discussion):  Thursday 2022-05-19 20:00 UTC

1) Deadline (for offline summary in R2-2206612):  Thursday 2022-05-19 22:00 UTC

2) Deadline (for companies' feedback to CR):  Friday 2022-05-20 08:00 UTC

2) Deadline (for final CR in R2-2206503):  Friday 2022-05-20 10:00 UTC

Proposals in R2-2206612 not challenged until Friday 2022-05-20 10:00 UTC will be declared as agreed via email by the session chair.

(Deadlines for CR are indicative. It’s likely that this discussion will move to a Post118-e discussion)

Status: ongoing

* [AT118-e][105][RedCap] NCD-SSB aspects (ZTE)

Final scope: Continue the discussion on p4 and on the issue (RIL 520 related) raised by Samsung. Also draft reply LSs to [R2-2204476](file:///C:\Data\3GPP\Extracts\R2-2204476_R4-2206977.docx) (to RAN1) and to [R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx) (RAN4) based on meeting agreements

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

* List of proposals for agreement (if any)
* List of proposals that require online discussions
* text proposals for reply LSs to RAN1 and RAN4

Deadline (for companies' feedback): Wednesday 2022-05-18 08:00 UTC

Deadline (for rapporteur's summary in [R2-2206414](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206414.zip)): Wednesday 2022-05-18 10:00 UTC

Status: ongoing

* [AT118-e][106][NTN] CP issues (Nokia)

Final scope: continue the discussion on assistance information for SMTC/measurement gap adjustments. During the discussion, proponents of the propagation delay difference approach and of the (coarse) UE location information approach should provide a Stage 3 TP to describe the details of the triggering events, etc.

Final intended outcome: Summary of the offline discussion with list of proposals

Deadline (for companies' feedback): Wednesday 2022-05-18 18:00 UTC

Deadline (for rapporteur's summary in R2-2206505): Wednesday 2022-05-18 20:00 UTC

Status: ongoing

* [AT118-e][107][NTN] System information (Huawei)

Final scope: Draft reply LS to [R2-2204468](file:///C:\Data\3GPP\Extracts\R2-2204468_R1-2202843.docx)

Final intended outcome: Agreeable reply LS

Deadline (for companies' feedback): Thursday 2022-05-19 10:00 UTC

Deadline (for reply LS in R2-2206416): Thursday 2022-05-19 12:00 UTC

Status: ongoing

* [AT118-e][108][NTN] UE capabilities (Intel)

Final scope: Update the UE capability CRs, reflecting the meeting agreements (and also trying to resolve the remaining issue in p6 from R2-2206211)

Final intended outcome: Agreeable UE capability CRs

Deadline (for companies' feedback): Friday 2022-05-20 08:00 UTC

Deadline (for final CRs in R2-220XXXX): Friday 2022-05-20 10:00 UTC

Status: ongoing

* [AT118-e][109][RedCap] RRM relaxation (vivo)

Final scope: draft a reply LS to [R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc)

Final intended outcome: reply LS in R2-2206418

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for LS in R2-2206418): Thursday 2022-05-19 14:00 UTC

Status: ongoing

* [AT118-e][110][RedCap] UE capabilities (Intel)

Final scope: Update the UE capability CRs, reflecting the meeting agreements (and also trying to resolve the remaining issue in ph2-3 from [R2-2206219](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206219.zip))

Final intended outcome: Endorsable UE capability CRs

Deadline (for companies' feedback): Friday 2022-05-20 08:00 UTC

Deadline (for final CRs in R2-2206415 and R2-2206416): Friday 2022-05-20 10:00 UTC

Status: ongoing

* [AT118-e][111][NTN] Idle mode (ZTE)

Final scope: Update the 38.304 CR, reflecting the meeting agreements (and also considering [R2-2205531](file:///C:\Data\3GPP\Extracts\R2-2205531%20Rel-17%20NTN%20corrections%20to%2038.304.docx))

Intended outcome: Agreeable 38.304 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206500): Friday 2022-05-20 08:00 UTC

Status: ongoing

* [AT118-e][112][NTN] Stage-2 CR (Thales)

Scope: continue the discussion on the Stage-2 CR, also considering Stage-2 text proposals in submitted contributions

Intended outcome: Agreeable Stage-2 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206202): Friday 2022-05-20 08:00 UTC

Status: ongoing

* [AT118-e][113][RedCap] Stage-2 CR (Nokia)

Scope: continue the discussion on the Stage-2 CR, also considering Stage-2 text proposals in submitted contributions

Intended outcome: Agreeable Stage-2 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206203): Friday 2022-05-20 08:00 UTC

Status: ongoing

* [AT118-e][114][NTN] Reply LSs to CT1 (CMCC)

Initial scope: Discuss whether some minimal update to 38.304 is needed related to the CT1 LS on list of PLMNs not allowed to operate at the present UE location and the need/content of a reply LS for CT1 LS about NR satellite RAT type in UE NAS

Initial intended outcome: Agreeable TP for a 38.304 CR on list of PLMNs not allowed to operate at the present UE location and reply LS to CT1 on NR satellite RAT type in UE NAS

Deadline (for companies' feedback): Tuesday 2022-05-17 06:00 UTC

Deadline (for rapporteur's summary in [R2-2206206](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206206.zip)): Tuesday 2022-05-17 08:00 UTC

Proposals in [R2-2206206](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206206.zip) not challenged until Thursday 2022-05-18 12:00 UTC will be declared as agreed via email by the session chair (for the rest the discussion might continue online).

Status: ongoing

* [AT118-e][115][RedCap] 38.304 CR (Samsung)

Final scope: continue the discussion on p1, p4 and p5 from [R2-2206213](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206213.zip) and update the 38.304 CR, also reflecting other meeting agreements

Intended outcome: Agreeable 38.304 CR

Deadline (for companies' feedback): Friday 2022-05-20 08:00 UTC

Deadline (for final CR in R2-2206216): Friday 2022-05-20 10:00 UTC

(Deadlines for CR are indicative. It’s likely that this discussion will move to a Post118-e discussion)

Status: ongoing

* [AT118-e][116][RedCap] MAC aspects (vivo)

Initial scope: Discuss MAC aspects, e.g. based on contributions in 6.12.3.1

Initial intended outcome: Summary of the offline discussion with agreeable proposals/TP for 38.321

Deadline (for companies' feedback): Tuesday 2022-05-17 22:00 UTC

Deadline (for rapporteur's summary in [R2-2206214](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206214.zip)): Wednesday 2022-05-18 00:00 UTC

Proposals/TP marked "for agreement" in [R2-2206214](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206214.zip) not challenged until Wednesday 2022-05-18 12:00 UTC will be declared as agreed via email by the session chair.

Status: ongoing

* [AT118-e][117][CovEnh] Stage-2 CR (China Telecom)

Scope: Update the Stage-2 CR considering the submitted contributions

Intended outcome: Agreeable Stage-2 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206411): Friday 2022-05-20 08:00 UTC

Status: ongoing

* [AT118-e][118][CovEnh] MAC CR (ZTE)

Scope: Update MAC CR considering the submitted contributions

Intended outcome: Agreeable MAC CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206412): Friday 2022-05-20 08:00 UTC

Status: ongoing

* [AT118-e][119][NTN] Coarse UE location info (Thales)

Scope: Discuss the coarse UE location information format (e.g. whether to use the most significant bits of GNSS longitude/latitude or also consider the proposals in [R2-2205574](file:///C:\Data\3GPP\Extracts\R2-2205574%20Coarse%20location%20format.docx)) and the reporting mechanism (e.g. reuse the mechanism for reporting commonLocationInfo)

Intended outcome: Summary of the offline discussion with list of proposals

Deadline (for companies' feedback): Thursday 2022-05-19 08:00 UTC

Deadline (for rapporteur's summary in R2-2206506): Thursday 2022-05-19 10:00 UTC

Proposals marked "for agreement" in R2-2206506 not challenged until Thursday 2022-05-19 20:00 UTC will be declared as agreed via email by the session chair.

Status: ongoing

## 8.10 NR Non-Terrestrial Networks (NTN)

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

RAN2 parts of the WI has been declared 100% complete. The exception sheet in RP-220209 contains RAN4 impacts.

Tdoc Limitation: 8 tdocs

### 6.10.1 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.

#### 6.10.1.1 LS in

For LSes that need action: one tdoc by contact company to address the LS and potential reply is considered.

Rapporteur input may be provided.

SIB19 updating

[R2-2204468](file:///C:\Data\3GPP\Extracts\R2-2204468_R1-2202843.docx) Reply LS on NTN-specific SIB (R1-2202843; contact: Huawei) RAN1 LS in Rel-17 NR\_NTN\_solutions-Core To:RAN2

* Discussed in offline 107
* Reply LS in R2-2206416

R2-2206416 Reply LS on NTN-specific SIB Huawei LS out Rel-17 NR\_NTN\_solutions-Core To:RAN1

[R2-2206041](file:///C:\Data\3GPP\RAN2\Docs\R2-2206041.zip) Discussion on ambiguity of cell-specific K\_offset Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

Neighbour cell information

[R2-2204470](file:///C:\Data\3GPP\Extracts\R2-2204470_R1-2202873.docx) Reply LS to RAN2 on NR NTN Neighbour Cell and Satellite Information (R1-2202873; contact: Thales) RAN1 LS in Rel-17 NR\_NTN\_solutions-Core To:RAN2

* Discussed in offline 106

PLMNs not allowed

[R2-2204450](file:///C:\Data\3GPP\Extracts\R2-2204450_C1-222096.doc) LS on introducing the list of PLMNs not allowed to operate at the present UE location (C1-222096; contact: CMCC) CT1 LS in Rel-17 5GSAT\_ARCH-CT To:RAN2

[R2-2205158](file:///C:\Data\3GPP\Extracts\R2-2205158%20Impact%20on%20Cell%20selection%20re-selection%20by%20the%20new%20PLMN%20list%20from%20CT1.docx) Impact on Cell selection/re-selection by the new PLMN list from CT1 CMCC discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1: NAS is proposed to transmit the information of the list to the AS to facilitate the cell selection and re-selection.

Proposal 2: it is proposed that for Rel-17 UE in NTN, it also requires the following condition to consider a cell as suitable:

- The cell is not part of the list of " PLMNs not allowed to operate at the present UE location "; Or

- The cell is part of the list of " PLMNs not allowed to operate at the present UE location " , and either:

- the current UE location is out of the coverage of the geographical location is stored for the entry of this PLMN plus the distance stored for the entry of this PLMN; or

- the timer associated with the entry of this PLMN has expired.

- The cell selection criteria are fulfilled, see clause 5.2.3.2 in TS 38.304.

Proposal 3: if the UE detects a cell and the location of the UE fulfils the conditions related to the list of "PLMNs not allowed to operate at the present UE location", it shall not consider the cell as candidate cell for cell selection and re-selection in NTN.

* Ericsson thinks nothing needs to be done in AS. This is about PLMN selection which is done in NAS. Samsung/QC agrees. QC also thinks that CT1 did not ask RAN2 to do anything.
* Huawei thinks some parts of the TP from CMCC can be kept, i.e. to section 4.2 and indicate that a list of "PLMNs not allowed to operate at the present UE location should be maintained”.
* Intel wonders whether NAS needs AS to report UE location
* Continue offline to see whether some minimal update to 38.304 is needed, e.g. to the table in section 4.2

[R2-2205159](file:///C:\Data\3GPP\Extracts\R2-2205159%20draft%20Reply%20LS%20on%20introducing%20the%20list%20of%20PLMNs%20not%20allowed%20to%20operate%20at%20the%20present%20UE%20location.docx) draft Reply LS on introducing the list of PLMNs not allowed to operate at the present UE location CMCC LS out Rel-17 NR\_NTN\_solutions-Core To:CT1

[R2-2204509](file:///C:\Data\3GPP\Extracts\R2-2204509_C1-223045.docx) Emergency services and UE rejected with "PLMN not allowed to operate in the country of the UE’s location" (C1-223045; contact: OPPO)   CT1     LS in    Rel-17 5GSAT\_ARCH-CT      To:SA1, RAN2   Cc:SA2, SA3LI

* Oppo thinks that CT1 is asking SA1 to confirm. We do not need to do anything for now.
* Noted

NR satellite RAT type (moved from 6.10.1)

[R2-2205027](file:///C:\Data\3GPP\Extracts\R2-2205027%20Discussion%20on%20CT1%20LS%20about%20NR%20satellite%20RAT%20type%20in%20UE%20NAS.docx) Discussion on CT1 LS about NR satellite RAT type in UE NAS CMCC discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1: It is proposed to support that the NR satellite RAT type could be available to the NAS at the UE.

Proposal 2: It could be trusted that the UE value corresponds to the value provided to the AMF due to that the RAT type at the UE NAS is indicated by the UE AS itself.

Proposal 3: We kindly suggest RAN2 to agree the draft Reply LS in R2-2205028.

* HW thinks there is no need to forward RAT type to NAS and CT1 is not asking to do anything
* QC thinks we could draft a LS response
* Continue offline to check the need/content of a reply LS
* [AT118-e][114][NTN] Reply LSs to CT1 (CMCC)

Initial scope: Discuss whether some minimal update to 38.304 is needed related to the CT1 LS on list of PLMNs not allowed to operate at the present UE location and the need/content of a reply LS for CT1 LS about NR satellite RAT type in UE NAS

Initial intended outcome: Agreeable TP for a 38.304 CR on list of PLMNs not allowed to operate at the present UE location and reply LS to CT1 on NR satellite RAT type in UE NAS

Deadline (for companies' feedback): Tuesday 2022-05-17 06:00 UTC

Deadline (for rapporteur's summary in [R2-2206206](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206206.zip)): Tuesday 2022-05-17 08:00 UTC

Proposals in R2-2206206 not challenged until Thursday 2022-05-18 12:00 UTC will be declared as agreed via email by the session chair (for the rest the discussion might continue online).

[R2-2206206](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206206.zip) [offline-114] Reply LSs to CT1 CMCC discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1: It is proposed to indicate the impact of the new list in 4.2 of 38.304 (Functional division between AS and NAS in RRC\_IDLE state and RRC\_INACTIVE state).

Proposal 2: It is proposed to indicate the impact of the new list in 4.2 of 38.304 (Functional division between AS and NAS in RRC\_IDLE state and RRC\_INACTIVE state) as in the Annex A.

Proposal 3: whether the indication is helpful completely depends on what CT1 decide upon.

Proposal 4: the UE-derived result of NR satellite RAT type (LEO/MEO/GEO/OTHERSAT) implicitly through the satellite assistance information in SIB19 broadcasted by gNB should be align with the value gNB provided to the AMF.

Proposal 5: it is proposed that RAN2 send a reply LS to CT1 for [6].

Proposal 6: the text descritption in the reply LS as in Annex B:

1. We should inform CT1 that satellite type information is available at the AS layer. Whether CT1 decides to use the information or not should have no impact on our specs.

2. We should say RAN2 expects that the satellite type provided by UE should align with the type provided by the gNB to the AMF.

[R2-2205028](file:///C:\Data\3GPP\Extracts\R2-2205028%20%5bDRAFT%5d%20Reply%20LS%20to%20CT1%20on%20NR%20satellite%20RAT%20type%20in%20UE%20NAS.docx) [DRAFT] Reply LS on NR satellite RAT type in UE NAS CMCC LS out Rel-17 NR\_NTN\_solutions-Core To:CT1 Cc:RAN3, SA2

UE location during initial access

[R2-2204496](file:///C:\Data\3GPP\Extracts\R2-2204496_R3-222861.docx) Reply LS on UE location during initial access in NTN (R3-222861; contact: Thales RAN3 LS in Rel-17 NR\_NTN\_solutions-Core To:RAN2 Cc:CT1, SA3, SA2

* Noted

Other

[R2-2204520](file:///C:\Data\3GPP\Extracts\R2-2204520_S2-2203242.docx) Reply LS on RAN Initiated Release due to out-of-PLMN area condition (S2-2203242; contact: Samsung) SA2 LS in Rel-17 NR\_NTN\_solutions-Core To:RAN3 Cc:CT1, RAN2

* Noted (no RAN2 action)

#### 6.10.1.2 Rapporteur CRs

CR Rapporteurs to provide input CRs, if needed.

Stage-2 CR

[R2-2204627](file:///C:\Data\3GPP\Extracts\R2-2204627_NR-NTN%20Stg2%20CR_v00.docx) Support of UE location in Non-Terrestrial Networks THALES draftCR Rel-17 38.300 17.0.0 NR\_NTN\_solutions

* Revised in R2-2206202

R2-2206202 Support of UE location in Non-Terrestrial Networks THALES draftCR Rel-17 38.300 17.0.0 NR\_NTN\_solutions

[R2-2204628](file:///C:\Data\3GPP\Extracts\R2-2204628%20SAN%20for%20NTN%20based%20NG-RAN.docx) SAN for NTN based NG-RAN THALES discussion Rel-17 38.300 NR\_NTN\_solutions

* Discussed in offline 112
* [AT118-e][112][NTN] Stage-2 CR (Thales)

Scope: continue the discussion on the Stage-2 CR, also considering Stage-2 text proposals in submitted contributions

Intended outcome: Agreeable Stage-2 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206202): Friday 2022-05-20 08:00 UTC

R2-2206507 [offline-112] Stage-2 CR THALES discussion NR\_NTN\_solutions

38.331 CR

[R2-2205463](file:///C:\Data\3GPP\RAN2\Docs\R2-2205463.zip) Correction for NR NTN WI Ericsson CR Rel-17 38.331 17.0.0 3088 - F NR\_NTN\_solutions-Core Late

* Revised in R2-2206502

R2-2206502 Correction for NR NTN WI Ericsson CR Rel-17 38.331 17.0.0 3088 1 F NR\_NTN\_solutions-Core

Moved from 6.10.1

[R2-2206088](file:///C:\Data\3GPP\RAN2\Docs\R2-2206088.zip) Summary of NTN RIL resolutions pre118 Ericsson discussion NR\_NTN\_solutions-Core

* Noted

[R2-2205448](file:///C:\Data\3GPP\RAN2\Docs\R2-2205448.zip) NTN ASN1 RIL list Ericsson discussion NR\_NTN\_solutions-Core Late

Confirmation of RIL issues marked as “PropAgree” and “PropReject”

* Xiaomi thinks that X610, currently set to “Prop Reject” in the RIL list, should be “Prop Agree”

- Xiaomi thinks that V307 needs some rewording

- QC wonders about x604. This should also be checked.

- QC thinks Z550 should be discussed

* X610, X604, V307, Z550 can be further discussed in offline 104
* X618 can be discussed in offline 101
* All other RIL issues marked as “PropAgree” and “PropReject” are confirmed as a baseline (can further discuss the details)

38.304 CR

R2-2206500 Correction for NR NTN ZTE Corporation CR Rel-17 38.304 17.0.0 XXXX - F NR\_NTN\_solutions-Core

38.321 CR

R2-2206503 Correction for NR NTN Interdigital CR Rel-17 38.321 17.0.0 XXXX - F NR\_NTN\_solutions-Core

Capability CRs

R2-2206613 Draft 38.306 CR for NR NTN capablities Intel Corporation draftCR Rel-17 38.306 17.0.0 F NR\_NTN\_solutions-Core

R2-2206614 Draft 38.331 CR for NR NTN capablities Intel Corporation draftCR Rel-17 38.331 17.0.0 F NR\_NTN\_solutions-Core

### 6.10.2 User Plane

#### 6.10.2.1 Known Corrections

Corrections/clarifications for already known issues, e.g. details of support for blind Msg3 retransmission, details of TA reporting during RA (e.g. on when to send TA report if RA triggered by upper layers), implementation of HARQ RTT Timer extension (coordination with RRC spec), UE behaviour upon validity timer expiry (confirmation of WA)

[R2-2204556](file:///C:\Data\3GPP\Extracts\R2-2204556%20Correction%20on%20the%20TAR%20triggers%20based%20on%20RRC%20procedure.docx) Corrections on the TAR triggers based on RRC procedures in NR NTN vivo discussion NR\_NTN\_enh-Core

[R2-2204557](file:///C:\Data\3GPP\Extracts\R2-2204557%20On%20corrections%20on%20random%20access%20procedure%20in%20NR%20NTN.docx) On corrections on random access procedure in NR NTN vivo discussion NR\_NTN\_enh-Core

[R2-2204558](file:///C:\Data\3GPP\Extracts\R2-2204558%20On%20the%20corrections%20to%20DRX%20procedure%20and%20Timing%20Advance%20reporting%20procedure%20in%20TS%2038.321.docx) On corrections to DRX procedure and TA reporting procedure in TS 38.321 vivo discussion NR\_NTN\_enh-Core

[R2-2204656](file:///C:\Data\3GPP\Extracts\38331_CR2984_(Rel-17)_R2-2204656%20TA%20report%20trigger.docx) TA report trigger in NTN Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2984 - F NR\_NTN\_solutions-Core

[R2-2204657](file:///C:\Data\3GPP\Extracts\38331_CR2985_(Rel-17)_R2-2204657%20NR%20NTN%20UL%20sync%20timer.docx) Handling the loss of UL synchronization Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2985 - F NR\_NTN\_solutions-Core

[R2-2204733](file:///C:\Data\3GPP\Extracts\R2-2204733%20-%20Discussion%20on%20ra-ContentionResolutionTimer%20in%20NTN.doc) Discussion on ra-ContentionResolutionTimer in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2204734](file:///C:\Data\3GPP\Extracts\R2-2204734%20-%20left%20issue%20on%20TA%20report%20triggered%20SR.doc) left issue on TA report triggered SR OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2204735](file:///C:\Data\3GPP\Extracts\R2-2204735%20-%20Further%20discussion%20on%20validity%20timer%20impacts%20in%20NTN.doc) Further discussion on validity timer impacts in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2204748](file:///C:\Data\3GPP\Extracts\R2-2204748.docx) MAC operations about the validity timer expiry Spreadtrum Communications discussion Rel-17

[R2-2205134](file:///C:\Data\3GPP\Extracts\R2-2205134%20Corrections%20for%20TA%20report.docx) Corrections for TA report ASUSTeK discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205135](file:///C:\Data\3GPP\Extracts\R2-2205135%20Discussion%20on%20TP%20for%20blind%20Msg3%20retransmission.docx) Discussion on TP for blind Msg3 retransmission ASUSTeK discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205232](file:///C:\Data\3GPP\Extracts\R2-2205232%20UE%20Behavior%20upon%20Validity%20Timer%20Expiry.docx) UE Behavior upon Validity Timer Expiry CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205240](file:///C:\Data\3GPP\Extracts\R2-2205240_Discussion%20on%20remaining%20issues_v3.docx) Discussion on remaining issues LG Electronics Inc. discussion NR\_NTN\_solutions-Core

[R2-2205358](file:///C:\Data\3GPP\Extracts\R2-2205358%20Clarification%20on%20contention%20Resolution%20timer%20behavior.doc) Clarification on contention Resolution timer behavior ZTE Corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205359](file:///C:\Data\3GPP\Extracts\R2-2205359%20Consideration%20on%20RTT%20timer%20extension%20implementation.doc) Consideration on RTT timer extension implementation ZTE Corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205403](file:///C:\Data\3GPP\Extracts\R2-2205403%20Remaining%20issues%20related%20to%20NTN%20validity%20timer.doc) Remaining issues related to NTN validity timer Xiaomi discussion Rel-17

[R2-2205477](file:///C:\Data\3GPP\Extracts\R2-2205477%20Discussion%20on%20Contention%20Resolution%20timer%20expiry.DOC) Discussion on Contention Resolution timer expiry Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205478](file:///C:\Data\3GPP\Extracts\R2-2205478%20Further%20consideration%20on%20TA%20report%20MAC%20CE.DOC) Further consideration on TA report MAC CE Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205596](file:///C:\Data\3GPP\Extracts\R2-2205596%20Further%20consideration%20on%20TA%20report.doc) Further consideration on TA report ZTE Corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205694](file:///C:\Data\3GPP\Extracts\R2-2205694_6.10.2.1_MAC.docx) Discussion on MAC open issues Samsung Research America discussion NR\_NTN\_solutions-Core

[R2-2205702](file:///C:\Data\3GPP\Extracts\R2-2205702%20Consideration%20on%20validity%20timer%20related%20issues.doc) Consideration on validity timer related issues ZTE Corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205720](file:///C:\Data\3GPP\Extracts\R2-2205720%20Discussion%20on%20user%20plane%20known%20issues%20for%20NR%20NTN.docx) Discussion on user plane known issues for NR NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205721](file:///C:\Data\3GPP\Extracts\R2-2205721%20CR%20for%20Contention%20Resolution%20failure,%20SR%20and%20TA%20MAC%20CE%20report.docx) CR for Contention Resolution failure, SR and TA MAC CE report Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.0.0 1284 - F NR\_NTN\_solutions-Core

[R2-2205954](file:///C:\Data\3GPP\Extracts\R2-2205954%20(R17%20NTN%20WI%20AI%206.10.2.1)%20HARQ%20Timer%20Extension.docx) HARQ RTT timer extention InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205955](file:///C:\Data\3GPP\Extracts\R2-2205955%20(R17%20NTN%20WI%20AI%206.10.2.1)%20TA%20Reporting.docx) TA Reporting during Random Access InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205956](file:///C:\Data\3GPP\Extracts\R2-2205956%20(R17%20NTN%20WI%20AI%206.10.2.1)%20validity%20timer%20expiry.docx) UE behaviour upon validity timer expiry InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205994](file:///C:\Data\3GPP\Extracts\R2-2205994%20-%20Known%20NR%20NTN%20user%20plane%20issues.docx) Known NR NTN user plane issues Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

* [AT118-e][104][NTN] UP corrections (Interdigital)

Initial scope: based on contributions in 6.10.2, discuss corrections for TA reporting, msg3 retx, Contention Resolution timer, validity timer expiry, HARQ RTT timer extension and other general UP corrections

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)

Deadline (for companies' feedback): Monday 2022-05-09 2000 UTC

Deadline (for rapporteur's summary in [R2-2206194](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206194.zip)): Monday 2022-05-09 2200 UTC

Updated scope: Continue the discussion on the functional aspects, based on [R2-2206194](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206194.zip); discuss the LS to RAN1 on msg3 repetition and also treat UP related RILs “for discussion” (M411, M412, O358, X605, X610, X604, V307, Z550, Z351, I036, V308, O354) (also further confirm the UP related PropAgree/PropReject RILs)

Updated intended outcome:

1. Summary of the offline discussion on the functional aspects and LS content, 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)

1. Summary of the offline discussion on the detailed (e.g. RIL related) issues

Deadline1 (for companies' feedback on functional aspects/LS): Friday 2022-05-13 00:00 UTC

Deadline1 (for rapporteur's summary in [R2-2206207](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206207.zip)): Friday 2022-05-13 02:00 UTC

Deadline2 (for companies' feedback on detailed aspects): Monday 2022-05-16 20:00 UTC

Deadline2 (for rapporteur's summary in [R2-2206212](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206212.zip)): Monday 2022-05-16 22:00 UTC

Final scope: Update the 38.321 CR reflecting the meeting agreements, and also trying to resolve the remaining issues from [R2-2206207](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206207.zip) and [R2-2206212](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206212.zip)

Final intended outcome:

1) Summary of the offline discussion with e.g.:

- List of proposals for email agreement (if any)

2) Agreeable 38.321 CR

1) Deadline (for companies' feedback to offline discussion):  Thursday 2022-05-19 20:00 UTC

1) Deadline (for offline summary in R2-2206612):  Thursday 2022-05-19 22:00 UTC

2) Deadline (for companies' feedback to CR):  Friday 2022-05-20 08:00 UTC

2) Deadline (for final CR in R2-2206503):  Friday 2022-05-20 10:00 UTC

Proposals in R2-2206612 not challenged until Friday 2022-05-20 10:00 UTC will be declared as agreed via email by the session chair.

(Deadlines for CR are indicative. It’s likely that this discussion will move to a Post118-e discussion)

[R2-2206194](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206194.zip) [offline-104] UP corrections Interdigital discussion Rel-17 NR\_NTN\_solutions-Core

For email agreement

Proposal 1a: The text proposals from corrections 3 and 8 are adopted and included in a TS 38.321 Rapporteur CR.

* Agreed

Proposal 1b: T\_TA shall be updated to TTA in “5.4.8 Timing Advance Reporting”.

* Agreed

Proposal 2: Do not introduce an explicit configuration to support blind Msg3 retransmission in NTN. (18/19)

* Agreed

Proposal 4: RAN2 confirms that upon validity timer expiry in NR NTN, UE shall suspend uplink transmission and acquire SIB-19, flushing HARQ buffers. (18/20)

* Agreed

Proposal 5: A new T3XX timer is introduced in RRC specification with duration ntn-UlSyncValidityDuration. Details of timer handling to be addressed in CP discussion (consensus)

* Agreed

Proposal 6: RRC indicates to lower layers when T3XX timer has expired or is restarted. (16/20)

* Agreed

Agreements via email – from offline 104:

1. The text proposals from corrections 3 and 8 in [R2-2206194](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206194.zip) are adopted and included in a TS 38.321 Rapporteur CR.

2. T\_TA shall be updated to TTA in “5.4.8 Timing Advance Reporting”.

3. Do not introduce an explicit configuration to support blind Msg3 retransmission in NTN.

4. Upon validity timer expiry in NR NTN, UE shall suspend uplink transmission and acquire SIB-19, flushing HARQ buffers.

5. A new T3XX timer is introduced in RRC specification with duration ntn-UlSyncValidityDuration. Details of timer handling to be addressed in CP discussion

6. RRC indicates to lower layers when T3XX timer has expired or is restarted.

For online discussion

Proposal 3: Msg3 repetition functionality is not supported in Rel-17 NTN. FFS if update to RRC is needed to clarify NW is not expected to configure this feature for NTN UE. (11/19)

* QC thinks that for RAN2 there might be no impact but we don’t know for RAN1.
* Ericsson thinks we need to solve this in the MAC spec
* Send an LS to RAN1 asking whether, from RAN1 perspective, msg3 repetition can be supported for Rel-17 NR NTN.
* Further discuss offline if there would be any RAN2 showstopper

Proposal 7: RAN2 to confirm setting of drx-HARQ-RTT-Timer-DL/UL length, including when timer is extended by UE-gNB RTT, is specified in RRC and when to start/stop timer is specified in MAC.

* Ericsson thinks specifying this in RRC would change the RRC/MAC interaction
* Continue offline

Proposal 8: If HARQ RTT Timer extension is handled in RRC, RAN2 to decide whether timer extension is captured via 1) procedural text in “5.3.5.5.5 MAC entity configuration” (12/17); or 2) the field description of drx-HARQ-RTT-TimerDL/UL (11/17).

* Continue offline

Postponed to Phase 2

Proposal 1c: RAN2 to further discuss corrections 1, 2, 4, 5, and 7.

[R2-2206207](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206207.zip) [offline-104] UP corrections – second round Interdigital discussion Rel-17 NR\_NTN\_solutions-Core

For email agreement

Proposal 2a: Introduce new MAC timers HARQ\_RTT\_TimerDL\_NTN and HARQ\_RTT\_TimerUL\_NTN to capture HARQ RTT Timer extension in TS 38.321. (consensus)

* Agreed

Proposal 2b: The text proposal on HARQ RTT Timer extension in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR. (consensus)

* Agreed

Proposal 3: The modified text proposal on validity timer expiry in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR. (17/18)

* Ericsson thinks that with P3 formulation it seems UL synchronization is controlled in the MAC spec, but only after the UE has lost UL synch once; the case before the UE has lost synch (for example before doing RA to access a cell) shall be modelled in the MAC spec – if we model what happens at UL synch loss. This could be done for example by separating the case of indication of UL synch lost and UL synch restored from upper layers.
* Continue online

Proposal 4a: Reference to specific RRC-based procedures are removed from Timing Advance Report triggering conditions in MAC. (consensus)

* Agreed

Proposal 4b: RRC indicates to lower layers to trigger a Timing Advance Report if: (consensus)

1) ta-Report is configured with value enabled and Random Access is initiated due to initial access, RRC Connection Resume, or RRC Connection Re-establishment.

2) If ta-Report with value enabled is indicated in the handover command and Random Access is initiated due to reconfiguration with sync.

- Xiaomi wonders whether “initial access” already include “RRC resume”

- vivo agrees we need to it clear to what specific RRC procedures the initial access here actually refers to. For example, in P4 we can directly change “initial access” to “RRC connection setup”, or add clarifications like "… initial access (including RRC connection setup and RRC connection resume procedures)".

- IDC (rapporteur) suggests to revise as:

“Proposal 4b.2: RRC indicates to lower layers to trigger a Timing Advance Report if: (consensus)

1. ta-Report is configured with value enabled and Random Access is initiated due to RRC connection establishment, RRC connection resume and RRC connection re-establishment procedures.

2. If ta-Report with value enabled is indicated in the handover command and Random Access is initiated due to reconfiguration with sync.”

* Agreed as in Proposal 4b.2 above

Proposal 5: Remove ‘successfully’ from ‘last successfully reported information about Timing Advance’ in TS 38.321

* Huawei still don’t think removing “successfully” is a wise choice
* Nokia has some sympathy with Huawei on the issue whether the TA reporting is “successful” in HARQ mode B. It may cause the outdated UE TA in NW which may further cause UL scheduling failure (e.g. due to the outdated TA report in gNB, NW may not configure K\_offset+K2 properly. Hence UE cannot perform UL transmission if UE’s actual TA is less than the NW scheduled K\_offset+K2).
* Continue online
* QC agrees with this; there is also the chance that this MAC CE is not delivered to the NW. LG agrees
* Nokia thinks this could lead to a scheduling failure. If we remove “successfully” we need to fix this somehow
* Agreed. FFS is any further mechanism is need to consider the possibility of outdated UE TA info at the NW

Section 5.8: Timing Advance Reporting. (13/18)

Proposal 6a: If a dedicated SR configuration for TAR MAC CE is not available (or supported) and timingAdvanceSR is configured with value enabled, UE selects between any available SR configuration. (14/18)

* Oppo suggest the following rewording:

Modified P6a: If a dedicated SR configuration for TAR MAC CE is not introduced ~~available (or supported)~~ and timingAdvanceSR is configured with value enabled, UE selects among ~~between~~ any available SR configuration. FFS whether to introduce a dedicated SR configuration for TAR MAC CE.

* For P6a/P6b, Nokia think either the option of #1) introducing dedicated SR configuration for TAR MAC CE or #2) UE selects among any available SR configuration can work. But there is no need to support both of them which will make the specification complex.
* IDC (rapporteur) thinks we can go for Oppo’s rewording, removing the FFS part
* Agreed as: “If a dedicated SR configuration for TAR MAC CE is not introduced and timingAdvanceSR is configured with value enabled, UE selects among any available SR configuration.”

Proposal 7: Modification 4 to Contention Resolution Timer expiry in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR. (14/18)

* Ericsson thinks it is unfortunate that we will be changing legacy behaviour with P7, as there will not be opportunity to send blind Msg3 retransmission grants for the first Msg3 transmission. Ericsson would prefer that we can confirm online that this behaviour is OK for a majority of the companies
* Continue online
* Ericsson reminds the agreement from last meeting: 1. Blind Msg3 retransmission is supported in Rel-17 NTN
* IDC wonders if by agreeing p1a the concern can be removed.
* Agreed
* Continue in the MAC CR discussion, trying to ensure that blind Msg3 retransmission is possible also for the first mgs3 transmission

Proposal 8: No additional UE behaviour is supported upon validity timer expiry. (14/18)

* Oppo wonders how to deal with the mentioned case, i.e. upon validity timer expiry, UE is not configured with searchSpaceSIB1 or searchSpaceOtherSystemInformation on the active BWP. In such case, how can UE re-acqiure SIB 19 without swithing to the initial BWP? Does the current proposal 8 (i.e. No additional UE behaviour is supported upon validity timer expiry.) imply that the BWP switching is left to UE implementation?
* Nokia prefers to wait for RAN1 conclusion on Issue#1 UE behavior w.r.t Validity timer expiry in the ongoing RAN1 email discussion [109-e-R17-NR-NTN-01] where RAN1 may send LS to RAN2 to clarify UE behavior upon timer expiry.
* IDC thinks that even if the CONN UE does not have a common search space configured it may still receive dedicated SIB while validity timer is running, so still thinsk validity timer expiry in NR is a rare case. What Nokia describe seems similar to the IoT NTN case, however in that implementation a timer similar to RLF (T318) is triggered so it depends on how this is implemented in RRC.
* Continue online
* Continue offline

For online discussion

Proposal 1a: Msg3 repetition is supported in Rel-17 NTN. The text proposal in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR.

* Continue online
* Nokia thinks that if nothing special is requested for NTN then they can accept the proposal
* IDC confirms this is the intention, reflected in the TP
* Agreed

Proposal 1b: If Proposal 1a is agreed, FFS if an LS informing RAN1 of this agreement is needed.

* Continue online
* IDC thinks this might not be necessary. QC/Ericsson/Oppo agree
* No need to send an LS to RAN1 on this

Proposal 6b: FFS if a dedicated SR configuration for TAR MAC CE is supported. (6/17)

* Continue online
* Ericsson thinks if we don’t have this the gNB doesn’t have the possibility to prioritize among different logical channels
* IDC suggest that if timingadvanceSR configured as enabled If network provides a dedicated configuration, UE uses it. Otherwise, select among all available configurations
* Come back in the next meeting to see whether this is needed

Agreements via email – from offline 104 – second round:

1. Introduce new MAC timers HARQ\_RTT\_TimerDL\_NTN and HARQ\_RTT\_TimerUL\_NTN to capture HARQ RTT Timer extension in TS 38.321.
2. The text proposal on HARQ RTT Timer extension in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR.
3. Reference to specific RRC-based procedures are removed from Timing Advance Report triggering conditions in MAC.
4. RRC indicates to lower layers to trigger a Timing Advance Report if:

1. ta-Report is configured with value enabled and Random Access is initiated due to RRC connection establishment, RRC connection resume and RRC connection re-establishment procedures.

2. If ta-Report with value enabled is indicated in the handover command and Random Access is initiated due to reconfiguration with sync.

6. If a dedicated SR configuration for TAR MAC CE is not introduced and timingAdvanceSR is configured with value enabled, UE selects among any available SR configuration

Agreements online:

1. Remove ‘successfully’ from ‘last successfully reported information about Timing Advance’ in TS 38.321. FFS is any further mechanism is need to consider the possibility of outdated UE TA info at the NW
2. Modification 4 to Contention Resolution Timer expiry in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR. Continue in the MAC CR discussion, trying to ensure that blind Msg3 retransmission is possible also for the first mgs3 transmission
3. Msg3 repetition is supported in Rel-17 NTN. The text proposal in R2-2206207 is adopted as baseline and included in the TS 38.321 Rapporteur CR. No need to send an LS to RAN1 on this

[R2-2206212](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206212.zip) [offline-104] UP corrections – third round Interdigital discussion Rel-17 NR\_NTN\_solutions-Core

Proposals for email agreement

Proposal 1: The following need code modifications are adopted:

repK-r17: ‘Need M’ is changed to ‘Need R’ (consensus)

nrofHARQ-ProcessesExt-r17: ‘Need M’ is changed to ‘Need R’ (consensus)

harq-ProcID-Offset2-v1700: ‘Need M’ is changed to ‘Need R’ (consensus)

uplinkHARQ-Mode: ‘Need R’ is changed to ‘Need M’ (9/10)

* **Agreed**

Proposal 2: The following need code modifications are rejected:

harq-ProcID-Offset-v17: ‘Need M’ is changed to ‘Need R’ (9/12)

allowedHARQ-mode: ‘Need S’ is changed to ‘Need R’ (9/11)

* ZTE has comment on the second part of p2. Though there is majority support yet the decision is actually against following principles agreed in ASN.1 ad-hoc meeting:

- Use Need R (instead of Need S) for fields whose absence simply means a configuration is released.

- Use Need R (instead of Need S) for fields for which there are some conditions when network does or does not include the field.

- IDC suggests to remove the second part from p2

* **Continue offline**

Proposal 4: V307 is confirmed as ‘Prop Agree’ and Z351 is confirmed as ‘Prop Reject’. To reflect latest RAN2 agreements the field description is updated to: “When this field is included in SIB19, it indicates whether UE specific TA reporting is enabled during RRC connection establishment ~~initial access~~, RRC connection reestablishment and RRC connection resume. When this field is included in ~~DowlinkConfigCommon~~ServingCellConfigCommon within dedicated signalling, it indicates whether UE specific TA reporting is enabled during handover (see TS 38.321 [3], clause x.x.x)” (consensus)

* **Agreed**

Proposal 5: Z550 is confirmed as Prop Agree. (consensus)

* **Agreed**

Proposal 6a: I036 is confirmed as Prop Reject. (10/14)

* **Agreed**

Proposal 7: The text proposal in R2-2205958 is agreed as baseline and included in the TS 38.331 Rapporteur’s CR. (10/13)

* **Agreed**

Proposal 8: X610 is confirmed as Prop Agree. (consensus)

* **Agreed**

Proposal 9: V308 is confirmed as Prop Agree. (consensus)

* Ericsson can accept the majority decision
* **Agreed**

Proposal 10: The text proposal from R2-2204719 is agreed as baseline and included in the TS 38.331 Rapporteur’s CR. (consensus)

* **Agreed**

Proposal 11a: RAN2 confirms RIL status of the following: H021, V309, H022, V312, S602, H033, O352, M409, O353, H034, Q303, X606, X607, V316, B008, X608, X609, V317, H020. (consensus)

* **Agreed**

Proposal 12: Correction 1 (11/12) and Correction 7 (consensus) in R2-2206212 are agreed as baseline and included in the TS 38.321 Rapporteur CR.

* **Agreed**

Proposal 14: The following NOTE is added to ‘5.4.8 Timing Advance’ in TS 38.321:

“NOTE X: The TAR MAC CE is generated based on the latest TA value up to (and including) when the MAC PDU is assembled.”

* Ericsson thinks correction 2 is not needed, or at least it is not the correct place for a clarification.
* IDC suggest to revise as “**RAN2 to discuss whether to: 1) clarify** the TA field description in section [6.1.3.56](javascript:void(0);); or 2) add **the following NOTE** **is added** **to ‘5.4.8 Timing Advance’** **in TS 38.321 “NOTE X: The TAR MAC CE is generated based on the latest TA value up to (and including) when the MAC PDU is assembled.”**
* **Continue offline**

Proposals for Online discussion

Proposal 3: RAN2 to discuss whether ‘Need N’ is changed to ‘Need M’ for discardTimerExt2 (7/11)

* IDC suggests to add “and if ‘Need S’ is changed to ‘Need R’ for allowedHARQ-mode”

Proposal 6b: The field description of discardTimerExt2 is revised to “Value in ms of discardTimerExt2 specified in TS 38.323 [5]. Value ms2000 corresponds to 2000 ms. If this field is present, the field discardTimer and discardTimerExt are ignored.”

Proposal 11b: RAN2 to further discuss the RIL status of X603.

Proposal 13: “during this connection” is removed from Correction 5 in R2-2206212. The modified Correction 5 is agreed as baseline and included in the TS 38.321 Rapporteur CR.

* HW thinks there is no need for this and think this is different from PHR

Agreements via email – from offline 104 – third round:

1. The following need code modifications are adopted:

repK-r17: ‘Need M’ is changed to ‘Need R’

nrofHARQ-ProcessesExt-r17: ‘Need M’ is changed to ‘Need R’

harq-ProcID-Offset2-v1700: ‘Need M’ is changed to ‘Need R’

uplinkHARQ-Mode: ‘Need R’ is changed to ‘Need M’ (9/10)

1. V307 is confirmed as ‘Prop Agree’ and Z351 is confirmed as ‘Prop Reject’. To reflect latest RAN2 agreements the field description is updated to: “When this field is included in SIB19, it indicates whether UE specific TA reporting is enabled during RRC connection establishment ~~initial access~~, RRC connection reestablishment and RRC connection resume. When this field is included in ~~DowlinkConfigCommon~~ServingCellConfigCommon within dedicated signalling, it indicates whether UE specific TA reporting is enabled during handover (see TS 38.321 [3], clause x.x.x)”
2. Z550 is confirmed as Prop Agree.
3. I036 is confirmed as Prop Reject.
4. The text proposal in R2-2205958 is agreed as baseline and included in the TS 38.331 Rapporteur’s CR
5. X610 is confirmed as Prop Agree
6. V308 is confirmed as Prop Agree
7. The text proposal from R2-2204719 is agreed as baseline and included in the TS 38.331 Rapporteur’s CR.
8. RAN2 confirms RIL status of the following: H021, V309, H022, V312, S602, H033, O352, M409, O353, H034, Q303, X606, X607, V316, B008, X608, X609, V317, H020.
9. Correction 1 (11/12) and Correction 7 in R2-2206212 are agreed as baseline and included in the TS 38.321 Rapporteur CR.

R2-2206612 [offline-104] UP corrections – fourth round Interdigital discussion Rel-17 NR\_NTN\_solutions-Core

#### 6.10.2.2 Other

Contributions on any other UP issues.

[R2-2204559](file:///C:\Data\3GPP\Extracts\R2-2204559%20Miscellaneous%20corrections%20on%20TS%2038.321%20for%20NR%20NTN.docx) Miscellaneous corrections on TS 38.321 for NR NTN vivo discussion NR\_NTN\_enh-Core

[R2-2205231](file:///C:\Data\3GPP\Extracts\R2-2205231%20The%20Modification%20of%20TA%20Reporting%20Triggering%20Condition.docx) The Modification of TA Reporting Triggering Condition CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205340](file:///C:\Data\3GPP\Extracts\R2-2205340.doc) CG enhancements in NTN Sony discussion Rel-17 NR\_NTN\_solutions-Core [R2-2200911](file:///C:\Data\3GPP\archive\RAN2\RAN2%23116bis\Tdocs\R2-2200911.zip)

[R2-2205360](file:///C:\Data\3GPP\Extracts\R2-2205360%20Discussion%20on%20co-existence%20of%20Msg3%20repetition%20and%20NTN.doc) Discussion on co-existence of Msg3 repetition and NTN ZTE Corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205722](file:///C:\Data\3GPP\Extracts\R2-2205722%20On%20other%20user%20plane%20issues%20for%20NR%20NTN.docx) On other user plane issues for NR NTN Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205995](file:///C:\Data\3GPP\Extracts\R2-2205995%20-%20Other%20NR%20NTN%20user%20plane%20issues.docx) Other NR NTN user plane issues Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205999](file:///C:\Data\3GPP\Extracts\R2-2205999_Correction%20to%20NR%20NTN%20epoch%20time%20definition.docx) Correction to NR NTN epoch time definition Sequans Communications discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 112

### 6.10.3 Control Plane

#### 6.10.3.1 Idle/inactive mode aspects

##### 6.10.3.1.1 Known Corrections

Corrections/clarifications for already known issues, e.g. location based cell reselection, access barring (UE behavior), SIBxx processing (details on UE operation)

cell-specific k\_offset (moved here from 6.10.3.2.1)

[R2-2204714](file:///C:\Data\3GPP\Extracts\R2-2204714%20Discussion%20on%20neighbor%20cell's%20epoch%20time%20and%20Koffset's%20ambiguity%20issue.doc) Discussion on neighbour cell's epoch time and Koffset's ambiguity issue OPPO discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

[R2-2205650](file:///C:\Data\3GPP\Extracts\R2-2205650%20Cell-specific%20K_offset%20ambiguity.docx) Cell-specific K\_offset ambiguity Apple discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

SIB19 processing and updating aspects

Moved here from 6.10.3.2.1

[R2-2204749](file:///C:\Data\3GPP\Extracts\R2-2204749%20Discussion%20on%20SIB%20X%20acquiring%20procedure.doc) Discussion on SIB X acquiring procedure Spreadtrum Communications discussion Rel-17

* Discussed in offline 107

[R2-2205234](file:///C:\Data\3GPP\Extracts\R2-2205234%20Discussion%20on%20the%20parameters%20influencing%20SI%20modification%20proc....docx) Discussion on the parameters influencing SI modification procedure CATT discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

[R2-2205301](file:///C:\Data\3GPP\Extracts\R2-2205301%20Discussion%20on%20SIB19%20processing%20and%20updating.doc) Discussion on SIB19 processing and updating Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

Moved here from 6.10.3.1.2

[R2-2205303](file:///C:\Data\3GPP\Extracts\R2-2205303%20%5bH803%5d%20Discussion%20on%20on-demand%20SIB%20for%20NTN.doc) [H803] Discussion on on-demand SIB for NTN Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

[R2-2205528](file:///C:\Data\3GPP\Extracts\R2-2205528%20Resolving%20open%20NTN%20issues%20for%20IDLE%20mode.docx) Resolving open NTN issues for IDLE mode Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

Moved here from 6.10.3.2.1

[R2-2205651](file:///C:\Data\3GPP\Extracts\R2-2205651%20Epoch%20time%20and%20validity%20timer%20expiry.docx) Epoch time and validity timer expiry Apple discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 107

[R2-2205696](file:///C:\Data\3GPP\Extracts\R2-2205696_6.10.3.1.1_SIB.docx) Open issues on acquiring SIB Samsung Research America discussion NR\_NTN\_solutions-Core

* Discussed in offline 107

Moved here from 6.10.3.2.2

[R2-2205700](file:///C:\Data\3GPP\Extracts\R2-2205700_6.10.3.2.2_epochTime.docx) RILs on epoch time Samsung Research America discussion NR\_NTN\_solutions-Core

* Discussed in offline 107

[R2-2205754](file:///C:\Data\3GPP\Extracts\R2-2205754_RIL%20H803%20TS38.300%20Clarification%20on%20SIB19%20Provisioning.docx) RIL# H803/TS38.300: Clarification on SIB19 Provisioning NEC Telecom MODUS Ltd. Discussion

* Discussed in offline 107
* [AT118-e][107][NTN] System information (Huawei)

Initial scope: discuss incoming LS in [R2-2204468](file:///C:\Data\3GPP\Extracts\R2-2204468_R1-2202843.docx) and a possible reply LS on cell-specific k\_offset ambiguity (considering [R2-2206041](file:///C:\Data\3GPP\RAN2\Docs\R2-2206041.zip), [R2-2204714](file:///C:\Data\3GPP\Extracts\R2-2204714%20Discussion%20on%20neighbor%20cell's%20epoch%20time%20and%20Koffset's%20ambiguity%20issue.doc), [R2-2205650](file:///C:\Data\3GPP\Extracts\R2-2205650%20Cell-specific%20K_offset%20ambiguity.docx)). Also discuss SIB19 processing and updating aspects (e.g. based on relevant proposals in [R2-2205234](file:///C:\Data\3GPP\Extracts\R2-2205234%20Discussion%20on%20the%20parameters%20influencing%20SI%20modification%20proc....docx), [R2-2205301](file:///C:\Data\3GPP\Extracts\R2-2205301%20Discussion%20on%20SIB19%20processing%20and%20updating.doc), [R2-2205528](file:///C:\Data\3GPP\Extracts\R2-2205528%20Resolving%20open%20NTN%20issues%20for%20IDLE%20mode.docx), [R2-2205696](file:///C:\Data\3GPP\Extracts\R2-2205696_6.10.3.1.1_SIB.docx), [R2-2205651](file:///C:\Data\3GPP\Extracts\R2-2205651%20Epoch%20time%20and%20validity%20timer%20expiry.docx), [R2-2204749](file:///C:\Data\3GPP\Extracts\R2-2204749%20Discussion%20on%20SIB%20X%20acquiring%20procedure.doc), [R2-2205700](file:///C:\Data\3GPP\Extracts\R2-2205700_6.10.3.2.2_epochTime.docx), [R2-2205303](file:///C:\Data\3GPP\Extracts\R2-2205303%20%5bH803%5d%20Discussion%20on%20on-demand%20SIB%20for%20NTN.doc) and [R2-2205754](file:///C:\Data\3GPP\Extracts\R2-2205754_RIL%20H803%20TS38.300%20Clarification%20on%20SIB19%20Provisioning.docx))

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

* Text/proposals for a possible reply LS to [R2-2204468](file:///C:\Data\3GPP\Extracts\R2-2204468_R1-2202843.docx)
* List of proposals for agreement (if any)
* List of proposals that require online discussions
* List of proposals that should not be pursued (if any)

Deadline (for companies' feedback): Tuesday 2022-05-10 0800 UTC

Deadline (for rapporteur's summary in [R2-2206197](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206197.zip)): Tuesday 2022-05-10 1000 UTC

Updated scope: continue the discussion based on [R2-2206197](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206197.zip).

Updated 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)

Deadline (for companies' feedback): Friday 2022-05-13 00:00 UTC

Deadline (for rapporteur's summary in [R2-2206208](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206208.zip)): Friday 2022-05-13 02:00 UTC

Updated scope: continue the discussion on remaining proposals from [R2-2206208](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206208.zip).

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

* List of proposals for agreement (if any)
* List of proposals that require online discussions
* Text proposal for a reply LS to [R2-2204468](file:///C:\Data\3GPP\Extracts\R2-2204468_R1-2202843.docx)

Deadline (for companies' feedback): Tuesday 2022-05-17 08:00 UTC

Deadline (for rapporteur's summary in [R2-2206413](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206413.zip)): Tuesday 2022-05-17 10:00 UTC

Final scope: Draft reply LS to [R2-2204468](file:///C:\Data\3GPP\Extracts\R2-2204468_R1-2202843.docx)

Final intended outcome: Agreeable reply LS

Deadline (for companies' feedback): Thursday 2022-05-19 10:00 UTC

Deadline (for reply LS in R2-2206416): Thursday 2022-05-19 12:00 UTC

[R2-2206197](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206197.zip) [offline-107] System Information Huawei discussion Rel-17 NR\_NTN\_solutions-Core

For easy agreement

Proposal 1: Ephemeris, common TA parameters and epoch time can be updated without invoking the SI modification procedure.

* Agreed

Note: The proposal is revised based on offline comments. Original wording: The validity duration applies only to ephemeris and common TA parameters including the epoch time, and other parameters in SIB19 follow the normal SI modification procedure.

(22/22) Proposal 2: Remove the FFS in the field description of t-Service : FFS" This field is excluded when determining changes in system information, i.e. changes of t-Service should neither result in system information change notifications nor in a modification of valueTag in SIB1."

* Agreed

(16/22) Proposal 3: Add “validity duration” to Proposal 1.

* Continue offline

(21/22) Proposal 4: The issue of possible ambiguity of cell-specific K\_offset raised by RAN1 can be handled by gNB implementation

* Agreed

(19/21) Proposal 6: If the UE acquires SIB19 before validity timer expiry, there is no need for the UE to suspend or stop the validity timer

* Continue offline

(22/22) Proposal 8: On-demand SIB19 is not supported for UEs in RRC\_IDLE/RRC\_INACTIVE state.

* Vivo is ok with this but wonders if we need to clarify anything in the specs. Huawei thinks this is covered by p10
* Agreed

(19/21) Proposal 9: On-demand SIB19 is not supported for UEs in RRC\_CONNECTED state.

* TTP support on demand SIB19 for connected state
* Continue offline

Proposal 10: Add a clarification in the field description of si-BroadcastStatus that “This field can only be set to broadcasting for SIB19 in an NTN cell.”

* NEC thinks the wording should refer to SI, not to SIB. HW agrees on the rewording.
* Ericsson thinks it’s not necessary to limit the NW implementation.
* QC wonders about the cost for the UE to support this.
* LG thinks that CA/DC is not supported
* Continue offline

(21/21) Proposal 11: The changes to Stage 2 spec in R2-2205754 are not pursued.

* Agreed

(20/22) Proposal 12: [C216] and [C217] are rejected.

* CATT has some concerns
* Nokia thinks this is in line with RAN1 agreement
* Agreed

For further discussion

Proposal 5: Regarding ephemeris, common TA parameters, epoch time (and validity duration, if P3 can be agreed), RAN2 determines the correct understanding of NW behaviour:

- (10/20) Option 1): NW cannot trigger SI modification when the parameters are changed and validity timer has not expired.

- Revised Option 1): The parameters are not changed for the validity duration and SI modification procedure is not used to update them.

- (10/20) Option 3): UE consider the parameters as valid during validity duration, but the NW is still allowed to proactively trigger the SI modification if there is change.

* Continue offline

Proposal 7: If the UE acquires SIB19 before validity timer expiry, RAN2 to discuss which option is preferred:

- (12/22) Option 3) If epoch time is future, the UE applies the parameters until epoch time; if epoch time is past/present, UE applies the parameters immediately.

- (15/22) Option 4) When to apply latest parameters is left to UE implementation

* Continue offline

(14/20) Proposal 13: During HO, the target cell’s epoch time (i.e. SFN and subframe number) is based on target cells’ timing.

* Continue offline

Agreements:

1. Ephemeris, common TA parameters and epoch time can be updated without invoking the SI modification procedure.
2. Remove the FFS in the field description of t-Service : FFS" This field is excluded when determining changes in system information, i.e. changes of t-Service should neither result in system information change notifications nor in a modification of valueTag in SIB1."
3. The issue of possible ambiguity of cell-specific K\_offset raised by RAN1 can be handled by gNB implementation
4. On-demand SIB19 is not supported for UEs in RRC\_IDLE/RRC\_INACTIVE state.
5. The changes to Stage 2 spec in R2-2205754 are not pursued.
6. [C216] and [C217] are rejected.

[R2-2206208](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206208.zip) [offline-107] System Information – second round Huawei discussion Rel-17 NR\_NTN\_solutions-Core

For email agreement

(16/22) Proposal 3: Add “validity duration” to Proposal 1.

Note: If agreed, the agreement can be: Ephemeris, common TA parameters, epoch time and validity duration can be updated without invoking the SI modification procedure.

* ZTE would like to further discuss p3 online. During offline, it is mentioned by some companies that NW might want to update validity duration (e.g.,shorten it) or update common TA related parameters together with the validity duration due to major changes, which might not be frequent but it is possible, in such case it is important for UE to know that the validity duration has changed and update accordingly. Otherwise there will be mismatch on the understanding between UE and NW. P3 is also related to revised P5. If P5 is not agreeable then validity duration shall trigger SI modification to keep to possibility for NW to proactively trigger the SI modification if there is change. Considering this, we think P3 and P5 shall be discussed together.
* Continue offline

(14/19) Revised Proposal 5: Regarding ephemeris, common TA parameters, epoch time (and validity duration, if P3 can be agreed), UE consider the parameters as valid during validity duration, but the NW is still allowed to proactively trigger the SI modification if there is change.

* QC thinks the network behavior proposed here should have no specification impact. Suggests to remove “but the NW is still allowed to proactively trigger the SI modification if there is change.”
* HW thinks that if we change as QC suggests, the proposal does not provide any additional information compared with what we agreed in the past. Maybe this can be solved by adding “(no additional spec impact is introduced)” at the end
* Samsung also has concerns on p5
* HW thinks the intention of P5 is that normally there will be no SI modification procedure triggered for the changes of UL sync parameters, but if there is some major changes, the NW is not prevented from triggering the SI modification. I think P5 is just to confirm whether there is any further restriction on the NW, it does not intend to capture anything additional to the spec.
* Since there are different interpretations of the previous agreement, HW wonders it it’s agreeable to add a restriction to the NW? Like: “NW cannot trigger SI modification when ephemeris and common TA information is changed and validity timer has not expired”. Samsung would support this.
* Continue offline

(20/22) Proposal 6: If the UE acquires SIB19 before validity timer expiry, there is no need for the UE to suspend or stop the validity timer

* Agreed

(15/22) Revised Proposal 7: If the UE acquires SIB19 before validity timer expiry, when to apply latest parameters is left to UE implementation.

* Xiaomi thinks this is against majority view of RAN1 and that RAN1 would like to use epoch time pointing at future
* QC thinks this is not correct as there is epoch time which clearly tells UE when to apply the latest parameters. It is not UE implementation. Besides, QC also think it should be clarified the epoch time can be in the past or it always indicates future SFN.
* Huawei does not think “RAN1 would like to use epoch time pointing at future”
* Continue offline

(19/22) Proposal 9: On-demand SIB19 is not supported for UEs in RRC\_CONNECTED state.

* QC wonders why On-demand SIB19 cannot be supported for UEs in RRC\_CONNECTED state? If proposal 14 is agreed, then this can also be supported.
* HW thinks the reason is that we have agreed on-demand SIB19 is not supported for Idle/Inactive UEs, and as a result the NW needs to always broadcast SIB19. If the Connected UE has a common search space, it can listen to the broadcasted SIB19; if not, SIB19 can be delivered via dedicated signaling (Proposal 14). Note that dedicated SIB delivery for UEs without common search space and on-demand SIB request for UEs in connected mode are separate functionalities. As clarified in the discussion document, the former is introduced in R15 while the latter is introduced in R16. Proposal 14 can work well with Proposal 9. In legacy mechanism, SIB6/7/8 are not supported for on-demand request by Connected UEs but they can be delivered to the UEs via RRC signaling, why the case for SIB19 cannot be the same? SIB19 is necessary for the UE to maintain UL synchronization, and the NW can transfer SIB19 to the UE without UE requesting.
* QC thinks the network may not know exactly when the UL synchronization timer will expire at UE. But the UE knows exactly when it expires and when it should acquire SIB19. Then what is your concern if the UE wants to let network know it is time to transfer SIB19?
* HW thinks this can be left to NW implementation. For instance, the NW transfers SIB19 after the UE enters Connected mode (and the time is known by the NW) and transfers the updated SIB19 before the legacy one expires.
* Continue offline

(16/17) Revised Proposal 10: Add a clarification in the field description of si-BroadcastStatus that “si-BroadcastStatus of the SI where SIB19 is mapped is set to broadcasting.”

* Agreed

(15/20) Proposal 13: During HO, the target cell’s epoch time (i.e. SFN and subframe number) is based on target cells’ timing.

* Agreed

(19/19) Proposal 14: dedicatedSystemInformationDelivery is used to provide SIB19 for the UE in RRC\_CONNECTED mode with an active BWP not configured with common search space.

* Omnispace supports this
* Agreed

(19/19) Proposal 15: If Proposal 14 is agreed, the field description of dedicatedSystemInformationDelivery is modified accordingly (i.e., add SIB19 after SIB8).

* Agreed

For further discussion

None

Agreements via email – from offline 107 – second round:

1. If the UE acquires SIB19 before validity timer expiry, there is no need for the UE to suspend or stop the validity timer
2. Add a clarification in the field description of si-BroadcastStatus that “si-BroadcastStatus of the SI where SIB19 is mapped is set to broadcasting.”
3. During HO, the target cell’s epoch time (i.e. SFN and subframe number) is based on target cells’ timing.
4. dedicatedSystemInformationDelivery is used to provide SIB19 for the UE in RRC\_CONNECTED mode with an active BWP not configured with common search space.
5. the field description of dedicatedSystemInformationDelivery is modified accordingly (i.e., add SIB19 after SIB8).

[R2-2206413](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206413.zip) [offline-107] System Information – third round Huawei discussion Rel-17 NR\_NTN\_solutions-Core

(20/22) Proposal 3: Add “validity duration” to Proposal 1.

Note: If agreed, the agreement can be: Ephemeris, common TA parameters, epoch time and validity duration can be updated without invoking the SI modification procedure.

* ZTE thinks that updating the validity duration is not very common and think that option 3 in p5 needs to be agreed at the same time
* Ephemeris, common TA parameters, epoch time and validity duration can be updated without invoking the SI modification procedure

Updated Proposal 5: Regarding ephemeris, common TA parameters, epoch time (and validity duration, if P3 can be agreed), RAN2 to determine the correct understanding of NW behaviour:

- (3/22) Option 1): The parameters are not changed for the validity duration and SI modification procedure is not used to update them.

- (19/22) Option 3): UE considers the parameters as valid during validity duration, but the NW is not prevented from triggering the SI modification if there are major changes. No spec impact is introduced.

- QC could be fine but would like to clarify that the validity duration should not be changed alone

- Samsung has concerns with option 3

* Regarding ephemeris, common TA parameters, epoch time and validity duration, UE considers the parameters as valid during validity duration, but the NW is not prevented from triggering the SI modification if there are major changes. No spec impact is introduced
* RAN2 understands that the NW should not change validity duration alone

Updated Proposal 7: If the UE acquires SIB19 before validity timer expiry, RAN2 to discuss which option is preferred:

- (4/22) Option 3) If epoch time is future, the UE applies the parameters at epoch time; if epoch time is past/present, UE applies the parameters immediately.

- (18/22) Option 4) When to apply latest parameters is left to UE implementation

* Wait for RAN1

(21/22) Proposal 9: On-demand SIB19 is not supported for UEs in RRC\_CONNECTED state.

* On-demand SIB19 is not supported for UEs in RRC\_CONNECTED state in NR NTN Rel-17

Agreements:

1. Ephemeris, common TA parameters, epoch time and validity duration can be updated without invoking the SI modification procedure
2. Regarding ephemeris, common TA parameters, epoch time and validity duration, UE considers the parameters as valid during validity duration, but the NW is not prevented from triggering the SI modification if there are major changes. No spec impact is introduced. RAN2 understands that the NW should not change validity duration alone
3. On-demand SIB19 is not supported for UEs in RRC\_CONNECTED state in NR NTN Rel-17

access barring and cell reselection (to be discussed in offline 111)

[R2-2205571](file:///C:\Data\3GPP\Extracts\R2-2205571_Left%20over%20issues%20in%20idle%20and%20inactive%20mode%20in%20NTN_v0.docx) Left over issues in idle and inactive mode in NTN ZTE corporation, Sanechips discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2204592](file:///C:\Data\3GPP\Extracts\R2-2204592%20Discussion%20on%20remaining%20issue%20of%20NTN%20idelinactive%20mode_Final.doc) Discussion on remaining issue of NTN idel/inactive mode Transsion Holdings discussion Rel-17

Moved from 6.10.3

[R2-2205110](file:///C:\Data\3GPP\Extracts\R2-2205110%20Remaining%20issues%20on%20idle_inactive%20mode%20and%20RRC%20aspects_v0.1.DOCX) Remaining issues on idle/inactive mode and RRC aspects LG Electronics France discussion Rel-17 NR\_NTN\_solutions-Core

* Revised in [R2-2206035](file:///C:\Data\3GPP\RAN2\Docs\R2-2206035.zip)

[R2-2206035](file:///C:\Data\3GPP\RAN2\Docs\R2-2206035.zip) Remaining issues on idle/inactive mode and RRC aspects LG Electronics France discussion Rel-17 NR\_NTN\_solutions-Core [R2-2205110](file:///C:\Data\3GPP\Extracts\R2-2205110%20Remaining%20issues%20on%20idle_inactive%20mode%20and%20RRC%20aspects_v0.1.DOCX) Late

access barring (to be discussed in offline 111)

[R2-2204563](file:///C:\Data\3GPP\Extracts\R2-2204563%20Remaining%20issue%20on%20access%20barring%20for%20NTN.docx) Remaining issue on access barring for NTN vivo discussion NR\_NTN\_enh-Core

[R2-2204658](file:///C:\Data\3GPP\Extracts\38331_CR2986_(Rel-17)_R2-2204658%20NTN%20TN%20barring.docx) TN NTN barring mechanism Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2986 - F NR\_NTN\_solutions-Core

[R2-2205237](file:///C:\Data\3GPP\Extracts\R2-2205237%20Discussion%20on%20the%20access%20barring%20in%20NTN.docx) Discussion on the access barring in NTN CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205302](file:///C:\Data\3GPP\Extracts\R2-2205302%20Discussion%20on%20access%20barring.doc) Discussion on access barring Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205753](file:///C:\Data\3GPP\Extracts\R2-2205753_NTN%20Access%20barring%20and%20UE%20behaviour.docx) NTN Access barring and UE behaviour NEC Telecom MODUS Ltd. discussion

[R2-2205865](file:///C:\Data\3GPP\Extracts\R2-2205865%20NR%20NTN%20Idle%20mode%20issues.docx) NR NTN idle mode issues Ericsson discussion NR\_NTN\_solutions-Core

cell reselection (to be discussed in offline 111)

[R2-2204709](file:///C:\Data\3GPP\Extracts\R2-2204709%20Discussion%20on%20location-based%20cell%20reselection%20in%20NTN.doc) Discussion on location-based cell reselection in NTN OPPO discussion Rel-17 NR\_NTN\_solutions-Core

Moved here from 6.10.3.1.2

[R2-2205029](file:///C:\Data\3GPP\Extracts\R2-2205029%20Discussion%20on%20cell%20reselection.docx) Discussion on cell reselection CMCC discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205094](file:///C:\Data\3GPP\Extracts\R2-2205094.docx) Remaining issue on idle/inactive mode ITL discussion Rel-17

[R2-2205236](file:///C:\Data\3GPP\Extracts\R2-2205236%20Further%20Discussion%20on%20Cell%20Reselection.docx) Further Discussion on Cell Reselection CATT discussion Rel-17 NR\_NTN\_solutions-Core Withdrawn

[R2-2205371](file:///C:\Data\3GPP\Extracts\R2-2205371%20Discussion%20on%20remaining%20issues%20on%20RRC%20idle%20mode.doc) Discussion on remaining issues on RRC idle mode Xiaomi discussion

[R2-2205405](file:///C:\Data\3GPP\Extracts\R2-2205405%20Further%20Discussion%20on%20Cell%20Reselection.docx) Further Discussion on Cell Reselection CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205533](file:///C:\Data\3GPP\Extracts\R2-2205533.docx) Cell reselection with distance threshold Samsung discussion

[R2-2205740](file:///C:\Data\3GPP\Extracts\R2-2205740_%20Distance%20based%20cell%20reselection.docx) Distance based cell reselection NEC Telecom MODUS Ltd. discussion

* [AT118-e][111][NTN] Idle mode (ZTE)

Initial scope: based on contributions in 6.10.3.1.1 discuss access barring and cell reselection issues

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)

Deadline (for companies' feedback): Friday 2022-05-13 00:00 UTC

Deadline (for rapporteur's summary in [R2-2206201](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206201.zip)): Friday 2022-05-13 02:00 UTC

Proposals marked "for agreement" in [R2-2206201](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206201.zip) not challenged until Friday 2022-05-13 14:00 UTC will be declared as agreed via email by the session chair (for the rest the discussion might continue offline).

Final scope: Update the 38.304 CR, reflecting the meeting (and also considering [R2-2205531](file:///C:\Data\3GPP\Extracts\R2-2205531%20Rel-17%20NTN%20corrections%20to%2038.304.docx))

Intended outcome: Agreeable 38.304 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206500): Friday 2022-05-20 08:00 UTC

[R2-2206201](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206201.zip) [offline-110] Idle mode ZTE Corporation discussion Rel-17 NR\_NTN\_solutions-Core

Proposals for agreement:

[13/15] Proposal 0: Confirm the working assumption that new bit, e.g. cellBarred-NTN, is introduced for NR-NTN in SIB1.

* Agreed

[12/15] Proposal 1a: NTN UE consider the cell to be barred for NTN access if cellBarredNTN is set to “barred”.

* Agreed

[12/15] Proposal 1b: NTN UE consider the cell to be allowed for NTN access if cellBarredNTN is set to “not barred”.

* Agreed

[12/15] Proposal 1c: NTN UE follows the legacy cellBarred for TN access if cellBarredNTN is not present.

* QC thinks suggests to clarify as: “NTN UE follows the legacy cellBarred for TN access and considers the cell does not support NTN if cellBarredNTN is not present.”
* Samsung thinks we need to need to discuss the added clarification online
* ZTE (rapporteur) suggest to consider the following rewording: “NTN UE follows the legacy cellBarred for TN access and consider the cell is not allowed for NTN access if cellBarredNTN is not present.”. QC and Samsung are fine with this.
* Agreed as: “NTN UE follows the legacy cellBarred for TN access and consider the cell is not allowed for NTN access if cellBarredNTN is not present.”

Agreements via email – from offline 110:

1. The working assumption that new bit, e.g. cellBarred-NTN, is introduced for NR-NTN in SIB1 is confirmed
2. NTN UE consider the cell to be barred for NTN access if cellBarredNTN is set to “barred”.
3. NTN UE consider the cell to be allowed for NTN access if cellBarredNTN is set to “not barred”.
4. NTN UE follows the legacy cellBarred for TN access and consider the cell is not allowed for NTN access if cellBarredNTN is not present.

Location based cell reselection

Options from R2-2206201:

Option 1: Introduce a distance threshold. Cell ranked on R-criterion first and then the distance threshold applies to down scope the candidate cells for reselection.

- For cells not provided with reference location:

Alt.1: Not considered as candidate cell for reselection

Alt.2: Considered as candidate cell for reselection

Option 2: Introduce a distance threshold. Distance threshold applies to decide the candidate cells and then rank the candidate cells based on R-criterion to decide the target cell for reselection.

- For cells not provided with reference location:

Alt.1: Not considered as candidate cell for reselection

Alt.2: Considered as candidate cell for reselection

Option 3: Cell ranked on R-criterion first and then the distance criteria applies to decide the target cell for reselection.

Option 4: None

VC suggests to organize the discussion based on the following questions:

Q1: should a location based cell reselection method be introduce in NR NTN Rel-17?

Yes: sony, Oppo, Samsung, ZTE, Intel, LG, IDC, CMCC

No: CATT, QC, Nokia, Mediatek, Xiaomi, Apple, Lenovo, vivo

* location based cell reselection method is not introduced in NR NTN Rel-17

Q2: if the answer to Q1 is yes, which option is preferred between option 1/2 (Alt2) (which lead to the same result) and option 3?

Agreements:

1. Location based cell reselection method is not introduced in NR NTN Rel-17

assistance for SMTC adjustment

[R2-2205530](file:///C:\Data\3GPP\Extracts\R2-2205530%20Assistance%20information%20for%20UE-based%20SMTC%20adjustment%20in%20idle%20and%20inactive%20mode.docx) Assistance information for UE-based SMTC adjustment in idle and inactive mode Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

* Discussed in offline 106

[R2-2206029](file:///C:\Data\3GPP\Extracts\R2-2206029%20UE%20based%20SMTC%20adjustment.doc) UE based SMTC adjustment LG Electronics Inc. discussion Rel-17

* Discussed in offline 106

38.304 CRs

[R2-2205531](file:///C:\Data\3GPP\Extracts\R2-2205531%20Rel-17%20NTN%20corrections%20to%2038.304.docx) Rel-17 NTN corrections to 38.304 Nokia, Nokia Shanghai Bell CR Rel-17 38.304 17.0.0 0245 - F NR\_NTN\_solutions-Core

* Discussed in offline 111

38.331 CRs

[R2-2205691](file:///C:\Data\3GPP\Extracts\R2-2205691_SMTC4.docx) Adding SMTC4 for idle/inactive state Apple CR Rel-17 38.331 17.0.0 3114 - F NR\_NTN\_solutions-Core

Other

[R2-2205573](file:///C:\Data\3GPP\Extracts\R2-2205573.docx) Reporting UE location to the Network in NTN Samsung R&D Institute UK discussion

##### 6.10.3.1.2 Other

Contributions on any other idle/inactive mode issues.

[R2-2205471](file:///C:\Data\3GPP\RAN2\Docs\R2-2205471.zip) RIL V313 and PLMN aspects Ericsson discussion NR\_NTN\_solutions-Core Late

* Discussed in offline 101

#### 6.10.3.2 RRC aspects

##### 6.10.3.2.1 Known Corrections

Corrections/clarifications for already known issues, e.g. RRC signaling for: HARQ RTT timer extension, assistance information (e.g., differential propagation delay) for SMTC configuration and neighbor cell satellite information; further details for measurement/location reports; CHO configuration after T2 expiry

[R2-2204560](file:///C:\Data\3GPP\Extracts\R2-2204560%20%5bV320%5d%20CGI%20reporting%20in%20R17%20NR%20NTN.docx) [V320] CGI reporting in R17 NR NTN vivo discussion NR\_NTN\_enh-Core

* Discussed in offline 101

[R2-2204562](file:///C:\Data\3GPP\Extracts\R2-2204562%20%5bV313%5d%20On%20the%20issue%20for%20RAN%20area%20code%20configuration%20in%20NR%20NTN.docx) [V313] On the issue for RAN area code configuration in NR NTN vivo discussion NR\_NTN\_enh-Core

* Discussed in offline 101

[R2-2204713](file:///C:\Data\3GPP\Extracts\R2-2204713%20RTT%20timer%20extension.doc) Discussion on implementing HARQ RTT timer extension OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2204717](file:///C:\Data\3GPP\Extracts\R2-2204717%20%5bO358%5d%20NTN%20RRC%20correction.docx) [O358] NTN RRC correction OPPO draftCR Rel-17 38.331 17.0.0 F NR\_NTN\_solutions-Core

[R2-2204718](file:///C:\Data\3GPP\Extracts\R2-2204718%20%5bO355%5d%20NTN%20RRC%20correction.docx) [O355] NTN RRC correction OPPO draftCR Rel-17 38.331 17.0.0 F NR\_NTN\_solutions-Core

[R2-2204719](file:///C:\Data\3GPP\Extracts\R2-2204719%20%5bO354%5d%20NTN%20RRC%20correction.docx) [O354] NTN RRC correction OPPO draftCR Rel-17 38.331 17.0.0 F NR\_NTN\_solutions-Core

[R2-2204720](file:///C:\Data\3GPP\Extracts\R2-2204720%20%5bO350%5d%20NTN%20RRC%20correction.docx) [O350] NTN RRC correction OPPO draftCR Rel-17 38.331 17.0.0 F NR\_NTN\_solutions-Core

[R2-2204750](file:///C:\Data\3GPP\Extracts\R2-2204750%20Acquiring%20the%20ephemeris%20of%20neighbour%20cell.doc) Acquiring the ephemeris of neighbour cell Spreadtrum Communications discussion Rel-17

[R2-2205230](file:///C:\Data\3GPP\Extracts\R2-2205230%20Correction%20on%20HARQ%20RTT%20Timer%20extension%20in%20TS38.331.docx) Correction on HARQ RTT Timer extension in TS38.331 CATT draftCR Rel-17 38.331 17.0.0 NR\_NTN\_solutions-Core

[R2-2205305](file:///C:\Data\3GPP\Extracts\R2-2205305%20Discussion%20on%20time/location%20based%20mobility.doc) Discussion on time/location based mobility Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205342](file:///C:\Data\3GPP\Extracts\R2-2205342.doc) Event triggered location reporting in NTN Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205401](file:///C:\Data\3GPP\Extracts\R2-2205401%20Further%20details%20for%20coarse%20location%20report%20for%20NR%20NTN.doc) Further details for coarse location report for NR NTN Xiaomi discussion Rel-17

[R2-2205402](file:///C:\Data\3GPP\Extracts\R2-2205402%20Introducing%20NTN%20validity%20timer%20in%20RRC.doc) [RIL]X601/O350/M403: Introducing NTN validity timer in RRC Xiaomi discussion Rel-17

* Revised in [R2-2206057](file:///C:\Data\3GPP\RAN2\Docs\R2-2206057.zip)

[R2-2206057](file:///C:\Data\3GPP\RAN2\Docs\R2-2206057.zip) [RIL]X601/O350/M403: Introducing NTN validity timer in RRC Xiaomi, MediaTek discussion Rel-17

[R2-2205404](file:///C:\Data\3GPP\Extracts\R2-2205404%20Discussion%20on%20Neighbor%20Cell%20Satellite%20Information.docx) Discussion on Neighbor Cell Satellite Information CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205958](file:///C:\Data\3GPP\Extracts\R2-2205958%20(R17%20NTN%20WI%20AI%206.10.3.2.1)%20TAR%20configuration.docx) Configuration of Timing Advance reporting in TS 38.331 InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2206030](file:///C:\Data\3GPP\Extracts\R2-2206030%20Propagation%20delay%20difference%20reporting.doc) Propagation delay difference reporting LG Electronics Inc. discussion Rel-17 Late

[R2-2206090](file:///C:\Data\3GPP\RAN2\Docs\R2-2206090.zip) [O350][X601][L014][L015][M403]Correction on maintenance of validity timer Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3167 - F NR\_NTN\_solutions-Core

* [AT118-e][101][NTN] RRC CR (Ericsson)

Initial scope: continue the discussion on the NR NTN WI-specific RILs, also considering the submitted contributions

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

* List of resolved RILs
* List of RILs for online discussion
* List of RILs for further offline discussion

Deadline (for companies' feedback): Tuesday 2022-05-10 0800 UTC

Deadline (for rapporteur's summary in [R2-2206191](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206191.zip)): Tuesday 2022-05-10 1000 UTC

Scope: continue the discussion on the NR NTN WI-specific RILs, also considering the submitted contributions

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)

Deadline (for companies' feedback): Monday 2022-05-16 16:00 UTC

Deadline (for rapporteur's summary in [R2-2206209](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206209.zip)): Monday 2022-05-16 18:00 UTC

Updated scope: continue the discussion on p7~p9 from [R2-2206209](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206209.zip)

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

* List of proposals for agreement (if any)
* List of proposals that require online discussions

Deadline (for companies' feedback): Wednesday 2022-05-18 18:00 UTC

Deadline (for rapporteur's summary in R2-2206508): Wednesday 2022-05-18 20:00 UTC

[R2-2206191](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206191.zip) [offline-101] RRC CR Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1 RAN2 to agree on resolution of E017 as presented in R2-2205463

* Lenovo would like not to use “shall”
* Continue offline

Proposal 2 RAN2 to conclude reject on RIL V313

* Agreed

Proposal 3 RAN2 to conclude reject on RIL V320

* Vivo cannot agree on this
* Continue offline

Proposal 4 RAN2 to conclude on the operation of triggering event D1

* Agreed

Proposal 5 RAN2 to agree on report on leave for event D1

* Agreed

Agreements:

1. RIL V313 is rejected
2. RAN2 to conclude on the operation of triggering event D1
3. report on leave for event D1 is agreed

[R2-2206209](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206209.zip) [offline-101] RRC CR – second round Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

To Agree:

Proposal 1 RAN2 to agree on Txxx implementation based on R2-2206057 R2-2205403 as implemented in CR3088 (\_118\_V01) in draft folder.

* Huawei thinks that we should reflect that the validity duration is optional.
* Mediatek/Oppo thinks it should be mandatory.
* Nokia thinks it’s OK to have it mandatory, but provided it does not cause the problem to dedicated signalling
* Xiaomi wonders if this is needed for HAPS.
* Txxx implementation based on R2-2206057 R2-2205403 as implemented in CR3088 (\_118\_V01) in draft folder agreed as baseline
* Update the TP reflecting the fact that this is mandatory for broadcasting in SIB19 (still keep it optional in ASN.1)

Proposal 2 RAN2 to agree that RILs H029, H030, H031 O355 are resolved and can be marked proagree. Field description is not updated as exact resolution is under discussion in offline 107 third round

* Agreed

Proposal 3 Agree resolution of RILs X704 as presented in CR3088 (\_118\_V01) based on TP in R2-2205224(Xiaomi)

* Agreed

Proposal 4 Agree on the above proposed resolution for PLMN-IdentityInfo field description as also implemented in CR3088 (\_118\_V01) in draft folder.

* Agreed (can come back if a simple optimization to reduce signalling overhead can be found)

Proposal 10 RAN2 to agree to Propreject RIL M413

* Agreed

To discuss:

Proposal 6 Add 5>  include trackingAreaList if available; in procedure for CGI reporting for an NR cell. No other Spec change is needed.

* Agreed

Proposal 7 RAN2 to agree to Propreject RIL H801

* Continue in offline 101 until Thursday CB session

Proposal 8 For concluding on L001 discuss whether there is agreed definition for “cell meeting event D1” and if not, agree to propreject RIL L011

* Continue in offline 101 until Thursday CB session

Proposal 9 RAN2 to agree to Propreject RIL H800

* Continue in offline 101 until Thursday CB session

Agreements via email – from offline 101 – second round:

1. RAN2 agrees that RILs H029, H030, H031 O355 are resolved and can be marked proagree. Field description is not updated as exact resolution is under discussion in offline 107 third round
2. RAN2 agrees resolution of RILs X704 as presented in CR3088 (\_118\_V01) based on TP in R2-2205224
3. RAN2 agrees the proposed resolution for PLMN-IdentityInfo field description as also implemented in CR3088 (\_118\_V01) in draft folder (can come back if a simple optimization to reduce signalling overhead can be found)
4. RAN2 agrees to Propreject RIL M413

Agreements online:

1. Txxx implementation based on R2-2206057 R2-2205403 as implemented in CR3088 (\_118\_V01) in draft folder agreed as baseline. Update the TP reflecting the fact that this is mandatory for broadcasting in SIB19 (still keep it optional in ASN.1)
2. Add 5>  include trackingAreaList if available; in procedure for CGI reporting for an NR cell. No other Spec change is needed.

[R2-2206508](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206508.zip) [offline-101] RRC CR – third round Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 1 RAN2 to continue reviewing whether current specification has an issue with the approach of not confirming the WA, hence ”have UE to report only location when UE has MO associated only with eventD1”

Proposal 2 RAN2 to agree to reject RILs 801, L011, H800

* LG thinks:

- Absence of neighbor cell measurement results at all in MR triggered by event D1 is sub-optimal, but we share the view that there is no big problem with that, since network can configure other measurement reporting configurations as per its need. In this sense, I am fine with not agreeing to proposal in L011.

- What the intend to address now is whether the current spec (v17.0.0 has the problem that UE is required to include cells in the cellTriggeredList when constructing the MR triggered by event D1 as described in phase 3 discussion over email and below, i.e. whether the current spec is error-free for event D1 or not. There seems no technical/direct input so far on whether the problem is correct or not. There might be no serious issue in the end, but without checking it, we cannot be confident if the current MR procedure is error-free for event D1.

CHO @ T2 expiry; assistance information for SMTC and neighbour cell information (to be discussed in offline 106)

[R2-2204561](file:///C:\Data\3GPP\Extracts\R2-2204561%20%5bV319%5d%5bV305%5d%5bV310%5d%20Remaining%20issues%20on%20signalling%20design%20and%20corresponding%20procedures%20for%20neighbor%20cell%20assistance%20information%20in%20NR%20NTN.docx) [V319][V305][V310] Remaining issues on signalling design and corresponding procedures for neighbour cell assistance information in NR NTN vivo discussion NR\_NTN\_enh-Core

[R2-2204659](file:///C:\Data\3GPP\Extracts\38331_CR2987_(Rel-17)_R2-2204659%20CHO%20after%20T2.docx) Time-based CHO after T2 Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2987 - F NR\_NTN\_solutions-Core

[R2-2204660](file:///C:\Data\3GPP\Extracts\38331_CR2988_(Rel-17)_R2-2204660%20IDLE%20mode%20info.docx) Assistance information for IDLE mode measurements in NTN Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2988 - F NR\_NTN\_solutions-Core

[R2-2204663](file:///C:\Data\3GPP\Extracts\R2-2204663%20SMTC%20and%20MG.doc) SMTC and MG configuration Qualcomm Incorporated discussion Rel-17 NR\_NTN\_solutions-Core [R2-2202564](file:///C:\Data\3GPP\Extracts\R2-2202564%20SMTC%20and%20MG.doc)

[R2-2204715](file:///C:\Data\3GPP\Extracts\R2-2204715%20Discussion%20on%20assistance%20infomration%20for%20IDLE%20mode%20and%20CONNECTED%20mode%20measurement.doc) Discussion on assistance information for IDLE mode and CONNECTED mode measurement OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2204963](file:///C:\Data\3GPP\Extracts\R2-2204963%20Remaining%20issues%20of%20provisioning%20neighbor%20cell%20satellite%20information.docx) Remaining issues of provisioning neighbor cell satellite information Lenovo discussion Rel-17

[R2-2204964](file:///C:\Data\3GPP\Extracts\R2-2204964%20Remaining%20details%20of%20UE%20assistance%20reporting%20and%20CHO.docx) Remaining details of UE assistance reporting and CHO Lenovo discussion Rel-17

[R2-2205225](file:///C:\Data\3GPP\Extracts\R2-2205225%20Remaining%20issues%20of%20NTN%20CHO.docx) Remaining issues of NTN CHO Xiaomi Communications discussion Rel-17

[R2-2205233](file:///C:\Data\3GPP\Extracts\R2-2205233%20Discussion%20on%20Neighbor%20Cell%20Satellite%20Information.docx) Discussion on Neighbor Cell Satellite Information CATT discussion Rel-17 NR\_NTN\_solutions-Core Withdrawn

[R2-2205235](file:///C:\Data\3GPP\Extracts\R2-2205235%20Further%20Discussion%20on%20CHO.DOCX) Further Discussion on CHO CATT discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205304](file:///C:\Data\3GPP\Extracts\R2-2205304%20Discussion%20on%20SMTC%20and%20gaps.doc) Discussion on SMTC and gaps Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205341](file:///C:\Data\3GPP\Extracts\R2-2205341.doc) CHO configuration after T2 expiry Sony discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205372](file:///C:\Data\3GPP\Extracts\R2-2205372%20Assistance%20information%20for%20neighbour%20cell%20measurement.doc) Assistance information for neighbour cell measurement Xiaomi discussion

[R2-2205436](file:///C:\Data\3GPP\Extracts\R2-2205436%20CHO%20configuration%20discarded%20or%20retained%20after%20T2%20expiry.docx) RIL: M404, V318, Z550 CHO configuration discarded or retained after T2 Ericsson discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205438](file:///C:\Data\3GPP\Extracts\R2-2205438%20SMTC%20for%20RRC_IDLE%20and%20RRC_INACTIVE%20state%20in%20NR%20NTN.docx) SMTC for RRC\_IDLE and RRC\_INACTIVE state in NR NTN Ericsson discussion NR\_NTN\_solutions-Core

[R2-2205529](file:///C:\Data\3GPP\Extracts\R2-2205529%20Resolving%20open%20NTN%20issues%20for%20CONNECTED%20mode.docx) Resolving open NTN issues for CONNECTED mode Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205589](file:///C:\Data\3GPP\Extracts\R2-2205589%20SMTC%20Offset%20and%20Change%20Rate.docx) SMTC Offset and Change Rate Google Inc. discussion Rel-17

[R2-2205697](file:///C:\Data\3GPP\Extracts\R2-2205697_6.10.3.2.1_CHO.docx) Discussion on CHO open issues Samsung Research America discussion NR\_NTN\_solutions-Core

[R2-2205698](file:///C:\Data\3GPP\Extracts\R2-2205698_6.10.3.2.1_SMTC.docx) Discussion on SMTC open issues Samsung Research America discussion NR\_NTN\_solutions-Core

[R2-2205957](file:///C:\Data\3GPP\Extracts\R2-2205957%20(R17%20NTN%20WI%20AI%206.10.3.2.1)%20CHO%20config%20after%20T2.docx) Time-based CHO configuration after T2 InterDigital discussion Rel-17 NR\_NTN\_solutions-Core

* [AT118-e][106][NTN] CP issues (Nokia)

Initial scope: based on contributions in 6.10.3, discuss CHO @ T2 expiry; assistance information for SMTC and neighbour cell information/ephemeris

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)

Deadline (for companies' feedback): Tuesday 2022-05-10 0800 UTC

Deadline (for rapporteur's summary in [R2-2206196](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206196.zip)): Tuesday 2022-05-10 1000 UTC

Scope: continue the discussion based on [R2-2206196](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206196.zip)

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)

Deadline (for companies' feedback): Friday 2022-05-13 04:00 UTC

Deadline (for rapporteur's summary in [R2-2206210](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206210.zip)): Friday 2022-05-13 06:00 UTC

Final scope: continue the discussion on remaining proposals from [R2-2206210](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206210.zip) (and in [R2-2204715](file:///C:\Data\3GPP\Extracts\R2-2204715%20Discussion%20on%20assistance%20infomration%20for%20IDLE%20mode%20and%20CONNECTED%20mode%20measurement.doc))

Final 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)

Deadline (for companies' feedback): Tuesday 2022-05-17 08:00 UTC

Deadline (for rapporteur's summary in [R2-2206501](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206501.zip)): Tuesday 2022-05-17 10:00 UTC

Final scope: continue the discussion on assistance information for SMTC/measurement gap adjustments. During the discussion, proponents of the propagation delay difference approach and of the (coarse) UE location information approach should provide a Stage 3 TP to describe the details of the triggering events, etc.

Final intended outcome: Summary of the offline discussion with list of proposals

Deadline (for companies' feedback): Wednesday 2022-05-18 18:00 UTC

Deadline (for rapporteur's summary in R2-2206505): Wednesday 2022-05-18 20:00 UTC

[R2-2206196](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206196.zip) [offline-106] CP issues Nokia discussion Rel-17 NR\_NTN\_solutions-Core

Proposals for agreement:

Proposal 1: During CHO recovery in NTN the UE checks if the timer T2 has not expired before it can use CHO configuration for recovery. FFS if the same principle applies to location-based CHO triggering event.

* Oppo wonders what the implication is in the spec, shall we say that the UE removes the configuration? Nokia thinks this is a valid question.
* Vivo thinks this is related to whether the UE releases the configuration.
* QC thinks there is no need to release the configuration to implement p1.
* Agreed. FFS the stage-3 details (i.e. whether the UE releases the configuration)

Proposal 2: Common TA and Kmac of the neighbour cell are used to support IDLE/Inactive UEs in NTN to perform SMTC adjustments.

* Continue offline

Proposal 4: The following IEs/parameters are broadcast for neighbour cell in NTN:

Ephemeris,

DL and UL polarization,

Epoch time of assistance information

Validity duration

* Samsung wonders about the validity duration
* Agreed, where the configuration is per cell. FFS how to handle the validity timer for neighbour cell. FFS if epoch time can be same or different. FFS about other parameters.

Proposal 6: Support the signaling overhead reduction for the orbital part of the neighbour cell ephemeris, at least for the case of cells belonging to the same satellite, or satellite orbit. FFS on the Stage-3 details.

* Continue offline

Proposals for discussion:

Proposal 3: Discuss further if neighbour’s SMTC assistance information for IDLE/Inactive mode is provided via new SIB or via SIB19.

* Continue offline

Proposal 5: Discuss further if neighbour cell’s assistance information for NTN is provided via new SIB or via SIB19.

* Continue offline

Agreements:

1. During CHO recovery in NTN the UE checks if the timer T2 has not expired before it can use CHO configuration for recovery. FFS if the same principle applies to location-based CHO triggering event. FFS the stage-3 details (i.e. whether the UE releases the configuration)
2. The following IEs/parameters are broadcast per neighbour cell in NTN:

Ephemeris,

DL and UL polarization,

Epoch time of assistance information

Validity duration

FFS how to handle the validity timer for neighbour cell. FFS if epoch time can be same or different. FFS about other parameters

[R2-2206210](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206210.zip) [offline-106] CP issues – second round Nokia discussion Rel-17 NR\_NTN\_solutions-Core

Proposals for agreement:

Proposal 5.1-1: Adopt the changes in R2-2204659 to ensure CHO recovery is not executed after timer T2 expires. FFS if the entering condition (timer T1) needs to be considered either.

* Agreed

Proposal 5.1-2: In case the UE was configured with condEventD1 the UE does not check if the condEventD1 expired when CHO recovery is executed. No specification impact to CHO recovery procedure description.

* Agreed

Proposal 5.2-1: RAN2 signalling supports having the epoch time of the serving cell applicable to the neighbour cell’s assistance information (i.e. the same epoch time can be used for both cells).

* Agreed

Proposal 5.2-2: Neighbour cell assistance information for NTN, including SMTC assistance information, is provided via SIB19.

* Agreed

Proposal 5.3-1: Common TA parameters and Kmac of the neighbour cell are used to support IDLE/Inactive UEs in NTN to perform SMTC adjustments.

* Agreed

Proposal 5.3-3: Target cell’s polarization information is provided via ntn-PolarizationDL-r17 and ntn-PolarizationUL-r17 in NTN-Config-r17 included in RRCReconfiguration comprising reconfigurationWithSync.

* Agreed

Proposals for discussion:

Proposal 5.3-2: Discuss further if to reduce and how to reduce the signaling overhead for the orbital part of the neighbour cell ephemeris, at least for the case of cells belonging to the same satellite, or satellite orbit.

Proposal 5.3-4: Discuss if the polarization information for RRM measurement purposes is provided via ntn-PolarizationDL-r17 and ntn-PolarizationUL-r17 in measurement configuration or can be known from the neighbour’s system information (where NTN-Config is provided).

Agreements via email – from offline 106 – second round:

1. Adopt the changes in R2-2204659 to ensure CHO recovery is not executed after timer T2 expires. FFS if the entering condition (timer T1) needs to be considered either.
2. In case the UE was configured with condEventD1 the UE does not check if the condEventD1 expired when CHO recovery is executed. No specification impact to CHO recovery procedure description.
3. RAN2 signalling supports having the epoch time of the serving cell applicable to the neighbour cell’s assistance information (i.e. the same epoch time can be used for both cells).
4. Neighbour cell assistance information for NTN, including SMTC assistance information, is provided via SIB19.
5. Common TA parameters and Kmac of the neighbour cell are used to support IDLE/Inactive UEs in NTN to perform SMTC adjustments.
6. Target cell’s polarization information is provided via ntn-PolarizationDL-r17 and ntn-PolarizationUL-r17 in NTN-Config-r17 included in RRCReconfiguration comprising reconfigurationWithSync.

[R2-2206501](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206501.zip) [offline-106] CP issues – third round Nokia discussion Rel-17 NR\_NTN\_solutions-Core

Proposals for agreement:

Proposal 6.1-1: No specification changes are pursued to prevent the UE from using CHO configurations for recovery, if this happens before time T1.

* Agreed

Proposal 6.2-2: Assistance information for SMTC/measurement gap adjustments in CONNECTED mode is event-triggered. Stage-3 details to be resolved when the type of assistance information is decided.

* LG has some concern is the information is about delay propagation difference
* Oppo reminds we already agreed on this in RAN2#116: “UE assistance information for NTN SMTC adjustments is event-triggered. Details of the triggering event are FFS (pending the decision on supported assistance information type)”
* No need to further discuss this.

Proposal 6.3-1: Polarization information for RRM measurement purposes is provided via ntn-PolarizationDL-r17 and ntn-PolarizationUL-r17 in measurement configuration.

* Agreed

Proposals for discussion:

Proposal 6.2-1: Discuss if the Connected mode UE reports assistance information for SMTC/measurement gap adjustments in the form of a propagation delay or UE assistance information. Clarify if the UE can be requested to report its location in CONNECTED mode.

* VC reminds that, at RAN2#117 it was also agreed that: “RAN2 reconfirms that, in connected mode, UE location information can be sent to the NG-RAN. FFS if full UE location information based on user consent or coarse UE location information”. At the same time it’s clear that many companies want to wait for SA3 feedback on the user consent to send the full UE location information. VC then suggests first of all to:

- Agree that propagation delay difference can be used as assistance information for SMTC/measurement gap adjustments

And then check whether we can also agree on using coarse UE location information as assistance information for SMTC/measurement gap adjustments

* LG thinks the NW cannot calculate the UE location based on propagation delay difference.
* Xiaomi would like to check with SA3 if it’s possible to use the propagation delay difference. Oppo and others don’t think a LS to SA3 is needed.
* Nokia thinks this propagation delay difference will work effectively, unless it is reported very often. Otherwise the NW will not be able to adjust the SMTC accurately
* Huawei wonders what we do if SA3 thinks that UE location info can be sent
* Huawei thinks propagation delay difference will not work well and we need to clarify the event
* LG thinks we need to report the delay between the serving and the target cell
* Working Assumption: Propagation delay difference between serving cell and neighbour cell can be used as assistance information for SMTC/measurement gap adjustments. We come back on Thursday to see if proponents can provide a TP with all Stage 3 details. If this is not possible we will reconsider whether other methods can be used (e.g. coarse UE location info).

Proposal 6.4-1: Discuss which option to choose for reducing the signalling overhead for the orbital part of the neighbour cell ephemeris, at least for the case of cells belonging to the same satellite, or satellite orbit:

Using an indication within the configuration for each neighbour whether it can reuse the serving’s ephemeris

Using a list of configurations and each cell having a pointer to a specific position in the list

* Solutions for reducing signalling overhead for the orbital part of the neighbour cell ephemeris will not be further discussed in NR NTNT Rel-17.

Agreements:

1. No specification changes are pursued to prevent the UE from using CHO configurations for recovery, if this happens before time T1.
2. Polarization information for RRM measurement purposes is provided via ntn-PolarizationDL-r17 and ntn-PolarizationUL-r17 in measurement configuration.
3. Solutions for reducing signalling overhead for the orbital part of the neighbour cell ephemeris will not be further discussed in NR NTNT Rel-17

Working Assumption:

1. Propagation delay difference between serving cell and neighbour cell can be used as assistance information for SMTC/measurement gap adjustments. We come back on Thursday to see if proponents can provide a TP with all Stage 3 details. If this is not possible we will reconsider whether other methods can be used (e.g. coarse UE location info).

[R2-2206505](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206505.zip) [offline-106] CP issues – fourth round Nokia discussion Rel-17 NR\_NTN\_solutions-Core

Proposal 7.1: RAN2 adopts the following solution for assisting the NW in adjusting SMTCs in CONNECTED mode: propagation delay difference between the serving and each configured neighbour NTN cell is reported via UE Assistance Information. The reporting occurs when the propagation delay difference between the serving and any configured neighbour NTN cell becomes by offset smaller/larger than the value reported previously. Further Stage-3 details as provided by OPPO to Q7.1 in R2-2206505.

Coarse UE location

[R2-2205574](file:///C:\Data\3GPP\Extracts\R2-2205574%20Coarse%20location%20format.docx) Coarse location format Ericsson discussion NR\_NTN\_solutions-Core

* Upon network request, after AS security/connected mode is established, a UE can report its coarse UE location information (coarse GNSS coordinates) to the NG-RAN, with a possible reported value referring to "no coarse GNSS location available" (which the UE can set if it cannot/does not want to provide its coarse GNSS coordinates). RAN2 puts this in the specs in this meeting. If/when SA3 will provide feedback that this is not possible, we will remove/void this from RAN2 specs. RAN2 will consider any other feedback from SA3 and adapt accordingly.
* QC is still not happy with this.

Observation 1 The definition of EllipsoidPoinWithAltitude in TS 37.355 can be used as a baseline for a definition of a coarse UE location format.

Observation 2 The usefulness of an altitude indication in the coarse UE location representation format depends on what the reported coarse UE location will be used for.

Observation 3 Longitudes are denser closer to the poles than at the equator.

Proposal 1 When defining a coarse UE location representation format, use the definition of EllipsoidPoinWithAltitude in TS 37.355 and round the coordinates to fewer bits to achieve a suitable accuracy.

Proposal 2 Make it configurable whether an indication of the altitude should be included in a report of a coarse UE location.

Proposal 3 Compensate for the different longitude density at different latitudes, so that a reported coarse UE location cannot be too accurate.

Proposal 4 Adopt the above table for the definition of the representation format of a coarse UE location.

Proposal 5 For representing a coarse UE location, use 12 bits for the latitude (where one bit indicates “north”/”south”), 3-13 bits for the longitude (where the number of bits depends on the latitude), and 4 bits for the optional altitude (where one bit is used to indicate “height”/”depth”).

Proposal 6 Either adopt the above ASN.1 code for the CoarseEllipsoidPointWithOptionalAltitude IE or the ASN.1 code for the CoarseEllipsoidPointWithAltitude IE and the CoarseEllipsoidPoint IE as the definition of the representation format for a coarse UE location.

* [AT118-e][119][NTN] Coarse UE location info (Thales)

Scope: Discuss the coarse UE location information format (e.g. whether to use the most significant bits of GNSS longitude/latitude or also consider the proposals in [R2-2205574](file:///C:\Data\3GPP\Extracts\R2-2205574%20Coarse%20location%20format.docx)) and the reporting mechanism (e.g. reuse the mechanism for reporting commonLocationInfo)

Intended outcome: Summary of the offline discussion with list of proposals

Deadline (for companies' feedback): Thursday 2022-05-19 08:00 UTC

Deadline (for rapporteur's summary in R2-2206506): Thursday 2022-05-19 10:00 UTC

Proposals marked "for agreement" in R2-2206506 not challenged until Thursday 2022-05-19 20:00 UTC will be declared as agreed via email by the session chair.

R2-2206506 [offline-119] Coarse UE location info Thales discussion NR\_NTN\_solutions-Core

*Proposal 1           When defining a coarse UE location representation format, use the definition of EllipsoidPoinWithAltitude in TS 37.355 and round the coordinates to fewer bits to achieve a suitable accuracy.*

##### 6.10.3.2.2 Other

Contributions on any other RRC issues.

Event D1

Moved here from 6.10.3.2.1

[R2-2205224](file:///C:\Data\3GPP\Extracts\R2-2205224%20%5bX704%5d%20Correction%20for%20Event%20D1.docx) [X704] Correction for Event D1 Xiaomi Communications discussion Rel-17

* Discussed in offline 101

[R2-2205621](file:///C:\Data\3GPP\Extracts\R2-2205621%20%5bNTN%5d%20%5bL011%5d%20TP%20on%20MR%20triggered%20by%20event%20D1.docx) [L011] TP on MR triggered by event D1 LG Electronics France discussion

* Discussed in offline 101

[R2-2206069](file:///C:\Data\3GPP\RAN2\Docs\R2-2206069.zip) [H801] Corrections on eventD1 Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3155 F NR\_NTN\_solutions-Core

* Discussed in offline 101

[R2-2204661](file:///C:\Data\3GPP\Extracts\38331_CR2989_(Rel-17)_R2-2204661%20Report%20SMTC%20error.docx) Reporting SMTC issue in measurement results Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2989 - F NR\_NTN\_solutions-Core

[R2-2204716](file:///C:\Data\3GPP\Extracts\R2-2204716%20connected%20mode%20measurement%20start.doc) Discussion on connected mode measurement start OPPO discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205030](file:///C:\Data\3GPP\Extracts\R2-2205030%20Discussion%20on%20SMTC%20and%20MG%20configuration%20for%20connected%20mode%20in%20NTN.docx) Discussion on SMTC and MG configuration for connected mode in NTN CMCC discussion Rel-17 NR\_NTN\_solutions-Core Revised

[R2-2205226](file:///C:\Data\3GPP\Extracts\R2-2205226%20Discussion%20on%20performing%20measurements%20for%20NTN%20CHO.docx) Discussion on performing measurements for NTN CHO Xiaomi Communications discussion Rel-17

[R2-2205592](file:///C:\Data\3GPP\Extracts\R2-2205592%20NTN%20SIB19%20missing.docx) Essential system information missing for NTN Interdigital, Inc. discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205623](file:///C:\Data\3GPP\Extracts\R2-2205623%20%5bNTN%5d%20%5bL014%5d%20TP%20on%20Ul%20sync%20assist%20info%20validity.docx) [L014] TP on Ul sync assist info validity LG Electronics France discussion

[R2-2206036](file:///C:\Data\3GPP\RAN2\Docs\R2-2206036.zip) Discussion on SMTC and MG configuration for connected mode in NTN CMCC discussion Rel-17 NR\_NTN\_solutions-Core [R2-2205030](file:///C:\Data\3GPP\Extracts\R2-2205030%20Discussion%20on%20SMTC%20and%20MG%20configuration%20for%20connected%20mode%20in%20NTN.docx) Late

[R2-2206068](file:///C:\Data\3GPP\RAN2\Docs\R2-2206068.zip) [H800] Discussion on condEventD1 Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2206112](file:///C:\Data\3GPP\RAN2\Docs\R2-2206112.zip) [H024] Adding a conditional presence to ntn-UlSyncValidityDuration Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3172 - F NR\_NTN\_solutions-Core

### 6.10.4 UE capabilities

#### 6.10.4.1 Known remaining issues

Corrections/clarifications for already known issues, e.g. structure, IoT bits, Fixed Dish type UE without GNSS module but with GNSS coordinates

[R2-2204662](file:///C:\Data\3GPP\Extracts\38331_CR2990_(Rel-17)_R2-2204662%20NTN%20UE%20capability.docx) NTN UE capability signalling Qualcomm Incorporated CR Rel-17 38.331 17.0.0 2990 - F NR\_NTN\_solutions-Core

[R2-2204843](file:///C:\Data\3GPP\Extracts\R2-2204843%20Discussion%20on%20remaining%20issues%20on%20NTN%20UE%20capabilities.docx) Discussion on remaining issues on NTN UE capabilities Intel Corporation, THALES discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205306](file:///C:\Data\3GPP\Extracts\R2-2205306%20Discussion%20on%20UE%20capabilities%20for%20NTN.doc) Discussion on UE capabilities for NTN Huawei, HiSilicon discussion Rel-17 NR\_NTN\_solutions-Core

Moved from 6.10.4

[R2-2205572](file:///C:\Data\3GPP\RAN2\Docs\R2-2205572.zip) On NTN capabilities Ericsson discussion NR\_NTN\_solutions-Core Late

[R2-2205593](file:///C:\Data\3GPP\Extracts\R2-2205593%20NTN-only%20UE.docx) NTN-only UE Interdigital, Inc. discussion Rel-17 NR\_NTN\_solutions-Core

[R2-2205701](file:///C:\Data\3GPP\Extracts\R2-2205701_6.10.4.1_UEcapability.docx) Open issues on UE capabilities Samsung Research America discussion Rel-17 NR\_NTN\_solutions-Core

* [AT118-e][108][NTN] UE capabilities (Intel)

Initial scope: discuss UE capabilities based on contributions in 6.10.4

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)

Deadline (for companies' feedback): Tuesday 2022-05-10 0800 UTC

Deadline (for rapporteur's summary in [R2-2206198](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206198.zip)): Tuesday 2022-05-10 1000 UTC

Scope: continue the discussion based on [R2-2206198](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206198.zip)

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)

Deadline (for companies' feedback): Monday 2022-05-16 22:00 UTC

Deadline (for rapporteur's summary in [R2-2206211](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206211.zip)): Tuesday 2022-05-17 00:00 UTC

Final scope: Update the UE capability CRs, reflecting the meeting agreements (and also trying to resolve the remaining issue in p6 from R2-2206211)

Final intended outcome: Endorsable UE capability CRs

Deadline (for companies' feedback): Friday 2022-05-20 08:00 UTC

Deadline (for final CRs in R2-2206613 and R2-2206614): Friday 2022-05-20 10:00 UTC

[R2-2206198](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206198.zip) [offline-108] UE capabilities Intel discussion Rel-17 NR\_NTN\_solutions-Core

List of proposals for agreement:

Proposal 1: RAN2 to confirm “The discussion on whether existing TN capabilities need separate NTN capabilities or IoT bits is focused on per-UE capabilities”.

* Whether existing TN capabilities need separate NTN capabilities or IoT bits is focused on per-UE capabilities

Proposal 2: Add separate IoT bits to convey a subset of UE Radio Access Capability Parameters differently for NR NTN. It also implies that other per-UE UE capabilities not within this list are applicable to both TN and NTN.

* Agreed

Proposal 3: at least the following existing TN UE capabilities need separate IoT bits for NTN:

1) mac-Parameters;

2) phy-Parameters;

3) measAndMobParameters;

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

5) fr1-Add-UE-NR-Capabilities

6) SON/MDT related capabilities.

7) at least inactiveState

=> Agreed

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

* Agreed

Proposal 6: NTN-only UE is not supported.

* Intel received a comment to add that “NTN-capable UEs also support TN mandatory features”
* Continue offline

Proposal 7: The SMTC enhancements (event-triggered assistance information reporting, 2 SMTC in parallel) are optional for GSO capable UE.

* Continue offline

List of proposals that require online discussions:

Proposal 5: postpone the discussion on UEs without GNSS receiver to Release 18.

* Continue offline

Proposal 8: the following spec change is used to capture RAN2 agreement “Incorporate event-triggered TA reporting feature into TA reporting UE capability defined in RAN1 feature list”.

uplink-TA-Reporting-r17

Indicates whether the UE supports UE reporting of information related to TA pre-compensation, i.e., event-triggered TA reporting in RRC connected mode and TA reporting during initial access in RRC\_IDLE/RRC\_INACTIVE. UE indicating support of this feature shall also indicate support of uplinkPreCompensation-r17 for this band.

* Continue offline

Agreements:

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

1) mac-Parameters;

2) phy-Parameters;

3) measAndMobParameters;

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

5) fr1-Add-UE-NR-Capabilities

6) SON/MDT related capabilities.

7) at least inactiveState

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

[R2-2206211](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206211.zip) [offline-108] UE capabilities – second round Intel discussion Rel-17 NR\_NTN\_solutions-Core

List of proposals for agreement:

Proposal 1: No other specification efforts in Rel-17 on UEs without GNSS receiver.

* Agreed

Proposal 3: RAN2 to confirm NTN-capable UEs also support TN mandatory (without capability signalling) features, and whether TN mandatory features (with capability signalling) are supported can be indicated by IoT bits. No further spec impacts other than IoT bits.

* Agreed

Proposal 4: The SMTC enhancements (event-triggered assistance information reporting, 2 SMTC in parallel) are optional for GSO capable UE.

* Agreed

Proposal 5: update the field description of uplink-TA-Reporting-r17 as below:

uplink-TA-Reporting-r17

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

* Agreed

List of proposals that require online discussions:

Proposal 2: RAN2 to discuss whether to add a clarification in a note in stage 2 spec, i.e., dish type UE (static “VSAT” type NTN capable UE without GNSS module but with GNSS coordinates) can also be supported in Rel-17.

* Discuss in offline 112

Proposal 6: RAN2 to discuss whether the TA reporting during initial access should be optional without capability signalling, or conditionally mandatory for UEs supporting uplink-TA-Reporting-r17.

* Continue offline

Agreements via email – from offline 108 – second round:

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

uplink-TA-Reporting-r17

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

#### 6.10.4.2 Other

Contributions on any other issues.

[R2-2204842](file:///C:\Data\3GPP\Extracts\R2-2204842%20Clarification%20on%20TA%20reporting%20UE%20capability.docx) Clarification on TA reporting UE capability Intel Corporation draftCR Rel-17 38.306 17.0.0 F NR\_NTN\_solutions-Core

## 8.12 Reduced Capability

(NR\_redcap-Core; leading WG: RAN1; REL-17; WID: [RP-211574](file:///C:\Data\3GPP\archive\RAN\RAN%2392\Tdocs\RP-211574.zip))

WI is considered as 100% complete from RAN2 perspective. Exception Sheet in RP-220965 contains RAN4 items.

Tdoc Limitation: 5 tdocs

### 6.12.1 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.

#### 6.12.1.1 LS in

For LSes that need action: one tdoc by contact company to address the LS and potential reply is considered.

Rapporteur input may be provided.

NCD-SSB

[R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx) LS on NCD-SSB issues for RedCap UE (R4-2207104; contact: Ericsson) RAN4 LS in Rel-17 NR\_redcap-Core To:RAN2

* Discussed in offline 105
* Reply LS in [R2-2206417](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206417.zip)

[R2-2206417](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206417.zip) Reply LS on NCD-SSB issues for RedCap UE Ericsson LS out Rel-17 NR\_redcap-Core To:RAN4

[R2-2206019](file:///C:\Data\3GPP\Extracts\R2-2206019%20-%20%5bDRAFT%5d%20Reply%20LS%20on%20NCD-SSB%20issues%20for%20RedCap%20UE.docx) [DRAFT] Reply LS on NCD-SSB issues for RedCap UE Ericsson LS out Rel-17 NR\_redcap-Core To:RAN4

* Discussed in offline 105

RRM relaxation

[R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc) LS on RRM relaxation for Redcap (R4-2207109; contact: vivo) RAN4 LS in Rel-17 NR\_redcap-Core To:RAN2

* Discussed in offline 109
* Reply LS in R2-2206418

R2-2206418 Reply LS to RAN4 on RRM relaxation vivo LS out Rel-17 NR\_redcap-Core To:RAN4

[R2-2204620](file:///C:\Data\3GPP\Extracts\R2-2204620%20Discussion%20on%20RAN4%20LS%20on%20RRM%20Relaxation%20for%20RedCap.docx) Discussion on RAN4 LS on RRM Relaxation for RedCap Futurewei Technologies, Xiaomi Communications, OPPO, Vivo, Ericsson, Qualcomm discussion Rel-17 NR\_redcap-Core

* Discussed in offline 109

[R2-2204810](file:///C:\Data\3GPP\Extracts\R2-2204810_%5bDraft%5d%20Reply%20LS%20to%20RAN4%20on%20RRM%20relaxation.doc) [Draft] Reply LS to RAN4 on RRM relaxation vivo LS out Rel-17 NR\_redcap-Core To:RAN4

* Discussed in offline 109

FR2

[R2-2204502](file:///C:\Data\3GPP\Extracts\R2-2204502_R4-2206545.doc) LS on FR2 RedCap UE (R4-2206545; contact: Ericsson) RAN4 LS in Rel-17 NR\_redcap-Core To:RAN2 Cc:RAN1

* Discussed in offline 110

[R2-2204619](file:///C:\Data\3GPP\Extracts\R2-2204619%20Discussion%20on%20RAN4%20LS%20on%20FR2%20RedCap%20UE.docx) Discussion on RAN4 LS on FR2 RedCap UE Futurewei Technologies discussion Rel-17 38.306 NR\_redcap-Core

* Discussed in offline 110

[R2-2206020](file:///C:\Data\3GPP\Extracts\R2-2206020%20-%20%5bDRAFT%5d%20Reply%20LS%20on%20%20FR2%20RedCap%20UE.docx) [DRAFT] Reply LS on FR2 RedCap UE Ericsson LS out Rel-17 NR\_redcap-Core To:RAN4 Cc:RAN1

* Revised in R2-2206509

R2-2206509 Reply LS on FR2 RedCap UE Ericsson LS out Rel-17 NR\_redcap-Core To:RAN4 Cc:RAN1

RSRP threshold offset for 1Rx UE

[R2-2204475](file:///C:\Data\3GPP\Extracts\R2-2204475_R4-2206951.docx) LS on configuring margin for 1 Rx RedCap UEs (R4-2206951; contact: Ericsson) RAN4 LS in Rel-17 NR\_redcap-Core To:RAN2

* Nokia thinks there are many other threshold offsets which are needed.
* Mediatek wonders whether this should be fixed or a configurable parameter
* RAN2 understands that an offset is needed. FFS if fixed or configurable
* Reply LS in R2-2206504

R2-2206504 Reply LS on configuring margin for 1 Rx RedCap UEs Ericsson LS out Rel-17 NR\_redcap-Core To:RAN4

[R2-2206018](file:///C:\Data\3GPP\Extracts\R2-2206018%20-%20%5bDRAFT%5d%20Reply%20LS%20on%20configuring%20margin%20for%201%20Rx%20RedCap%20UEs.docx) [DRAFT] Reply LS on configuring margin for 1 Rx RedCap UEs Ericsson LS out Rel-17 NR\_redcap-Core To:RAN4

Coordination between gNBs

[R2-2204410](file:///C:\Data\3GPP\Extracts\R2-2204410_R3-221396.docx) LS reply on the coordination between gNBs supporting RedCap UEs (R3-221396; contact: Ericsson) RAN3 LS in Rel-17 NR\_redcap-Core To:RAN2

* ZTE thinks that more information might need to be added and then we need to ask RAN3 to do so
* Ericsson wonders if this refers to HD-FDD. ZTE confirms
* Nokia thinks that RAN3 is discussing this already
* Noted (can come back if we realize we need to communicate something that RAN3 does not know yet)

Operation with and without SSB

[R2-2204422](file:///C:\Data\3GPP\Extracts\R2-2204422_R1-2202886.docx) LS on operation with and without SSB for RedCap UE (R1-2202886; contact: Ericsson) RAN1 LS in Rel-17 NR\_redcap-Core To:RAN2, RAN4

* Discussed in offline 105
* Reply LS [R2-2206419](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206419.zip)

[R2-2206419](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206419.zip) Draft Reply LS on operation with and without SSB for RedCap UE ZTE LS out Rel-17 NR\_redcap-Core To:RAN1, RAN4

* Revised in R2-2206611 to remove draft & put RAN2 as Source

[R2-2206611](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206611.zip) Draft Reply LS on operation with and without SSB for RedCap UE ZTE LS out Rel-17 NR\_redcap-Core To:RAN1, RAN4

* Approved

UE capabilities from RRM perspective

[R2-2204476](file:///C:\Data\3GPP\Extracts\R2-2204476_R4-2206977.docx) Reply LS on UE capabilities for RedCap from RRM perspective (R4-2206977; contact: Ericsson) RAN4 LS in Rel-17 NR\_redcap-Core To:RAN2 Cc:RAN1

* Noted

#### 6.12.1.2 Rapporteur CRs

CR Rapporteurs to provide input CRs, if needed.

Stage-2 CR

[R2-2205784](file:///C:\Data\3GPP\Extracts\R2-2205784%20-%20RedCap%20corrections%20in%20TS%2038300.docx) Corrections on RedCap in TS 38.300 Nokia, Nokia Shanghai Bell, Huawei CR Rel-17 38.300 17.0.0 0464 - F NR\_redcap-Core

* Revised in R2-2206203

R2-2206203 Corrections on RedCap in TS 38.300 Nokia, Nokia Shanghai Bell, Huawei CR Rel-17 38.300 17.0.0 0464 1 F NR\_redcap-Core

* [AT118-e][113][RedCap] Stage-2 CR (Nokia)

Scope: continue the discussion on the Stage-2 CR, also considering Stage-2 text proposals in submitted contributions

Intended outcome: Agreeable Stage-2 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206203): Friday 2022-05-20 08:00 UTC

38.331 CR

[R2-2206021](file:///C:\Data\3GPP\RAN2\Docs\R2-2206021.zip) Miscellaneous corrections for RedCap WI Ericsson CR Rel-17 38.331 17.0.0 3151 - F NR\_redcap-Core Late

* Revised in R2-2206215

R2-2206215 Miscellaneous corrections for RedCap WI Ericsson CR Rel-17 38.331 17.0.0 3151 1 F NR\_redcap-Core Late

[R2-2206022](file:///C:\Data\3GPP\RAN2\Docs\R2-2206022.zip) RedCap WI ASN1 RIL list Ericsson discussion Rel-17 NR\_redcap-Core Late

* Discussed in offline 102

38.304 CR

[R2-2206023](file:///C:\Data\3GPP\Extracts\R2-2206023%20-%20Miscellaneous%20corrections%20for%20RedCap%20WI%20-%20TS%2038.304.docx) Miscellaneous corrections for RedCap WI Ericsson CR Rel-17 38.304 17.0.0 0252 - F NR\_redcap-Core

* Revised in R2-2206216

R2-2206216 Miscellaneous corrections for RedCap WI Ericsson CR Rel-17 38.304 17.0.0 0252 1 F NR\_redcap-Core

38.231 CR

[R2-2204811](file:///C:\Data\3GPP\Extracts\38.321_CR1238_(Rel-17)_R2-2204811_Miscellaneous%20CR%20on%20TS%2038.321%20for%20RedCap.docx) Miscellaneous CR on TS 38.321 for RedCap vivo CR Rel-17 38.321 17.0.0 1238 - F NR\_redcap-Core

* Revised in R2-2206217

R2-2206217 Miscellaneous CR on TS 38.321 for RedCap vivo CR Rel-17 38.321 17.0.0 1238 1 F NR\_redcap-Core

Capability CRs (moved here 6.12.4.1)

[R2-2204926](file:///C:\Data\3GPP\Extracts\R2-2204926-%20Draft%2038.306%20CR%20for%20the%20RedCap%20capablities.docx) Draft 38.306 CR for the RedCap capablities Intel Corporation draftCR Rel-17 38.306 17.0.0 F NR\_redcap

* Revised in R2-2206415

R2-2206615 Draft 38.306 CR for the RedCap capablities Intel Corporation draftCR Rel-17 38.306 17.0.0 F NR\_redcap

[R2-2204927](file:///C:\Data\3GPP\Extracts\R2-2204927-%20Draft%2038.331%20CR%20for%20the%20RedCap%20capablities.docx) Draft 38.331 CR for the RedCap capablities Intel Corporation draftCR Rel-17 38.331 17.0.0 F NR\_redcap

* Revised in R2-2206416

R2-2206616 Draft 38.331 CR for the RedCap capablities Intel Corporation draftCR Rel-17 38.331 17.0.0 F NR\_redcap

### 6.12.2 Control Plane

#### 6.12.2.1 NCD-SSB aspects

Corrections/clarifications on NCD-SSB aspects

[R2-2204544](file:///C:\Data\3GPP\Extracts\R2-2204544%20Handover%20to%20BWP%20without%20CD-SSB.docx) Handover to BWP without CD-SSB ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2204547](file:///C:\Data\3GPP\Extracts\R2-2204547%20Discussion%20on%20serving%20cell%20measurements%20on%20NCD-SSB.docx) Discussion on serving cell measurements on NCD-SSB ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2204812](file:///C:\Data\3GPP\Extracts\R2-2204812_Discussion%20on%20NCD-SSB%20for%20RedCap%20UEs.docx) Discussion on NCD-SSB for RedCap UEs vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

[R2-2205038](file:///C:\Data\3GPP\Extracts\R2-2205038%20Discussion%20on%20NCD-SSB%20aspects%20for%20RedCap%20UE.DOC) Discussion on NCD-SSB aspects for RedCap UE Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

[R2-2205285](file:///C:\Data\3GPP\Extracts\R2-2205285%20%5bJ002%5d%20Clarification%20on%20reference%20value%20in%20connected%20RRM%20relaxation%20critrion.doc) [J002] Clarification on reference value in connected RRM relaxation critrion Sharp discussion Rel-17

[R2-2205522](file:///C:\Data\3GPP\Extracts\R2-2205522%20Aspects%20related%20to%20use%20of%20NCD-SSB.docx) Aspects related to the use of NCD-SSB MediaTek Inc. discussion Rel-17 NR\_redcap-Core

[R2-2205636](file:///C:\Data\3GPP\Extracts\R2-2205636_ncd-ssb_handover.docx) Discussion on NCD-SSB handling at handover Apple discussion Rel-17 NR\_redcap-Core

[R2-2205771](file:///C:\Data\3GPP\RAN2\Docs\R2-2205771.zip) About paging monitoring in BWP#0 without CD-SSB ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core Late

Moved here from 6.12.2.2.1

[R2-2206032](file:///C:\Data\3GPP\Extracts\R2-2206032%20Further%20discussion%20on%20SI%20acqusition%20in%20RedCap-specific%20BWP.docx) Further discussion on SI acquisition in RedCap-specific BWP Qualcomm Incorporated discussion Rel-17 NR\_redcap-Core

Moved here from 6.12.2.2.1

[R2-2206033](file:///C:\Data\3GPP\Extracts\R2-2206033%20Measurement%20object%20configuration%20with%20NCD-SSB.docx) Measurement object configuration with NCD-SSB Qualcomm Incorporated discussion Rel-17 NR\_redcap-Core

[R2-2206143](file:///C:\Data\3GPP\RAN2\Docs\R2-2206143.zip) [Pre118-e][105][RedCap] Summary of AI 6.12.2.1 on NCD-SSB aspects ZTE Corporation report Rel-17 NR\_redcap-Core

* Discussed in offline 105
* [AT118-e][105][RedCap] NCD-SSB aspects (ZTE)

Initial scope: Continue the discussion on NCD-SSB aspects, based on [R2-2206143](file:///C:\Data\3GPP\RAN2\Docs\R2-2206143.zip), including a possible reply LS to [R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx)

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

* Text/proposals for a possible reply LS to [R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx)
* List of proposals for agreement (if any)
* List of proposals that require online discussions
* List of proposals that should not be pursued (if any)

Deadline (for companies' feedback): Tuesday 2022-05-10 0800 UTC

Deadline (for rapporteur's summary in [R2-2206195](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206195.zip)): Tuesday 2022-05-10 1000 UTC

Scope: Continue the discussion on NCD-SSB aspects, including a possible reply LS to [R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx)

Intended outcome: Summary of the offline discussion with e.g.:

* Text/proposals for a possible reply LS to [R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx)
* List of proposals for agreement (if any)
* List of proposals that require online discussions
* List of proposals that should not be pursued (if any)

Deadline (for companies' feedback): Friday 2022-05-13 02:00 UTC

Deadline (for rapporteur's summary in [R2-2206204](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206204.zip)): Friday 2022-05-13 04:00 UTC

Final scope: Continue the discussion on p4 and on the issue (RIL 520 related) raised by Samsung. Also draft reply LSs to [R2-2204476](file:///C:\Data\3GPP\Extracts\R2-2204476_R4-2206977.docx) (to RAN1) and to [R2-2204486](file:///C:\Data\3GPP\Extracts\R2-2204486_R4-2207104.docx) (RAN4) based on meeting agreements

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

* List of proposals for agreement (if any)
* List of proposals that require online discussions
* text proposals for reply LSs to RAN1 and RAN4

Deadline (for companies' feedback): Wednesday 2022-05-18 08:00 UTC

Deadline (for rapporteur's summary in [R2-2206414](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206414.zip)): Wednesday 2022-05-18 10:00 UTC

[R2-2206195](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206195.zip) [offline-105] NCD-SSB aspects ZTE Corporation discussion Rel-17 NR\_redcap-Core

Proposals for easy agreements:

Proposal 4: (16/17) For the first measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings.

• CD-SSB and/or multiple NCD-SSBs can be configured for serving cell measurements, with the restriction that only one SSB (CD-SSB or NCD-SSB) can be used for serving cell measurements at a given time.

• The SSB used for serving cell measurements may be changed upon BWP switching.

• The outcome of Proposal 1.

* ZTE clarifies that the only change with respect to the original proposal is “at a given time” in the first sub-bullet
* Regarding the second sub-bullet wonders if it’s up to the NW or to the UE. ZTE thinks this is discussed in p1
* Continue offline

Proposal 5: (16/17) For the second measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings.

• From RAN2 signalling point of view, the NW and the UE always know which SSB is the reference SSB to be used for serving cell measurements at a given point in time. This reference SSB can be used to define intra-frequency measurements. This reference SSB may change with BWP switching.

* Continue offline

Proposal 6: (16/17) From RAN2 perspective, handover scenario 1 is supported.

• Scenario 1: Handover to a target cell’s specific Redcap BWP associated with NCD-SSB directly other than to the initial BWP associated with CD-SSB (i.e. UE directly sync to the NCD-SSB and perform RACH on that BWP)

* Continue offline

Proposal 8: (15/17) From RAN2 perspective, handover scenario 2 is not supported.

• Scenario 2: Handover to a target cell’s initial BWP and further switch to the specific Redcap BWP to send the RACH (i.e. UE first sync to the CD-SSB and then autonomously switch to first active BWP to perform RACH)

* Continue offline

Proposal 9: (17/17)During handover, if dedicatedSIB1-Delivery IE is not included in the handover command and the first active BWP in the target cell does not contain CD-SSB, UE is expected to acquire SI only within the first active BWP either from CSS for SIBs or via dedicated signaling (same as legacy)

* Ericsson wonders if the UE needs to do anything if dedicatedSIB1-Delivery IE is not included in the handover command
* Vivo agrees as this is legacy behaviour
* QC thinks that in legacy is too open ended. The intention of this proposal is to limit the possibilities
* Continue offline

Proposal 10: (17/17)RAN2 confirm that RedCap UEs in RRC Connected only need to support the following three options for acquiring SI update or ETWS/CMAS message in a dedicated DL BWP that does not contain CD-SSB:

• From CSS for SIBs configured within this DL BWP;

• Via dedicated signaling;

• Switched by network (either DCI or RRC) to an initial DL BWP where SIBs are sent.

* Agreed

Proposal 11: (15/16) Clarify in the RRC field description that the paging search space is configured in an initial BWP only if that BWP includes the CD-SSB.

* Continue offline

Proposal 12: (15/15) RAN2 confirms for a separate initial DL BWP which does not contain CD-SSB and CORESET#0, the BWP will not be configured for paging no matter the RedCap UE is in RRC\_IDLE/INACTIVE or RRC\_CONNECTED state

* Intel understands the intention but suggests to reword the proposal. ZTE thinks we can provide a longer justification in the reply LS but the proposal is ok as it is
* Continue offline

Proposal 13: (15/15) Reply to RAN1 and explain there is no need to support paging connected RedCap UEs in case the separate initial DL BWP does not contain CD-SSB and CORESET#0.

* Continue offline

Proposal 14: (17/17) In Rel-17, from UE perspective, one configured BWP can only contain up to one SSB (CD-SSB or NCD-SSB).

* Continue offline

Proposals for online discussion:

Proposal 1: (15/18) RAN2 confirms when RedCap UE’s activate BWP contains NCD-SSB, the UE can be configured to perform serving cell measurements on CD-SSB.

* Continue offline

Proposal 2: (11 vs 5 vs 2) For how to indicate serving cell MO for RedCap UE, to adopt solution A-1.

 Solution A-1: Reuse existing servingCellMO IE (based on the assumption that RRCReconfiguration is always needed (e.g. to reconfigure UE CBW) when switching from a BWP associated with CD-SSB and a BWP associated with NCD-SSB).

* Continue offline

Proposal 3: (13/17) For neighbour cell measurements, the existing RRM mechanism is applied, further enhancement is not needed.

* Continue offline

Proposal 7: (14/17) For scenario 1, in handover command, if the first active BWP is associated with NCD-SSB, the smtc field included reconfigurationWithSync is configured according to the NCD-SSB of target cell.

Proposal 15: To discuss whether only one NCD-SSB can be configured (per-UE) in Rel-17 (revisit previous RAN2 agreement).

* Continue offline

Agreements:

1. RedCap UEs in RRC Connected only need to support the following three options for acquiring SI update or ETWS/CMAS message in a dedicated DL BWP that does not contain CD-SSB:

• From CSS for SIBs configured within this DL BWP;

• Via dedicated signaling;

• Switched by network (either DCI or RRC) to an initial DL BWP where SIBs are sent.

[R2-2206204](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206204.zip) [offline-105] NCD-SSB aspects – second round ZTE Corporation discussion Rel-17 NR\_redcap-Core

Proposals for easy agreements:

Proposal 1: RAN2 confirms that when RedCap UE’s active BWP contains NCD-SSB, it is up to network configuration whether the UE performs serving cell measurements on NCD-SSB or CD-SSB.

* Agreed

Proposal 2: For how to indicate serving cell MO for RedCap UE, to adopt solution A-2.

 Solution A-2: Optionally configures a BWP-specific servingCellMO under BWP-DownlinkDedicated IE when the BWP-DownlinkDedicated contains nonCellDefiningSSB-r17. If the field is present, the UE uses this servingCellMO for serving cell measurements, otherwise, the UE uses legacy servingCellMO IE under ServingCellConfig.

* Agreed

Proposal 4: (16/17) For the first measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings.

• Either CD-SSB or NCD-SSB can be configured for serving cell measurements, with the restriction that only one SSB (CD-SSB or NCD-SSB) can be used for serving cell measurements at a given time.

• The SSB used for serving cell measurements is configured by the network, the SSB can be different when the UE in different active BWPs.

• When RedCap UE’s active BWP contains NCD-SSB, it is up to network configuration whether the UE performs serving cell measurements on NCD-SSB or CD-SSB.

* Ericsson thinks the intention is not fully clear and suggests that 2nd bullet can be removed from Proposal 4.
* Continue offline

Proposal 5: (16/17) For the second measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings.

• From RAN2 signalling point of view, a BWP-specific servingCellMO is defined under BWP-DownlinkDedicated, the SSB defined in this servingCellMO is the reference SSB to be used for serving cell measurements when the UE is in this active BWP; if the field is absent, SSB defined in servingCellMO under ServingCellConfig is the reference SSB to be used for serving cell measurements. This reference SSB is used to define intra-frequency measurements.

* Huawei has concerns on p5. Suggest to delete last sentence “This reference SSB is used to define intra-frequency measurements”.
* After further discussion Huawei can compromise and accept p5
* Agreed

Proposal 6: (16/17) From RAN2 perspective, handover scenario 1 is supported.

• Scenario 1: Handover to a target cell’s specific Redcap BWP associated with NCD-SSB besides to the initial BWP associated with CD-SSB (i.e. UE directly sync to the NCD-SSB and perform RACH on that BWP)

* Agreed

Proposal 8: (15/17) From RAN2 perspective, handover scenario 2 is not supported.

• Scenario 2: Handover to a target cell’s initial BWP and further switch to the specific Redcap BWP to send the RACH (i.e. UE first sync to the CD-SSB and then autonomously switch to first active BWP to perform RACH)

* Agreed

Proposal 9: (17/17)During handover, if dedicatedSIB1-Delivery IE is not included in the handover command and the first active BWP in the target cell does not contain CD-SSB, UE is expected to acquire SI only within the first active BWP either from CSS for SIBs or via dedicated signaling.

* Ericsson needs more time to check this
* Continue online
* Apple thinks this is the consequence of RAN1 agreement
* QC/Apple suggest to reword as: “During handover, if dedicatedSIB1-Delivery IE is not included in the handover command and the first active BWP in the target cell does not contain CD-SSB, UE can only acquire SI, if needed, only within the first active BWP either from CSS for SIBs or via dedicated signaling.”
* Agreed as: “During handover, if dedicatedSIB1-Delivery IE is not included in the handover command and the first active BWP in the target cell does not contain CD-SSB, UE can only acquire SI, if needed, only within the first active BWP either from CSS for SIBs or via dedicated signaling.”

Proposal 11: (15/16) Clarify in the RRC field description that the paging search space is configured in an initial BWP only if that BWP includes the CD-SSB.

* Agreed

Proposal 12: (15/15) RAN2 confirms that if RedCap-specific initial DL BWP does not contain CD-SSB and CORESET#0, then this BWP will not be configured with a paging search space in any RRC state. In this case, the RedCap UE in RRC\_CONNECTED state is not required to read paging.

* Agreed

Proposal 13: (15/15) Reply to RAN1 and explain there is no need to support paging connected RedCap UEs in a RedCap-specific initial DL BWP which does not contain CD-SSB and CORESET#0.

* Agreed

Proposal 14: (17/17) In Rel-17, from UE perspective, one configured BWP can only contain up to one SSB (CD-SSB or NCD-SSB).

* Agreed

Proposals for online discussion:

Proposal 3: (13/17) For neighbour cell measurements, the existing RRM mechanism is applied, further enhancement is not needed.

* Continue online
* No agreement at this meeting

Proposal 7: (14/17) For scenario 1, in handover command, if the first active BWP is associated with NCD-SSB, the smtc field included reconfigurationWithSync is configured according to the NCD-SSB of target cell.

* Continue online
* ZTE think this was applicable if we agreed scenario 2, but we didn’t. So we can agree on it
* Huawei wonders whether this is critical. ZTE thinks this is needed, the UE needs to get the SMTC value in reconfigurationWithSync
* Apple agrees. QC agrees. Vivo agrees
* Agreed

Proposal 15: To discuss whether only one NCD-SSB can be configured (per-UE) in Rel-17 (revisit previous RAN2 agreement).

* Continue online
* Apple thinks this would be better for Rel-17
* Vivo wonders if the UE can still be configured with a NCD-SSB and CD-SSB
* Apple thinks we agreed that each BWP can have its own SSB but think it should point to the same time/freq resource
* HW thinks we should allow multiple NCD-SSB
* QC thinks we can agree on this without consultation with RAN1
* No agreement at this meeting on this

Agreements via email – from offline 105 – second round:

1. RAN2 confirms that when RedCap UE’s active BWP contains NCD-SSB, it is up to network configuration whether the UE performs serving cell measurements on NCD-SSB or CD-SSB.
2. For how to indicate serving cell MO for RedCap UE, adopt solution A-2.

Solution A-2: Optionally configures a BWP-specific servingCellMO under BWP-DownlinkDedicated IE when the BWP-DownlinkDedicated contains nonCellDefiningSSB-r17. If the field is present, the UE uses this servingCellMO for serving cell measurements, otherwise, the UE uses legacy servingCellMO IE under ServingCellConfig.

1. For the second measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings:

From RAN2 signalling point of view, a BWP-specific servingCellMO is defined under BWP-DownlinkDedicated, the SSB defined in this servingCellMO is the reference SSB to be used for serving cell measurements when the UE is in this active BWP; if the field is absent, SSB defined in servingCellMO under ServingCellConfig is the reference SSB to be used for serving cell measurements. This reference SSB is used to define intra-frequency measurements.

1. From RAN2 perspective, handover scenario 1 is supported.

Scenario 1: Handover to a target cell’s specific Redcap BWP associated with NCD-SSB besides to the initial BWP associated with CD-SSB (i.e. UE directly sync to the NCD-SSB and perform RACH on that BWP)

1. From RAN2 perspective, handover scenario 2 is not supported.

Scenario 2: Handover to a target cell’s initial BWP and further switch to the specific Redcap BWP to send the RACH (i.e. UE first sync to the CD-SSB and then autonomously switch to first active BWP to perform RACH)

1. Clarify in the RRC field description that the paging search space is configured in an initial BWP only if that BWP includes the CD-SSB.
2. RAN2 confirms that if RedCap-specific initial DL BWP does not contain CD-SSB and CORESET#0, then this BWP will not be configured with a paging search space in any RRC state. In this case, the RedCap UE in RRC\_CONNECTED state is not required to read paging.
3. Reply to RAN1 and explain there is no need to support paging connected RedCap UEs in a RedCap-specific initial DL BWP which does not contain CD-SSB and CORESET#0.
4. In Rel-17, from UE perspective, one configured BWP can only contain up to one SSB (CD-SSB or NCD-SSB).

Agreements online:

1. During handover, if dedicatedSIB1-Delivery IE is not included in the handover command and the first active BWP in the target cell does not contain CD-SSB, UE can only acquire SI, if needed, only within the first active BWP either from CSS for SIBs or via dedicated signaling.
2. For scenario 1, in handover command, if the first active BWP is associated with NCD-SSB, the smtc field included reconfigurationWithSync is configured according to the NCD-SSB of target cell.

[R2-2206414](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206414.zip) [offline-105] NCD-SSB aspects – second round ZTE Corporation discussion Rel-17 NR\_redcap-Core

Proposals for easy agreements:

Proposal 4 (12/15) For the first measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings. (Note: the 2nd bullet is removed based on the assumption that it is already covered by the agreed Proposal 5)

· Either CD-SSB or NCD-SSB can be configured for serving cell measurements, with the restriction that only one SSB (CD-SSB or NCD-SSB) can be used for serving cell measurements at a given time.

· When RedCap UE’s active BWP contains NCD-SSB, it is up to network configuration whether the UE performs serving cell measurements on NCD-SSB or CD-SSB.

* Agreed

Proposal 18: (15/15) RedCap UE in idle/inactive mode monitors paging in the RedCap-specific initial DL BWP if RedCap-specific initial DL BWP contains CD-SSB and the RedCap-specific initial DL BWP is configured with search space for paging (i.e. pagingSearchSpace).

* Agreed

Proposal 19: (12/15) If paging and OSI search space are configured in the RedCap-specific initial DL BWP which contains CD-SSB, the associated physical time/frequency domain resources can be the same as the ones in the legacy initial DL BWP.

* Samsung prefers to change into “can be the same as or different from”
* Mediatek wonders if there is any real reason for this to be different if they're overlapping BWPs?
* ZTE thinks that even in Rel15, the network is allowed to configure separate Paging search space even if both contain CD-SSB. Huawei agree
* Mediatek thinks we need to update the field description to clarify this. ZTE thinks the field description already allows this interpretation
* Xiaomi does not see the motivation
* Apple thinks this is from redcap specific init BWP...but anyway UE does not cross-check whether its same PHY resources or not, the UE just follows. Vivo/QC agree
* Agreed as: “If paging and OSI search space are configured in the RedCap-specific initial DL BWP which contains CD-SSB, it is up to NW configuration whether the associated physical time/frequency domain resources can be the same as or different from the ones in the legacy initial DL BWP (FFS whether we need to update the field description)”

Agreements:

1. For the first measurement related question in R2-2204486, reply to RAN4 with the following RAN2 understandings.

- Either CD-SSB or NCD-SSB can be configured for serving cell measurements, with the restriction that only one SSB (CD-SSB or NCD-SSB) can be used for serving cell measurements at a given time.

- When RedCap UE’s active BWP contains NCD-SSB, it is up to network configuration whether the UE performs serving cell measurements on NCD-SSB or CD-SSB.

2. RedCap UE in idle/inactive mode monitors paging in the RedCap-specific initial DL BWP if RedCap-specific initial DL BWP contains CD-SSB and the RedCap-specific initial DL BWP is configured with search space for paging (i.e. pagingSearchSpace).

3. If paging and OSI search space are configured in the RedCap-specific initial DL BWP which contains CD-SSB, it is up to NW configuration whether the associated physical time/frequency domain resources can be the same as or different from the ones in the legacy initial DL BWP (FFS whether we need to update the field description)

BWP operation without bandwidth restriction and NCD SSB support for all UEs

[R2-2205512](file:///C:\Data\3GPP\Extracts\R2-2205512.docx) Discussion on BWP operation without bandwidth restriction and NCD SSB Vodafone GmbH, Deutsche Telekom, Qualcomm discussion Rel-17

* To be discussed in Wednesday 2022-05-18 GTW session

Proposal 1:

From the co-signed companies’ point of view, we would like to ensure that the conditions to support FG 6.1a (bwp-WithoutRestriction) are clarified (e.g. if it is mandatory for the UE to support CSI-RS based BM/RLM/BFD measurement on the active BWP part or it is required for the UE to return to the initial BWP with SSB for all measurements).

Proposal 2:

We do not currently see any reason to restrict the NCD SSBs to the RedCap UEs only, but the benefits to allow it to use for all customers and would like to consider this feature for Rel 17.

* Ericsson wonders if this is a RAN2 only decision, with no impacts on RAN1 and RAN4
* Apple agrees Ericsson and thinks there are RAN2 impacts (e.g. how to handle two SSBs) and think this can be brought back later as TEI17. Mediatek also agrees and thinks we should first of all stabilize Rel-17 first. Samsung/IDC/Huawei also agrees
* Vivo supports this proposal, there is no additional effort on the NW side and it could be beneficial for normal UEs
* ZTE thinks the proposal is to extend NCD-SSB, not separate initial BWP.
* BT supports p2. There seems to be nothing blocking this
* RAN2 cannot agree there would be additional RAN2 impacts to extend NCD SSB support to non-RedCap UEs (apart from a new UE capability indicating NCD-SSB support), however RAN2 thinks that other groups (e.g. RAN4 and RAN1) could be impacted and then in case a RAN plenary decision is needed to introduce this, either as a late correction for the RedCap WI or as TEI-17

Proposal 2a:

If the proposal 2 is adapted we would like to introduce a separate capability for NCD SSB based measurements not associated with redcap capabilities.

#### 6.12.2.2 Other CP aspects

##### 6.12.2.2.1 Known Corrections

Corrections/clarifications for already known issues (non NCD-SSB related), eg. inter-RAT mobility from LTE to NR, capability for support for Rx branches inclusion in the UERadioPagingInformation inter-node message

ASN.1 review related papers (to be discussed in offline 102)

[R2-2204725](file:///C:\Data\3GPP\Extracts\R2-2204725%20%5bO374%5d%20RedCap%20IFRI.docx) [O374] correction on RedCap UE’s cell barring OPPO draftCR Rel-17 38.331 17.0.0 F NR\_redcap-Core

[R2-2205770](file:///C:\Data\3GPP\Extracts\R2-2205770%20Consideration%20on%20RedCap%20access%20indication.docx) Consideration on RedCap access indication ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[R2-2206059](file:///C:\Data\3GPP\RAN2\Docs\R2-2206059.zip) [X115]38.331 Corrections on UE's behaviour of getting SIB1 for Redcap Xiaomi Communications draftCR Rel-17 38.331 17.0.0 NR\_redcap-Core

[R2-2206060](file:///C:\Data\3GPP\RAN2\Docs\R2-2206060.zip) [X119][X114]Discussion on PDCCH-ConfigCommon for Redcap Xiaomi Communications discussion

[R2-2206061](file:///C:\Data\3GPP\RAN2\Docs\R2-2206061.zip) [X119][X114]38.331 Corrections on PDCCH-ConfigCommon for Redcap Xiaomi Communications draftCR Rel-17 38.331 17.0.0 NR\_redcap-Core

[R2-2206062](file:///C:\Data\3GPP\RAN2\Docs\R2-2206062.zip) [X120]38.331 Corrections on Need code of RedCap-specific initial DL BWP for handover Xiaomi Communications draftCR Rel-17 38.331 17.0.0 NR\_redcap-Core

* [AT118-e][102][RedCap] RRC CR (Ericsson)

Initial scope: continue the discussion on the RedCap WI-specific RILs, also considering the submitted contributions

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

* List of resolved RILs
* List of RILs for online discussion
* List of RILs for further offline discussion

Deadline (for companies' feedback): Wednesday 2022-05-11 2000 UTC

Deadline (for rapporteur's summary in [R2-2206192](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206192.zip)): Wednesday 2022-05-11 2200 UTC

Updated scope: 1. continue the discussion on the remaining RedCap WI-specific RILs, based on [R2-2206192](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206192.zip); 2. For inter-RAT mobility from LTE to NR, discuss what happens if the UE accesses a 20MHz non-RedCap cell / whether it’s acceptable not to specify a new UE behaviour; 3. For RSRP threshold offset for 1Rx UE, discuss whether the offset should be configurable (vs hard-coded in RAN4 spec) and also draft the LS to RAN4 according to agreements.

Updated intended outcome: Summary of the offline discussion with:

* List of RILs for email agreement
* List of RILs for online discussion
* Conclusion on UE behaviour when the UE is handed over to a 20MHz non-RedCap cell
* Conclusion on configurability for offset for 1Rx UE
* Draft LS to RAN4

Deadline (for companies' feedback): Tuesday 2022-05-17 20:00 UTC

Deadline (for rapporteur's summary in R2-2206218): Tuesday 2022-05-17 22:00 UTC

Final scope: 1. Draft two reply LSs to RAN4 (for [R2-2204502](file:///C:\Data\3GPP\Extracts\R2-2204502_R4-2206545.doc) and for [R2-2204475](file:///C:\Data\3GPP\Extracts\R2-2204475_R4-2206951.docx)) and 2. update the 38.331 CR reflecting the meeting agreements

Final intended outcome:

1) Reply LSs

2) Agreeable 38.331 CR

1) Deadline (for companies' feedback to draft reply LSs):  Thursday 2022-05-19 16:00 UTC

1) Deadline (for reply LSs in R2-2206509 and R2-2206504):  Thursday 2022-05-19 18:00 UTC

2) Deadline (for companies' feedback to CR):  Friday 2022-05-20 08:00 UTC

2) Deadline (for final CR in R2-2206215):  Friday 2022-05-20 10:00 UTC

(Deadlines for CR are indicative. It’s likely that this discussion will move to a Post118-e discussion)

[R2-2206192](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206192.zip) [offline-102] RRC CR Ericsson discussion Rel-17 NR\_redcap-Core

For agreement:

Proposal 1 The following RILs are agreed: H506, V163, H509, H514, Z033, H515, M608, H517, V161, Z034, H522 (as captured in R2-2206021)

* Agreed (the RRC CR can be further reviewed)

Proposal 2 The following RILs are agreed: V168, V169 (as captured in R2-2206021)

* For P2, Samsung propose to remove halfDuplexRedCapAllowed-r17 from SIB1, instead of agreeing P2
* Ericsson thinks we already discussed this and rejected. ZTE/Nokia/vivo agrees
* Agreed

Proposal 4 The following RIL is agreed: H705 (as captured in R2-2206021).

* Apple suggests to postpone this as not essential.
* Continue offline (or even postpone)

Proposal 6 The following RILs are not pursued: X115, X112, V165, H525, H526.

* Agreed

Proposal 7 The following RILs are agreed: X110, X111.

* Continue offline

Proposal 9 O374 is not pursued.

* Agreed

Proposal 10 V162 is agreed with the following change; replace “consider“ with “perform

* Mediatek suggests to adopt the TP in their comment
* Continue offline

Proposal 11 X116 is not pursued.

* Agreed

Proposal 13 RIL 510 is agreed.

* Agreed

Proposal 14 FW001 is agreed.

* Agreed

Proposal 15 S952 is not pursued

* Agreed

Proposal 18 Z035 is agreed with the following change:

"The NW configures SSB-based RA (and hence RACH-ConfigCommon) only for UL BWPs if the linked DL BWPs (same bwp-Id as UL-BWP) are the initial DL BWPs or DL BWPs containing the SSB associated to the initial DL BWP or for RedCap UEs DL BWPs associated with nonCellDefiningSSB."

* Agreed

Proposal 21 V164 is not pursued.

* Agreed

Proposal 22 H513 and H516 are not pursued.

* Agreed

Proposal 23 H518 is not pursued.

* Agreed

Proposal 24 X119-2 is not pursued.

* Agreed

Proposal 27 V166 is not pursued.

* Agreed

Proposal 28 Number of Rx supported by a RedCap UE is provided in UERadioPagingInformation.

* Agreed

Agreements:

1. The following RILs are agreed: H506, V163, H509, H514, Z033, H515, M608, H517, V161, Z034, H522
2. The following RILs are agreed: V168, V169
3. The following RILs are not pursued: X115, X112, V165, H525, H526.
4. O374 is not pursued.
5. X116 is not pursued.
6. RIL 510 is agreed.
7. FW001 is agreed.
8. S952 is not pursued
9. Z035 is agreed with the following change: "The NW configures SSB-based RA (and hence RACH-ConfigCommon) only for UL BWPs if the linked DL BWPs (same bwp-Id as UL-BWP) are the initial DL BWPs or DL BWPs containing the SSB associated to the initial DL BWP or for RedCap UEs DL BWPs associated with nonCellDefiningSSB."
10. V164 is not pursued.
11. H513 and H516 are not pursued.
12. H518 is not pursued.
13. X119-2 is not pursued.
14. V166 is not pursued.
15. Number of Rx supported by a RedCap UE is provided in UERadioPagingInformation.

For discussion:

Proposal 3 Discuss H704.

* Continue online in week2

Proposal 5 For H520 wait until the related discussion in offline 105 is concluded.

Proposal 8 Discuss I051 and N016.

* Mediatek is ok with the changes, as it is much better approach
* HW thinks this will imply a functional change. ZTE also does not support this
* Continue offline

Proposal 12 H507 is agreed in principle; discuss how to implement the change, i.e., NOTE and/or normative text.

* Continue offline

Proposal 16 Discuss H511/ C271 regarding whether the parameter should indicate “allow” or “reject”.

* Continue offline

Proposal 17 For H512 wait until the related discussion in offline 105 is concluded.

* Continue offline

Proposal 19 Discuss Z036, N107, and H523.

* Continue offline

Proposal 20 Discuss X119-1.

* Continue offline

Proposal 25 Discuss X114.

* Continue offline

Proposal 26 Discuss S953.

* Continue offline

Proposal 29 Regarding the indication for DRX support in idle and inactive mode; wait until the related discussion in offline 110 is concluded.

* Continue offline

Proposal 30 Discuss whether UEs configured with eDRX should consider stored system information to be invalid after 24 hours.

* Continue offline

[R2-2206218](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206218.zip) [offline-102] RRC CR – second round Ericsson discussion Rel-17 NR\_redcap-Core

For agreement:

Proposal 1 H704 is not pursued

* Given the discussion on Q2.1.1 and the conclusion, Mediatek understands H704 should be pursued (since H704 implements the opposite of the question asked)?
* Huawei wants to clarify that the H704 is propose NOT to support NCD-SSB for non-RedCap UE. And phase 1 question is “do you think it should be possible to apply the NCD-SSB functionality to non-RedCap UEs?” But the summary is “3 companies support the proposal whereas 6 companies think otherwise.” So, I think the proposal should be H704 is agreed.
* Ericsson agrees this is a typo: p1 should read that H704 is agreed
* VC thinks this anyway needs to be discussed with [R2-2205512](file:///C:\Data\3GPP\Extracts\R2-2205512.docx)
* Discuss with [R2-2205512](file:///C:\Data\3GPP\Extracts\R2-2205512.docx)

After discussion of [R2-2205512](file:///C:\Data\3GPP\Extracts\R2-2205512.docx)

* H704 is agreed

Proposal 2 H705 as implemented in R2-2206021 is agreed.

* Agreed

Proposal 3 H520 as implemented in R2-2206021 is agreed.

* For H520 (which says: If the RedCap specific DL BWP does NOT include CD-SSB and the entire CORESET#0, the search space for SIB1/OSI/Paging should be absent for the RedCap specific BWP.) Xiaomi agrees that paging search space will not be configured on RedCap-specific initial DL BWP not containing CD-SSB and CORESET#0. The question is whether Redcap UE need to read the SS for paging, SI from PDCCH-ConfigCommon configuration from legacy initial BWP in case RedCap-specific initial DL BWP NOT contains CORESET#0. In Last meeting, it was agreed that: “In case RedCap-specific initial DL BWP contains CD-SSB and CORESET#0, PDCCH-ConfigCommon is included in the configuration of RedCap-specific initial DL BWP. RedCap UEs don't need to read the PDCCH-ConfigCommon configuration from legacy initial BWP if RedCap-specific initial BWP is signalled”. If the UE need to read the SS for paging, SI from PDCCH-ConfigCommon configuration from legacy initial BWP in case RedCap-specific initial DL BWP NOT contains CORESET#0, it seems we have introduced a different behavior for UE. And it also means that if a field in RedCap-specific initial BWP is absent, the UE should follow the field signalled in legacy initial BWP. Note this was excluded in last meeting considering the great effort that we need to identify the absence of a parameter means “release” or means “using the one from legacy” thus we have agreed that RedCap-specific BWP, both common and dedicated configurations are provided using full configuration, i.e., delta configuration is not supported as captured in RAN2#117 meeting minutes. So we think it is better that UEs read the PDCCH-ConfigCommon configuration from its RedCap-specific initial BWP to follow what agreed in RAN2 117 as a unified solution.
* Continue online
* Samsung wonders which part of H520 we are agreeing to.
* Agreed

Proposal 4 The following is addressed in offline 105: “whether paging search space should be configured with the same value as the one in initialDownlinkBWP, if provided in the RedCap specific initial DL BWP.”

* Agreed (to be addressed in offline 105)

Proposal 5 X110 and X111 are agreed.

* Agreed

Proposal 8 H507 is agreed.

* While Mediatek agrees with the intention, a Note as suggested in H507 cannot override existing normative text. The normative text needs to be modified to fix this issue
* Continue online
* Huawei is fine with normative text
* The intention of H507 is agreed but this should be put as normative text. Continue in the CR updating phase.

Proposal 9 H511 and C271 are agreed.

* Agreed

Proposal 10 Z036, N107, and H523 are not pursued.

* On p10/p11, Xiaomi agrees that RedCap specific BWP field is not mandatory for HO case. But still wonders whether this field is mandatory in some case. We admit that NW may choose not to configure a RedCap specific initial BWP if the legacy initial BWP is <20MHz and can be used for RedCap operation. How about other case: If the legacy BWP exceeds the RedCap UE’s maximum bandwidth.
* Continue online
* ZTE thinks Need R is sufficient, it supports all scenarios
* Huawei thinks current text is Need R, which allows NW implementation. Clarification some case is mandatory seems not critical.
* Agreed

Proposal 11 X119-1 is not pursued.

* Continue online
* Agreed

Proposal 12 X114 is not pursued.

* Huawei thinks it’s more accurate to say “X114 is postponed” based on the companies comment to consider further discussion on this.
* Continue online
* ZTE clarifies this is only related to field description. So it’s fine to postpone
* Postponed. Companies are invited to check with their RAN1 colleagues

Proposal 13 S953 is not pursued.

* Samsung would like to flag on Proposal 13 as it depends on the conclusion in the following RedCap MAC discussion, i.e., [116] Proposal 5
* Intel agrees we can discuss based on p5 in offline 116
* Continue online
* Ericsson thinks we could agree independently
* Vivo thinks this depends on whether we adopt option 1 in p5 in offline 116
* Continue based on p5 in offline 116

Proposal 14 Indication for DRX support in idle and inactive mode is discussed in offline 110.

* Agreed (discussion moved to offline 110)

Proposal 15 The following proposal is not pursued: “UEs configured with eDRX should consider stored system information to be invalid after 24 hours.”

* Agreed

Proposal 16 UE behaviour is not specified to address the case for inter-RAT mobility from LTE to NR for RedCap UEs.

* Huawei thinks this will not cause any NBC issue by some UE options, even it is introduced in next meeting. We suggest to postpone this issue to next meeting. And no agreement on this for now.
* QC, Oppo, Apple think we need to take a decision
* VDF thinks we need a sentence on the UE behaviour.
* Come back in the next meeting to check whether a different note in Stage2 can be agreed.
* No Stage-3 impact will be considered because of this

Proposal 17 A configurable parameter is not introduced in SIB1 to indicate RSRP offset for UEs with 1 Rx branch.

* Agreed

For discussion:

Proposal 6 Discuss I051 and N016.

* Ericsson thinks it’s a bit late to revert agreements. ZTE/Apple/Huawei agree, it’s late and the benefit is limited.
* Intel is fine to go with the majority
* I051 and N016 are not pursued

Proposal 7 Discuss V162.

* Huawei thinks we should list the options:

Option 1: “perform barring based on intraFreqReselectionRedCap as specified in TS 38.304 [20]”

Option 2: “perform barring in accordance with intraFreqReselectionRedCap as specified in TS 38.304 [20]”

* Ericsson thinks there is a split on whether we should support different options
* Mediatek/Intel/Apple either is fine but we need to adopt one of the options
* Option 1 is agreed: “perform barring based on intraFreqReselectionRedCap as specified in TS 38.304 [20]”

Proposal 18 Discuss whether optional configuration of RedCap specific Qrxlevmin\_1Rx and Qqualmin\_1Rx. should be supported.

* ZTE thinks the fixed offset can be applied to these thresholds
* Huawei agree with Ericsson that R4 does not touch this cell selection case
* QC thinks we could have RedCap specific threshold, not just for 1rx. ZTE thinks we already ruled out this
* Include a question on this (whether these specific thresholds can be configurable) in the LS to RAN4.

Agreements via email – from offline 102 – second round:

1. H705 as implemented in R2-2206021 is agreed.
2. X110 and X111 are agreed.
3. H511 and C271 are agreed.
4. The following proposal is not pursued: “UEs configured with eDRX should consider stored system information to be invalid after 24 hours.”
5. A configurable parameter is not introduced in SIB1 to indicate RSRP offset for UEs with 1 Rx branch.

Agreements online:

1. H704 is agreed
2. H520 as implemented in R2-2206021 is agreed.
3. The intention of H507 is agreed but this should be put as normative text. Continue in the CR updating phase.
4. Z036, N107, and H523 are not pursued.
5. X119-1 is not pursued.
6. Regarding possible UE behaviour for inter-RAT mobility from LTE to NR for RedCap UEs: Come back in the next meeting to check whether a different note in Stage2 can be agreed. In any case no Stage-3 impact will be considered because of this
7. I051 and N016 are not pursued
8. Regarding V162, option 1 is agreed: “perform barring based on intraFreqReselectionRedCap as specified in TS 38.304 [20]
9. Include a question on whether RedCap specific configurable Qrxlevmin\_1Rx and Qqualmin\_1Rx should be supported in the LS to RAN4

RRM relaxation

[R2-2204736](file:///C:\Data\3GPP\Extracts\R2-2204736%20-%20%5bO372%5d%20Discussion%20on%20prohibit%20timer%20for%20UAI%20for%20RRM%20relaxation%20fulfilment%20indication.doc) [O372] Discussion on prohibit timer for UAI for RRM relaxation fulfilment indication OPPO discussion Rel-17 NR\_redcap-Core

* Discussed in offline 105

[R2-2204737](file:///C:\Data\3GPP\Extracts\R2-2204737%20-%20%5bO377%5d%20Correction%20to%2038.331%20on%20UAI%20for%20RRM%20relaxation%20fulfilment%20indication.doc) [O377] Correction to 38.331 on UAI for RRM relaxation fulfilment indication OPPO draftCR Rel-17 38.331 17.0.0 F NR\_redcap-Core

* Discussed in offline 105

All following docs moved here from 6.12.2.2.2

[R2-2204815](file:///C:\Data\3GPP\Extracts\R2-2204815_Coexistence%20of%20Rel-16%20and%20Rel-17%20RRM%20Relaxation%20Criteria.docx) Coexistence of Rel-16 and Rel-17 RRM relaxation criteria vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

* Discussed in offline 105

[R2-2205089](file:///C:\Data\3GPP\Extracts\R2-2205089.doc) Co-existence of Rel-16 and Rel-17 RRM relaxation Samsung discussion Rel-17

* Discussed in offline 105

[R2-2205091](file:///C:\Data\3GPP\Extracts\R2-2205091.docx) Correction on RRM relaxation in RRC\_CONNECTED (RIL#:951) Samsung CR Rel-17 38.331 17.0.0 3045 - F NR\_redcap-Core

* Discussed in offline 105

[R2-2205284](file:///C:\Data\3GPP\Extracts\R2-2205284%20%5bJ001%5d%20Correction%20on%20Srxlev%20in%20connected%20RRM%20relaxation%20critrion.doc) [J001] Correction on Srxlev in connected RRM relaxation critrion Sharp, Huawei, HiSilicon discussion Rel-17

* Discussed in offline 105
* [AT118-e][109][RedCap] RRM relaxation (vivo)

Initial scope: discuss incoming LS in [R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc) and the need/content of a possible reply LS (also considering [R2-2204620](file:///C:\Data\3GPP\Extracts\R2-2204620%20Discussion%20on%20RAN4%20LS%20on%20RRM%20Relaxation%20for%20RedCap.docx)). Also discuss corrections for RRM relaxation based on [R2-2204736](file:///C:\Data\3GPP\Extracts\R2-2204736%20-%20%5bO372%5d%20Discussion%20on%20prohibit%20timer%20for%20UAI%20for%20RRM%20relaxation%20fulfilment%20indication.doc), [R2-2204737](file:///C:\Data\3GPP\Extracts\R2-2204737%20-%20%5bO377%5d%20Correction%20to%2038.331%20on%20UAI%20for%20RRM%20relaxation%20fulfilment%20indication.doc), [R2-2204815](file:///C:\Data\3GPP\Extracts\R2-2204815_Coexistence%20of%20Rel-16%20and%20Rel-17%20RRM%20Relaxation%20Criteria.docx), [R2-2205089](file:///C:\Data\3GPP\Extracts\R2-2205089.doc), [R2-2205091](file:///C:\Data\3GPP\Extracts\R2-2205091.docx), [R2-2205284](file:///C:\Data\3GPP\Extracts\R2-2205284%20%5bJ001%5d%20Correction%20on%20Srxlev%20in%20connected%20RRM%20relaxation%20critrion.doc).

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

* Text/proposals for a possible reply LS to [R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc) (if needed)
* List of proposals/CRs for agreement (if any)
* List of proposals that require online discussions
* List of proposals that should not be pursued (if any)

Deadline (for companies' feedback): Tuesday 2022-05-10 0800 UTC

Deadline (for rapporteur's summary in [R2-2206199](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206199.zip)): Tuesday 2022-05-10 1000 UTC

Scope: Continue the discussion on RRM relaxation, based on the discussion [R2-2206199](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206199.zip)

Summary of the offline discussion with e.g.:

* Text/proposals for a possible reply LS to [R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc)
* List of proposals for agreement (if any)
* List of proposals that require online discussions
* List of proposals that should not be pursued (if any)

Deadline (for companies' feedback): Friday 2022-05-13 02:00 UTC

Deadline (for rapporteur's summary in [R2-2206205](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206205.zip)): Friday 2022-05-13 04:00 UTC

Updated scope: continue the discussion on new p1 and p6b from [R2-2206205](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206205.zip).

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

* List of proposals for agreement (if any)
* List of proposals that require online discussions
* Text proposal for a reply LS to [R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc)

Deadline (for companies' feedback): Wednesday 2022-05-18 08:00 UTC

Deadline (for rapporteur's summary in [R2-2206415](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206415.zip)): Wednesday 2022-05-18 10:00 UTC

Final scope: draft a reply LS to [R2-2204487](file:///C:\Data\3GPP\Extracts\R2-2204487_R4-2207109.doc)

Final intended outcome: reply LS in R2-2206418

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for LS in R2-2206418): Thursday 2022-05-19 14:00 UTC

[R2-2206199](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206199.zip) [offline-109] RRM relaxation vivo discussion Rel-17 NR\_redcap-Core

Proposals for easy agreement

Proposal 1: [To agree] [16/16] RAN2 send an LS to RAN4 to clarify the following [Detailed wording may be updated when drafting reply LS]:

• Simultaneous configuration of R16 not-at-cell-edge criterion and R17 stationary criterion for idle/inactive mode is a valid configuration from the network’s PoV, where the network supports RRM relaxation for both R16 and R17 UEs in idle/inactive mode.

• From signalling’s PoV, any R16 RRM relaxation criterion and any R17 RRM relaxation criterion for idle/inactive mode can be configured in a same cell at a same time, as independent criteria (i.e., without requiring a UE to fulfil both the R16 and the R17 criteria in order to relax its RRM measurements).

• If combined with a not-at-cell-edge criterion, the R17 stationary criterion can only be combined with the R17 not-at-cell-edge criterion, not with the R16 one.

* Samsung would like to check with RAN4 if their discussion is only based on RAN2 feedback. Vivo is fine to further discuss this in the reply LS
* Agreed with the addition that “detailed wording may be updated when drafting reply LS”

Proposal 2: [To agree] [16/16] In the LS sent, RAN2 also request RAN4 to consider supporting cases #8 and #9 [Detailed wording could be discussed when drafting reply LS].

* Agreed

Proposal 4: [To agree] [15/15] RAN2 to send a reply LS to RAN4, the detailed content in the LS is further discussed based on the conclusions of DP1/2(/3/4).

* Agreed

Proposal 5: [To agree] [13/15] When the type of measured SSB is changed, the UE won’t set the value of SrxlevRefStationaryConnected to the current Srxlev value of the serving cell, i.e. no change to the current specification.

* Continue offline

Proposal 6: [To agree] [14/17] No prohibit timer will be introduced for UAI for RRM relaxation fulfilment status indication.

* Continue offline

Proposal 7: [To agree] [14/14]: Other changes (i.e. changes in section 5.3.7.2, 5.3.7.3, 5.3.13.2) on UAI for RRM relaxation fulfilment indication in R2-2204737 is agreeable and merged into RRC CR.

* Agreed

Proposal 8: [To agree] [15/15]: Other changes (i.e. changes in section 5.7.4.2) on UAI for RRM relaxation fulfilment indication in R2-2205091 is agreeable and merged into RRC CR. FFS on which one is better “if it is configured to do so” or “if it was configured to do so”.

* Agreed

Proposals need further online discussion:

Proposal 3: [To discuss] [8 vs. 7] RAN2 to discuss whether to remove the NOTE2 in clause 5.2.4.9.0 in TS 38.304, i.e., NOTE2: It is up to UE implementation which relaxation method to perform based on the “allowed” cases as specified in TS 38.133 [8] for RRC Idle/Inactive if multiple methods are configured.

* Continue offline

Proposal 9: [To discuss] [10 vs 6]: Change the Srxlev in stationary criterion to SS-RSRP and agree the TP in R2-2205284.

* Continue offline

Agreements:

1. RAN2 send an LS to RAN4 to clarify the following [Detailed wording may be updated when drafting reply LS]:

• Simultaneous configuration of R16 not-at-cell-edge criterion and R17 stationary criterion for idle/inactive mode is a valid configuration from the network’s PoV, where the network supports RRM relaxation for both R16 and R17 UEs in idle/inactive mode.

• From signalling’s PoV, any R16 RRM relaxation criterion and any R17 RRM relaxation criterion for idle/inactive mode can be configured in a same cell at a same time, as independent criteria (i.e., without requiring a UE to fulfil both the R16 and the R17 criteria in order to relax its RRM measurements).

• If combined with a not-at-cell-edge criterion, the R17 stationary criterion can only be combined with the R17 not-at-cell-edge criterion, not with the R16 one.

1. In the LS, RAN2 also request RAN4 to consider supporting cases #8 and #9 [Detailed wording could be discussed when drafting reply LS].
2. Changes in section 5.3.7.2, 5.3.7.3, 5.3.13.2 on UAI for RRM relaxation fulfilment indication in R2-2204737 are agreeable and merged into RRC CR.
3. Changes in section 5.7.4.2 on UAI for RRM relaxation fulfilment indication in R2-2205091 are agreeable and merged into RRC CR. FFS on which one is better “if it is configured to do so” or “if it was configured to do so”.

[R2-2206205](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206205.zip) [offline-109] RRM relaxation – second round vivo discussion Rel-17 NR\_redcap-Core

Proposals for agreement:

Proposal 2: [To agree] [14/14] In the reply LS, RAN2 inform RAN4 it is up to RAN4 to make the final decision on whether support case#8 and case#9, for example, considering other reason, if any.

* Agreed

Proposal 3: [To agree] [14/14] [RIL: J002] is not agreed.

* Agreed

Proposal 4: [To agree] [12/13] No prohibit timer will be introduced for UAI for RRM relaxation fulfilment status indication.

* Agreed

Proposal 5: [To agree] [12/13] Update the previous agreement by removing the FFS part as below:

Changes in section 5.7.4.2 on UAI for RRM relaxation fulfilment indication in R2-2205091 are agreeable and merged into RRC CR. ~~FFS on which one is better “if it is configured to do so” or “if it was configured to do so”.~~

* Agreed

Proposal 6a: [To agree] [10/13] RAN2 assume to change the Srxlev for stationary criterion to SS-RSRP in RRC\_CONNECTED.

* Agreed

Proposals need further online discussion:

Proposal 1a: [To discuss] [7 vs. 6] RAN2 to discuss whether to remove the NOTE2 in clause 5.2.4.9.0 in TS 38.304, i.e., NOTE2: It is up to UE implementation which relaxation method to perform based on the “allowed” cases as specified in TS 38.133 [8] for RRC Idle/Inactive if multiple methods are configured.

* LGE thinks P1a is still controversial. Not sure if online discussion is useful for progress. Instead, we can indicate this Note in the LS to RAN4 to ask if this is in line with RAN4 understanding and if so, if this is already clear from RAN4 spec. Given this, we are fine with keeping the Note for now.
* Vivo (rapporteur) is fine to indicate this to RAN4 to ask if it is in line with RAN4 understanding, and if it is already clear from RAN4 spec or any contradiction (by also addressing concern from the other side). Vivo suggests to try the new proposal (replacing P1a and P1b) below.

“Proposal 1’: [To discuss] RAN2 to check with RAN4 whether the below Note in RAN2 specification is in line with RAN4 understanding or any contradiction, and whether it is clear from RAN4 specification.

NOTE2: It is up to UE implementation which relaxation method to perform based on the “allowed” cases as specified in TS 38.133 [8] for RRC Idle/Inactive if multiple methods are configured.”

* Continue offline

Proposal 1b: [To discuss] RAN2 to discuss whether to check with RAN4 which of below options is their understanding:

- Option 1) UE is allowed to perform more relaxed measurement method and, UE is “not” allowed to perform less relaxed measurement method.

- Option 2) UE is allowed to perform more relaxed measurement method and, UE is “also” allowed to perform less relaxed measurement method.

- Regarding option 2, Futurewei thinks we should recognize that the UE is also allowed not to relax its RRM measurements at all today and that should continue to be the case (for IDLE/INACTIVE mode) going forward.

- LGE thinks that if UE is allowed to perform ‘more’ relaxed measurement method, it is up to UE whether it fully exploits the relaxation or it does not, since ‘less’ relaxed measurements necessarily meets the requirements for ‘more’ relaxed measurements, which is already clear. So LGE thinks proposal1b can be omitted.

* Continue offline

Proposal 6b: [To discuss] RAN2 to discuss: agree the TP in R2-2205284 now or consult RAN4 that whether RAN2 assumption to change the Srxlev for stationary criterion to SS-RSRP in RRC\_CONNECTED is reasonable.

* Continue offline

Agreements vie email – from offline 109:

1. In the reply LS, RAN2 inform RAN4 it is up to RAN4 to make the final decision on whether support case#8 and case#9, for example, considering other reason, if any.
2. [RIL: J002] is not agreed.
3. No prohibit timer will be introduced for UAI for RRM relaxation fulfilment status indication.
4. Update the previous agreement by removing the FFS part as below:

Changes in section 5.7.4.2 on UAI for RRM relaxation fulfilment indication in R2-2205091 are agreeable and merged into RRC CR. ~~FFS on which one is better “if it is configured to do so” or “if it was configured to do so”.~~

1. RAN2 assume to change the Srxlev for stationary criterion to SS-RSRP in RRC\_CONNECTED.

[R2-2206415](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206415.zip) [offline-109] RRM relaxation – third round vivo discussion Rel-17 NR\_redcap-Core

Proposal 2: [To agree] [15/18] The TP in R2-2205284 is agreeable and merged into RRC CR. Update the previous agreement to: RAN2 assume to change the Srxlev for stationary criterion to SS-RSRP in RRC\_CONNECTED, pending confirmation by RAN4. Include this agreement in the LS to RAN4 and ask them to confirm whether it is reasonable.

* Agreed

Proposals need further online discussion:

Proposal 1: [To discuss] [12/18] RAN2 to check with RAN4 whether the below Note in RAN2 specification is in line with RAN4 understanding.

NOTE2 (i.e., It is up to UE implementation which relaxation method to perform based on the “allowed” cases as specified in TS 38.133 [8] for RRC Idle/Inactive if multiple methods are configured.) in clause 5.2.4.9.0 in TS 38.304.

* ZTE thinks the note is ok but no need to send LS. Ericsson agrees
* VDF wonder if this contradicts RAN4 specs
* Oppo suggests to remove the note
* Samsung prefers to remove the note, but fine to check with RAN4, due to RAN2's split understanding on it
* Mediatek thinks this does not contradict RAN4 requirements

Agreements:

1. The TP in R2-2205284 is agreeable and merged into RRC CR. Update the previous agreement to: RAN2 assume to change the Srxlev for stationary criterion to SS-RSRP in RRC\_CONNECTED, pending confirmation by RAN4. Include this agreement in the LS to RAN4 and ask them to confirm whether it is reasonable.

inter-RAT mobility from LTE to NR

[R2-2204814](file:///C:\Data\3GPP\Extracts\R2-2204814_%5bV170%5d%20Discussion%20on%20Inter-RAT%20Mobility%20from%20LTE%20to%20NR%20for%20RedCap.doc) [V170] Discussion on Inter-RAT Mobility from LTE to NR for RedCap vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

Proposal1: A new trigger for RRC re-establishment procedure should be captured, i.e. if a RedCap UE finds the serving NR cell doesn’t support RedCap after inter-RAT handover from LTE.

* Oppo thinks it’s sufficient to leave to NW implementation
* QC/Intel/Interdigital/CATT are ok to leave to NW implementation
* VDF thinks that something more is needed than NW implementation
* HW thinks that we need UE behaviour so we should agree on both proposals. Vivo agrees
* ZTE thinks we need this
* BT thinks we cannot fully rely on the NW implementation, so something is needed on the UE side
* ZTE thinks it depends whether operator want to see a RedCap access a 20MHz non-RedCap cell
* Continue offline to check what happens if the UE accesses a 20MHz non-RedCap cell

[R2-2205904](file:///C:\Data\3GPP\Extracts\R2-2205904%20-%20RedCap%20eNB%20to%20gNB%20handover.docx) Handover from E-UTRA from legacy eNB to legacy gNB Ericsson discussion Rel-17 NR\_redcap

Proposal 1 It is up to network implementation to avoid handover attempts from source eNB to legacy gNB that does not support RedCap.

* Network implementation should avoid handover attempts from source eNB to legacy gNB that does not support RedCap. FFS is specific UE behaviour should also be specified
* Discuss in offline 113 if the NW behaviour above can be covered as a Note in Stage 2.

Agreements:

1. Network implementation should avoid handover attempts from source eNB to legacy gNB that does not support RedCap. FFS is specific UE behaviour should also be specified

[R2-2204723](file:///C:\Data\3GPP\Extracts\R2-2204723%20RedCap%20HO.doc) Discussion on inter-RAT mobility from LTE to NR OPPO discussion Rel-17 NR\_redcap-Cor

[R2-2204929](file:///C:\Data\3GPP\Extracts\R2-2204929_RRC%20open%20issues%20on%20Rel17%20RedCap%20WI.docx) RRC open issues on Rel17 RedCap WI Intel Corporation discussion Rel-17 NR\_redcap

[R2-2205036](file:///C:\Data\3GPP\Extracts\R2-2205036%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc) Inter-RAT mobility from LTE to NR Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

RedCap Capability in the UERadioPagingInformation

[R2-2204724](file:///C:\Data\3GPP\Extracts\R2-2204724%20RedCap%20Capability%20in%20inter-node%20message.doc) Discussion on including RedCap UE’s capability in the UERadioPagingInformation inter-node message OPPO discussion Rel-17 NR\_redcap-Core

Proposal 1 Capabilities for support for Rx branches and HD-FDD-only are included in the UERadioPagingInformation inter-node message.

* HW thinks we already on RX branches
* Intel is ok to add HD-FDD only. ZTE/QC/vivo/Nokia is ok
* Agreed

[R2-2204813](file:///C:\Data\3GPP\Extracts\R2-2204813_%5bV166%5d%20Including%20RedCap%20Capability%20in%20the%20UERadioPagingInformation%20Inter-Node%20Message.doc) [V166] Including RedCap Capability in the UERadioPagingInformation Inter-Node Message vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

[R2-2205037](file:///C:\Data\3GPP\Extracts\R2-2205037%20Paging%20capability%20and%20cell%20selection%20related%20to%20R4%20LS.docx) Paging capability and cell selection related to R4 LS Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

Agreements:

1. Capabilities for support for Rx branches and HD-FDD-only are included in the UERadioPagingInformation inter-node message.

Withdrawn

R2-2205047 Correction on the DRX cycle of the UE for eDRX NEC CR Rel-17 38.321 17.0.0 1249 - F NR\_redcap-Core Withdrawn

##### 6.12.2.2.2 Other

Contributions on any other CP issues.

ASN.1 review related papers (to be discussed in offline 102)

[R2-2204541](file:///C:\Data\3GPP\Extracts\R2-2204541_SI%20Request%20for%20Redcap%20UEs%20(RIL%20%23S953).doc) [S953] SI Request for RedCap UEs Samsung Electronics Co., Ltd discussion Rel-17 NR\_redcap-Core

[R2-2204819](file:///C:\Data\3GPP\Extracts\R2-2204819_UE%20Capability%20and%20System%20Information%20for%20eDRX.doc) UE Capability and System Information for eDRX vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

[R2-2204936](file:///C:\Data\3GPP\Extracts\R2-2204936%20-%20I051%20support%20of%20RedCap%20based%20on%20intraFreqReselectionRedCap.docx) I051 support of RedCap based on intraFreqReselectionRedCap Intel Corporation discussion Rel-17 NR\_redcap

[R2-2204979](file:///C:\Data\3GPP\Extracts\R2-2204979.docx) Cell reselection priority for RedCap (RIL#: S952) Samsung discussion Rel-17 NR\_redcap-Core

[R2-2205523](file:///C:\Data\3GPP\Extracts\R2-2205523%20SIB%20validity%20with%20eDRX.docx) SIB validity with eDRX MediaTek Inc. discussion Rel-17 NR\_redcap-Core

[R2-2205783](file:///C:\Data\3GPP\Extracts\R2-2205783%20Miscellaneous%20RedCap%20corrections%20in%2038.331.docx) Miscellaneous RedCap corrections Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.0.0 3117 - F NR\_redcap-Core

[R2-2205785](file:///C:\Data\3GPP\Extracts\R2-2205785%20HD-FDD%20support%20in%20system%20information%20for%20RedCap.docx) HD-FDD RedCap support in system information Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

[R2-2206080](file:///C:\Data\3GPP\RAN2\Docs\R2-2206080.zip) [H507] Corrections on cell re-selection measurements during RRC setup/resume Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3161 F NR\_redcap-Core

[R2-2206081](file:///C:\Data\3GPP\RAN2\Docs\R2-2206081.zip) [H511] Corrections on redcapAccessRejected Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3162 F NR\_redcap-Core

[R2-2206082](file:///C:\Data\3GPP\RAN2\Docs\R2-2206082.zip) [H513 H516 H520 H524 H525 H526 H527] Corrections on RedCap initial BWP Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3163 F NR\_redcap-Core

RSRP threshold offset for 1Rx UE

[R2-2205786](file:///C:\Data\3GPP\Extracts\R2-2205786%20RSRP%20thresholds%20for%20RedCap.docx) RSRP thresholds for 1 Rx RedCap Ues Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

Proposal 1: RedCap UE with 1 Rx branch applies offset to the RSRP thresholds which are applicable to RedCap

* RAN2 understands that RedCap UE with 1 Rx branch applies offset to the all RSRP thresholds which are applicable to RedCap (not only the thresholds explicitly mentioned in the incoming RAN4 LS). Ask RAN4 for confirmation

Proposal 2: RedCap UE with 1 Rx branch applies offset at least to the following RSRP thresholds: rsrp-ThresholdSSB, rsrp-ThresholdCSI-RS, msgA-RSRP-ThresholdSSB, msgA-RSRP-Threshold, rsrp-ThresholdBFR, cg-SDT-RSRP-ThresholdSSB, sdt-RSRP-Threshold

Proposal 3: RedCap UE with 1 Rx branch applies offset to REL-16 low mobility and/or not at cell edge conditions.

* QC thinks we need to discuss this with RAN4.
* Mediatek thinks this should not apply to low mobility
* In the LS also ask RAN4 about their view on whether RedCap UE with 1 Rx branch applies offset to REL-16 low mobility and/or not at cell edge conditions (indicating that RAN2 is not sure about the low mobility condition)

[R2-2206024](file:///C:\Data\3GPP\Extracts\R2-2206024%20-%20Configuring%20margin%20for%201%20Rx%20RedCap%20UEs.docx) Configuring margin for 1 Rx RedCap UEs Ericsson discussion Rel-17 NR\_redcap-Core

*Proposal 1 Introduce a configurable parameter in SIB1 that indicates RSRP offset for UEs with 1 Rx branch.*

* Continue offline (depending on the outcome of the discussion, more questions might have to be asked to RAN4)

Observation 3 Coverage compensation for 1Rx RedCap UEs is not fully beneficial if idle mode procedures are not updated accordingly.

Observation 4 With no RedCap specific cell (re-)selection criteria, 1 Rx RedCap UEs would experience a smaller cell size than 2 Rx RedCap and legacy UEs.

Observation 5 Introducing cell (re)selection compensation for 1 Rx RedCap UEs does not add complexity in Rel-17; if introduced in later releases, backwards compatibility issues would arise if done in later releases.

Proposal 3 Support optional configuration of RedCap specific Qrxlevmin\_1Rx and Qqualmin\_1Rx.

Agreements:

1 Send an LS to RAN4 saying that RAN2 understands that RedCap UE with 1 Rx branch applies offset to the all RSRP thresholds which are applicable to RedCap (not only the thresholds explicitly mentioned in the incoming RAN4 LS), asking RAN4 for confirmation. In the LS, also ask RAN4 about their view on whether RedCap UE with 1 Rx branch applies offset to REL-16 low mobility and/or not at cell edge conditions (indicating that RAN2 is not sure about the low mobility condition). FFS if anything else needs to be included in the LS

Stage 2 CRs

[R2-2204816](file:///C:\Data\3GPP\Extracts\38.300_CR0446_(Rel-17)_R2-2204816_Correction%20on%20RLM%20for%20RedCap.docx) Correction on RLM for RedCap vivo, Guangdong Genius CR Rel-17 38.300 17.0.0 0446 - F NR\_redcap-Core

* Discussed in offline 113

38.304 CRs

eDRX

[R2-2205090](file:///C:\Data\3GPP\Extracts\R2-2205090.docx) Corrections on eDRX Samsung CR Rel-17 38.304 17.0.0 0242 - F NR\_redcap-Core

[R2-2204928](file:///C:\Data\3GPP\Extracts\R2-2204928_38.304_draftCR_eDRX.docx) Draft 38.304 CR for the eDRX handling Intel Corporation draftCR Rel-17 38.304 17.0.0 F NR\_redcap

Moved from 6.12.2.2.1

[R2-2205150](file:///C:\Data\3GPP\Extracts\R2-2205150_Correction%20on%20DRX%20cycle%20of%20the%20UE%20for%20eDRX.docx) Correction on DRX cycle of the UE for eDRX NEC CR Rel-17 38.304 17.0.0 0243 - F NR\_redcap-Core

[R2-2205769](file:///C:\Data\3GPP\Extracts\R2-2205769%20Corrections%20on%20eDRX.docx) Corrections on eDRX ZTE Corporation, Sanechips draftCR Rel-17 38.304 17.0.0 F NR\_redcap-Core

[R2-2205337](file:///C:\Data\3GPP\Extracts\R2-2205337%20Other%20CP%20aspects%20for%20DRX%20cycle.docx) Other CP aspects for DRX cycle LG Electronics Finland discussion NR\_redcap-Core

Cell barring

[R2-2205613](file:///C:\Data\3GPP\Extracts\R2-2205613_38.304%20%20Corrections%20on%20Redcap%20UE's%20behavior%20on%20cellbar.docx) 38.304 Corrections on Redcap UE's behavior on cellbar Xiaomi Communications,Huawei, HiSilicon draftCR Rel-17 38.304 17.0.0 NR\_redcap-Core

* [AT118-e][115][RedCap] 38.304 CR (Samsung)

Initial scope: Discuss 1. eDRX corrections for 38.304 (considering the latest 38.304 version in [R2-2206023](file:///C:\Data\3GPP\Extracts\R2-2206023%20-%20Miscellaneous%20corrections%20for%20RedCap%20WI%20-%20TS%2038.304.docx)), e.g. based on [R2-2205090](file:///C:\Data\3GPP\Extracts\R2-2205090.docx), and 2. cell barring corrections, based on [R2-2205613](file:///C:\Data\3GPP\Extracts\R2-2205613_38.304%20%20Corrections%20on%20Redcap%20UE's%20behavior%20on%20cellbar.docx)

Initial intended outcome: Summary of the offline discussion with agreeable proposals/TP for 38.304

Deadline (for companies' feedback): Tuesday 2022-05-17 22:00 UTC

Deadline (for rapporteur's summary in [R2-2206213](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206213.zip)): Tuesday 2022-05-17 23:00 UTC

Final scope: continue the discussion on p1, p4 and p5 from [R2-2206213](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206213.zip) and update the 38.304 CR, also reflecting other meeting agreements

Intended outcome: Agreeable 38.304 CR

Deadline (for companies' feedback): Friday 2022-05-20 08:00 UTC

Deadline (for final CR in R2-2206216): Friday 2022-05-20 10:00 UTC

(Deadlines for CR are indicative. It’s likely that this discussion will move to a Post118-e discussion)

[R2-2206213](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206213.zip) [offline-115] eDRX corrections Samsung discussion Rel-17 NR\_redcap-Core

For agreements:

Proposal 2. (13/13) (To agree) Adopt proposed TP2 in R2-2206213.

* Huawei doesn’t mean to flag P2, but we need to be clear that the TP2 is actually based on R2-2206023 rather the current spec:

Proposal 2. (13/13) (To agree) Adopt proposed TP2 in R2-2206213, in addition to the change in R2-2206023.

* Agreed as: Adopt proposed TP2 in R2-2206213, on top of changes in R2-2206023.

Proposal 5. (11/13) (To agree). Adopt the following TP in clause 5.3.1 in TS 38.304:

- If the cell is to be treated as if the cell status is "barred" due to not supporting RedCap UEs, or due to being unable to acquire the SIB1:

* Regarding P5, the reason that Futurewei suggested moving the case of "barred" due to not supporting RedCap UEs to the “else” branch is because if we keep it in the “if” branch, that text says that “the UE may exclude the barred cell …”. That means the UE may still select to camp in the cell, which doesn’t support RedCap. Then, the UE may not get paged, or even when the UE gets paged, it won’t be able to access the cell anyway. By moving the case to the “else” branch, the RedCap UE shall exclude the cell for at least 5 min (and may come back and re-evaluate the cell later). We have no argument against using “may exclude” for missing SIB1. But knowing a cell doesn’t support RedCap, we think the UE “shall exclude” the cell for at least 5 min. Thanks.
* Samsung agrees with Futurewei and suggests to reword as follows:

Proposal 5. (?/13) (To discuss). Adopt the following TP in clause 5.3.1 in TS 38.304:

- If the cell is to be treated as if the cell status is "barred"~~due to not supporting RedCap UEs, or~~due to being unable to acquire theSIB1:

- Samsung suggests to add the following to the TP:

-     If the field intraFreqReselectionRedCap in SIB1 message is set to "allowed", including the case that intraFreqReselectionRedCap is not present in SIB1 as specified in TS 38.331:

* Continue online
* Huawei thinks this is ok as a baseline
* Xiaomi is fine as well
* Continue the discussion in CR updating phase based on the latest proposal from Samsung

For discussion:

Proposal 1. (8/13) (To discuss) Adopt proposed TP1 in R2-2206213 as baseline. This can be updated based on result of offline [110] (i.e., whether to introduce separate bits in SIB1).

* Continue the discussion in CR updating phase

Proposal 3. (6/8) (To discuss) Not capture the table for determination of T in TS 38.304.

* At least at this meeting we don’t capture the table for determination of T in TS 38.304

Proposal 4. (4/13) (To discuss). Adopt the following TP in clause 5.3.1 in TS 38.304:

- If the UE is a RedCap UE, the UE shall acquire SIB1 and, in the remainder of this procedure, consider 'intraFreqReselection in MIB' for non-RedCap UEs to be 'intraFreqReselectionRedCap in SIB1' for RedCap UEs, if available.

- If the field intraFreqReselection in MIB message for non-RedCap UEs is set to "allowed":

(…)

- If the field intraFreqReselection in MIB message for non-RedCap UEs is set to "not allowed":

- Huawei thinks the proposed change only addresses the ambiguity of “remainder of this procedure”. But the original intention of the Todc is to add “If not available, RedCap UE skips the remainder of this procedure.” This is still needed to clarify that UE should skip remainder, if not available.

- Samsung thinks that, if intraFreqReselectionRedCap in SIB1 is not available, since the last parts are “for non-RedCap UEs”, Redcap UEs will skip them.

- Huawei thinks that “for non-RedCap UEs” only clarifies the field is the legacy one for non-RedCap UE, but does not clarify RedCap UE should skip.

- Samsung suggests to add the following after the first “if”

-     If the UE is a non-RedCap UE, or the UE is a RedCap UE and intraFreqReselectionRedCap in SIB1 is available:

* Continue online
* Huawei and Xiaomi are ok with this
* Continue the discussion in CR updating phase based on the latest proposal from Samsung

Agreements via email – from offline 115:

1. Adopt proposed TP2 in R2-2206213, on top of changes in R2-2206023.

Draft LS out

[R2-2205039](file:///C:\Data\3GPP\Extracts\R2-2205039%20%5bDraft%5d%20LS%20on%20the%20maximum%20PTW%20length%20of%20IDLE%20eDRX.DOCX) [Draft] LS on the maximum PTW length of IDLE eDRX Huawei, HiSilicon LS out To:RAN3, CT1

### 6.12.3 User Plane

#### 6.12.3.1 MAC aspects

[R2-2204817](file:///C:\Data\3GPP\Extracts\R2-2204817_Discussion%20on%20MAC%20aspects%20for%20RedCap.doc) Discussion on MAC aspects for RedCap vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

[R2-2205040](file:///C:\Data\3GPP\Extracts\R2-2205040%20Discussion%20on%20MAC%20RACH%20related%20issues%20for%20RedCap%20UE.DOCX) Discussion on MAC RACH related issues for RedCap UE Huawei, HiSilicon discussion Rel-17 NR\_redcap-Core

[R2-2205487](file:///C:\Data\3GPP\Extracts\R2-2205487%20Corrections%20on%20BWP%20operation%20for%20RedCap%20UE.docx) Corrections on BWP operation for RedCap UE LG Electronics Inc. discussion Rel-17 NR\_redcap-Core

* [AT118-e][116][RedCap] MAC aspects (vivo)

Initial scope: Discuss MAC aspects, e.g. based on contributions in 6.12.3.1

Initial intended outcome: Summary of the offline discussion with agreeable proposals/TP for 38.321

Deadline (for companies' feedback): Tuesday 2022-05-17 22:00 UTC

Deadline (for rapporteur's summary in [R2-2206214](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206214.zip)): Wednesday 2022-05-18 00:00 UTC

Proposals/TP marked "for agreement" in [R2-2206214](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206214.zip) not challenged until Wednesday 2022-05-18 12:00 UTC will be declared as agreed via email by the session chair.

[R2-2206214](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206214.zip) [offline-116] MAC aspects vivo discussion Rel-17 NR\_redcap-Core

Proposals for easy agreement:

Proposal 1: [To agree] [12/12]: When the bwp-InactivityTimer is expired and the default BWP is not configured for a RedCap UE, the RedCap UE should switch to initialDownlinkBWP-RedCap, if configured. The corresponding TP provided in [R2-2204811] is agreed.

* Agreed

Proposal 2: [To agree] [12/12]: For RedCap UEs in idle/inactive mode, if the RedCap-specific initial BWP is not configured, the legacy initial BWP should be used to perform RACH as legacy.

* Agreed

Proposal 3: [To agree] [11/12]: When a RedCap UE is in RRC\_IDLE/RRC\_INACTIVE, selection of the initial UL BWP and initial DL BWP are captured separately in the spec. Take the corresponding TP in [R2-2205487] as the starting point when drafting CR.

* Agreed

Proposals need further online discussion:

Proposal 4: [To discuss] [7/12]: RA partitioning is assumed as mandatory for RedCap UE (i.e. no capability signalling).

Proposal 5: [To discuss]: Regarding SI request for RedCap UE, RAN2 to discuss the below options:

Option 1 (6): If the RedCap-specific initial UL BWP is configured, UE transmits SI request (Msg1 or Msg3 based) on RedCap-specific initial UL BWP.

Option 2 (5): RedCap UEs always use the legacy initial UL BWP for Msg1 based SI request, if it does not exceed the RedCap UE maximum bandwidth. Otherwise, RedCap UEs use Msg3 based SI request.

Option 3 (1): RedCap UEs use the legacy initial UL BWP for Msg1 based SI request, even if it ~~does not~~ exceeds the RedCap UE maximum bandwidth.

* Samsung thinks it’s not clear on where to send Msg3-based SI request. So option 2/3 should be updated as follows:

Option 2 (5): RedCap UEs always use the legacy initial UL BWP for Msg1 based SI request, if it does not exceed the RedCap UE maximum bandwidth. Otherwise, RedCap UEs use Msg3 based SI request.

2-1: RedCap UEs always use the legacy initial UL BWP for Msg3 based SI request, if it does not exceed the RedCap UE maximum bandwidth. Otherwise, RedCap-specific initial UL BWP is used for Msg3 based SI request.

2-2: RedCap UEs always use the RedCap-specific initial UL BWP for Msg3 based SI request, if configured. Otherwise, legacy initial UL BWP is used for Msg3 based SI request

Option 3 (1): RedCap UEs use the legacy initial UL BWP for Msg1 based SI request, even if it exceeds the RedCap UE maximum bandwidth.

3-1: RedCap UEs always use the legacy initial UL BWP for Msg3 based SI request (even if it exceeds the RedCap UE maximum bandwidth)

3-2: RedCap UEs always use the RedCap-specific initial UL BWP for Msg3 based SI request, if configured. Otherwise, legacy initial UL BWP is used for Msg3 based SI request

Agreements via email – from offline 116;

1. When the bwp-InactivityTimer is expired and the default BWP is not configured for a RedCap UE, the RedCap UE should switch to initialDownlinkBWP-RedCap, if configured. The corresponding TP provided in [R2-2204811] is agreed.
2. For RedCap UEs in idle/inactive mode, if the RedCap-specific initial BWP is not configured, the legacy initial BWP should be used to perform RACH as legacy.
3. When a RedCap UE is in RRC\_IDLE/RRC\_INACTIVE, selection of the initial UL BWP and initial DL BWP are captured separately in the spec. Take the corresponding TP in [R2-2205487] as the starting point when drafting CR.

### 6.12.4 UE capabilities

#### 6.12.4.1 Known remaining issues

Corrections/clarifications for already known issues, e.g. those not concluded in the discussion for [R2-2203563](file:///C:\Data\3GPP\Extracts\R2-2203563%20_Report%20of%20AT117-107-2nd-v17_Summary2.docx).

[R2-2204738](file:///C:\Data\3GPP\Extracts\R2-2204738%20-%20Clarification%20on%20HD-FDD%20support%20for%20RedCap.doc) Clarification on HD-FDD support for RedCap OPPO discussion Rel-17 NR\_redcap-Core

[R2-2204818](file:///C:\Data\3GPP\Extracts\R2-2204818_Discussion%20on%20capability%20for%20RedCap.doc) Discussion on capability for RedCap vivo, Guangdong Genius discussion Rel-17 NR\_redcap-Core

[R2-2204925](file:///C:\Data\3GPP\Extracts\R2-2204925%20_Open%20issues%20on%20RedCap%20capabilities.docx) Open issues on RedCap capabilities Intel Corporation discussion Rel-17 NR\_redcap

Moved here from 6.12.2.2.2

[R2-2205637](file:///C:\Data\3GPP\Extracts\R2-2205637-RedCap-PC7-331.docx) RedCap UE power class 7 signaling Apple CR Rel-17 38.331 17.0.0 3107 - F NR\_redcap-Core

[R2-2205638](file:///C:\Data\3GPP\Extracts\R2-2205638-RedCap-PC7-306.docx) RedCap UE power class 7 signaling Apple CR Rel-17 38.306 17.0.0 0724 - F NR\_redcap-Core

[R2-2205787](file:///C:\Data\3GPP\Extracts\R2-2205787%20UE%20capabilities%20for%20RedCap.docx) On RedCap UE capabilities Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_redcap-Core

[R2-2206025](file:///C:\Data\3GPP\Extracts\R2-2206025%20-%20Introduction%20of%20FR2%20RedCap%20UE%20-%20TS%2038.304.docx) Introduction of FR2 RedCap UE Ericsson CR Rel-17 38.304 17.0.0 0253 - F NR\_redcap-Core

[R2-2206026](file:///C:\Data\3GPP\Extracts\R2-2206026%20-%20Introduction%20of%20FR2%20RedCap%20UE%20-%20TS%2038.306.docx) Introduction of FR2 RedCap UE Ericsson CR Rel-17 38.306 17.0.0 0739 - F NR\_redcap-Core

[R2-2206027](file:///C:\Data\3GPP\Extracts\R2-2206027%20-%20Introduction%20of%20FR2%20RedCap%20UE%20-%20TS%2038.331.docx) Introduction of FR2 RedCap UE Ericsson CR Rel-17 38.331 17.0.0 3152 - F NR\_redcap-Core

* [AT118-e][110][RedCap] UE capabilities (Intel)

Initial scope: discuss incoming LSs on UE capabilities and other UE capabilities aspects based on contributions in 6.12.4 (and in other AIs, e.g. [R2-2204619](file:///C:\Data\3GPP\Extracts\R2-2204619%20Discussion%20on%20RAN4%20LS%20on%20FR2%20RedCap%20UE.docx), [R2-2205637](file:///C:\Data\3GPP\Extracts\R2-2205637-RedCap-PC7-331.docx), [R2-2205638](file:///C:\Data\3GPP\Extracts\R2-2205638-RedCap-PC7-306.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)

Deadline (for companies' feedback): Wednesday 2022-05-11 1400 UTC

Deadline (for rapporteur's summary in R2-2206200): Wednesday 2022-05-11 1500 UTC

Updated scope: Continue the discussion on UE capabilities aspects based on [R2-2206200](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206200.zip)

Updated 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)

Deadline (for companies' feedback): Tuesday 2022-05-17 22:00 UTC

Deadline (for rapporteur's summary in [R2-2206219](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206219.zip)): Wednesday 2022-05-18 00:00 UTC

Final scope: Update the UE capability CRs, reflecting the meeting agreements (and also trying to resolve the remaining issue in ph2-3 from [R2-2206219](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206219.zip))

Final intended outcome: Endorsable UE capability CRs

Deadline (for companies' feedback): Friday 2022-05-20 08:00 UTC

Deadline (for final CRs in R2-2206615 and R2-2206616): Friday 2022-05-20 10:00 UTC

[R2-2206200](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206200.zip) [offline-110] UE capabilities Intel discussion Rel-17 NR\_redcap-Core

For agreement:

Proposal 1: Easy agreement (13/15):

For extended long DRX for RRC\_INACTIVE, introduce a new capability bit extendedDRX-r17 covering DRX values of 2.56s, 5.12s and 10.24s;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Definitions for parameters** | **Per** | **M** | **FDD-TDD DIFF** | **FR1-FR2 DIFF** |
| ***extendedDRX-Cycle-r17***  Indicates whether UE in RRC\_INACTIVE supports the extended DRX values of 256, 512 and 1024 radio frames as specified in TS 38.331 [9]. The UE may indicate support for eDRX in RRC\_INACTIVE only if it supports eDRX in RRC\_IDLE. | UE | No | No | No |

* Nokia thinks that P1 and P2 needs to be discussed together as it was discussed in the e-mail discussion. According to proposal 1 companies seems to agree to have separate optional UE capabilities for IDLE and INACTIVE eDRX. We think that similar flexibility is needed for the network side (Proposal 2). It would not be very constructive to mandate the network to support INACTIVE eDRX in case IDLE eDRX is supported. It should be noted that there can be large amount of cells in the notification area and cells can be even from different vendor in case of NW sharing and it is possible that not all the cells supports both IDLE and INACTIVE eDRX. In addition IOT testing may not available at the same time for both IDLE and INACTIVE eDRX. Therefore our proposal would be to agree p1 together with modified p2:

Proposal 2: Introduce separate bits in SIB1 to indicate whether IDLE eDRX and/or INACTIVE eDRX are enabled.

* Continue offline: check if the combined proposals below are ok:

- For extended long DRX for RRC\_INACTIVE, introduce a new capability bit extendedDRX-r17 covering DRX values of 2.56s, 5.12s and 10.24s;

- Introduce separate bits in SIB1 to indicate whether IDLE eDRX and/or INACTIVE eDRX are enabled. Inactive eDRX may be enabled only if Idle eDRX is enabled

Proposal 3: Easy agreement (13/15):

Rel-17 RRM relaxation for RRC\_CONNECTED UEs is captured in TS38.306 as optional feature with capability signaling, i.e. introduce a capability bit on this;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Definitions for parameters | Per | M | FDD-TDD DIFF | FR1-FR2 DIFF |
| ***rrm-RelaxationRRC-ConnectedRedCap-r17***  Indicates whether UE supports Rel-17 relaxed RRM measurements in RRC\_CONNECTED as specified in TS 38.331 [9]. | UE | No | No | No |

* Agreed

Proposal 5: Easy agreement (14/14):

To add Separate initial UL BWP for RedCap Ues and Separate initial DL BWP for RedCap Ues in the field description of supportOfRedCap-r17

|  |  |  |  |
| --- | --- | --- | --- |
| ***supportOfRedCap-r17***  Indicates that the UE is a RedCap UE with comprised of at least the following functional components:   * Maximum FR1 RedCap UE bandwidth is 20 MHz; * Maximum FR2 RedCap UE bandwidth is 100 MHz; * Support of RedCap early indication based on Msg1, MsgA and Msg3 for random access; * Separate initial UL BWP for RedCap Ues; * Separate initial DL BWP for RedCap Ues .   A RedCap UE shall set the field to *supported*. | UE | No | No |

* Agreed

Proposal 6: Easy agreement (14/14): Full-duplex FDD is an optional feature for RedCap UEs.

* Agreed

Proposal 7: Easy agreement (13/14): halfDuplexRedCapAllowed-r17 is kept in SIB1 and corresponding FFS “—FFS whether halfDuplexRedCapAllowed is kept, remove also from related procedure” is removed. FFS on whether further clarification is needed since HD-FDD is per band capability.

* Agreed

Proposal 8: Easy agreement (12/14): Capture RAN4 agreements as

* *For FR1, 1 DL MIMO layer if 1 Rx branch is supported, and 2 DL MIMO layers if 2 Rx branches are supported; For FR2, either 1 or 2 DL MIMO layers can be supported, while 2 Rx branches are always supported. For FR1 and FR2, UE features and corresponding capabilities related to more than 2 UE Rx branches ~~and~~ or more than 2 DL MIMO layers, as well as UE features and capabilities related to more than 2 UE Tx branches ~~and~~ or more than 2 UL MIMO layers are not supported by RedCap UEs;*

- Huawei is not sure on “1 DL MIMO layer for FR2 2RX UE”. There is still on-going discussion on this in R4 offline [103-e][133] NR\_RedCap Issue 3-2. We suggest to add “Capture RAN4 agreements as (can be revisited based on R1/4 latest conclusion)”.

* Continue offline

Proposal 9: Easy agreement: introduce new UE power class pc7 as

Ue-PowerClass-v1700 ENUMERATED {pc5,pc6, pc7} OPTIONAL,

* Agreed

Proposal 10: Easy agreement, The changes in R2-2206025 is not pursued.

* Agreed

Proposal 12: Easy agreement, Add abbreviation CPAC in TS38.306.

* Agreed

Proposal 13: Easy agreement, to update No to CY for supportOfRedCap-r17. i.e.

|  |  |  |  |
| --- | --- | --- | --- |
| ***supportOfRedCap-r17***  Indicates that the UE is a RedCap UE with comprised of at least the following functional components:   * Maximum FR1 RedCap UE bandwidth is 20 MHz; * Maximum FR2 RedCap UE bandwidth is 100 MHz; * Support of RedCap early indication based on Msg1, MsgA and Msg3 for random access;   A RedCap UE shall always set the capability to “supported”. | UE | ~~No~~ CY | No |

* Agreed

Proposal 14: Easy agreement, remove the EN “Editor’s Note: May be updated based on latest RAN1 and RAN4 agreements.”

* Agreed

Online discussion:

Proposal 2: For discussion, RAN2 to discuss whether introduce separate bits in SIB1 to indicate whether IDLE eDRX and/or INACTIVE eDRX are enabled.

* Continue offline

Proposal 4: For discussion (6/14):

Remove “A RedCap UE shall set the field to supported. Editor’s Note: FFS on whether the change is needed.” From the field description of shorts and am-WithShortSN and capture “A RedCap UE shall set the field to supported” in the RAN2 Chairman notes .

* Continue offline

Proposal 11: For discussion, reportAddNeighMeasForPeriodic-r16 is not applied for RedCap UEs since it is related to CA operation. Remove It is optional for RedCap Ues. From the field description.

* Continue offline

Agreements via email – from offline 110;

1. Rel-17 RRM relaxation for RRC\_CONNECTED UEs is captured in TS38.306 as optional feature with capability signalling
2. Add Separate initial UL BWP for RedCap Ues and Separate initial DL BWP for RedCap Ues in the field description of supportOfRedCap-r17
3. Full-duplex FDD is an optional feature for RedCap Ues.
4. halfDuplexRedCapAllowed-r17 is kept in SIB1 and corresponding FFS “—FFS whether halfDuplexRedCapAllowed is kept, remove also from related procedure” is removed. FFS on whether further clarification is needed since HD-FDD is per band capability.
5. Introduce new UE power class pc7 as:

Ue-PowerClass-v1700 ENUMERATED {pc5,pc6, pc7} OPTIONAL,

1. The changes in R2-2206025 are not pursued
2. Add abbreviation CPAC in TS38.306
3. Update No to CY for supportOfRedCap-r17

9. Remove the EN “Editor’s Note: May be updated based on latest RAN1 and RAN4 agreements.”

[R2-2206219](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206219.zip) [offline-110] UE capabilities – second round Intel discussion Rel-17 NR\_redcap-Core

For agreement:

Proposal-ph2-1: [For agreements] For extended DRX for RRC\_INACTIVE, introduce a new capability bit extendedDRX-r17 covering DRX values of 2.56s, 5.12s and 10.24s;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Definitions for parameters** | **Per** | **M** | **FDD-TDD DIFF** | **FR1-FR2 DIFF** |
| ***extendedDRX-Cycle-r17***  Indicates whether UE in RRC\_INACTIVE supports the extended DRX values of 256, 512 and 1024 radio frames as specified in TS 38.331 [9]. The UE may indicate support for eDRX in RRC\_INACTIVE only if it supports eDRX in RRC\_IDLE. | UE | No | No | No |

* Agreed

Proposal-ph2-2:[For agreements] Introduce separate bits in SIB1 to indicate whether IDLE eDRX and/or INACTIVE eDRX are enabled. The INACTIVE eDRX may be enabled only if IDLE eDRX is enabled.

* Agreed

Proposal-ph2-4:[For agreements]

Capture RAN4 agreements as(can be revisited based on R1/4 latest conclusion):

-   For FR1, 1 DL MIMO layer if 1 Rx branch is supported, and 2 DL MIMO layers if 2 Rx branches are supported; For FR2, either 1 or 2 DL MIMO layers can be supported, while 2 Rx branches are always supported. For FR1 and FR2, UE features and corresponding capabilities related to more than 2 UE Rx branches ~~and~~ or more than 2 DL MIMO layers, as well as UE features and capabilities related to more than 2 UE Tx branches ~~and~~ or more than 2 UL MIMO layers are not supported by RedCap UE~~e~~s;

* Agreed

Proposal-ph2-5:[For agreements]

ReportAddNeighMeasForPeriodic-r16  is optional for RedCap UEs. Keep  “It is optional for RedCap UEs.” From the field description.

* Agreed

Online discussion:

Proposal-ph2-3:[Online discussion] [7/10]  Remove  “A RedCap UE shall set the field to supported. Editor’s Note:               FFS on whether the change is needed.” From the field description of shorts and am-WithShortSN and capture “A RedCap UE shall set the field to supported” in the RAN2 Chairman notes .

* Agreed

Agreements via email – from offline 110:

1. For extended DRX for RRC\_INACTIVE, introduce a new capability bit extendedDRX-r17 covering DRX values of 2.56s, 5.12s and 10.24s;
2. Introduce separate bits in SIB1 to indicate whether IDLE eDRX and/or INACTIVE eDRX are enabled. The INACTIVE eDRX may be enabled only if IDLE eDRX is enabled.
3. Capture RAN4 agreements as(can be revisited based on R1/4 latest conclusion):

For FR1, 1 DL MIMO layer if 1 Rx branch is supported, and 2 DL MIMO layers if 2 Rx branches are supported; For FR2, either 1 or 2 DL MIMO layers can be supported, while 2 Rx branches are always supported. For FR1 and FR2, UE features and corresponding capabilities related to more than 2 UE Rx branches or more than 2 DL MIMO layers, as well as UE features and capabilities related to more than 2 UE Tx branches or more than 2 UL MIMO layers are not supported by RedCap UEs;

1. ReportAddNeighMeasForPeriodic-r16  is optional for RedCap UEs. Keep “It is optional for RedCap UEs.” From the field description.

#### 6.12.4.2 Other

Contributions on any other issues.

## 8.19 Coverage Enhancements

(NR\_cov\_enh-Core; leading WG: RAN1; REL-17; WID: [RP-211566](file:///C:\Data\3GPP\archive\RAN\RAN%2392\Tdocs\RP-211566.zip))

WI has been declared 100% complete

Tdoc Limitation: 2 tdoc

Common aspects related to RACH indication (in MSG1) / RACH partitioning shall be submitted to 6.18

### 6.19.1 Organizational

Rapporteur input, incoming LS etc.

#### 6.19.1.1 LS in

For LSes that need action: one tdoc by contact company to address the LS and potential reply is considered.

Rapporteur input may be provided.

From RAN4

[R2-2204444](file:///C:\Data\3GPP\Extracts\R2-2204444_R4-2206537.docx) Reply LS on Maximum duration for DMRS bundling (R4-2206537; contact: Qualcomm) RAN4 LS in Rel-17 NR\_cov\_enh To:RAN1, RAN2

* Treated with the next LS

[R2-2204505](file:///C:\Data\3GPP\Extracts\R2-2204505_R4-2206580.docx) Reply LS on Length of Maximum duration (R4-2206580; contact: China Telecom) RAN4 LS in Rel-17 NR\_cov\_enh-Core To:RAN1, RAN2

* Noted. We need to wait for RAN1, at least for TDD

From RAN1

[R2-2204463](file:///C:\Data\3GPP\Extracts\R2-2204463_R1-2202829.docx) Reply LS on UL BWP with PRACH resources only for RACH with Msg3 repetition (R1-2202829; contact: ZTE) RAN1 LS in Rel-17 NR\_cov\_enh-Core To:RAN2

* Noted

[R2-2204469](file:///C:\Data\3GPP\Extracts\R2-2204469_R1-2202867.doc) Reply LS on Stage 2 description for Coverage Enhancements (R1-2202867; contact: China Telecom) RAN1 LS in Rel-17 NR\_cov\_enh-Core To:RAN2

* Noted

#### 6.19.1.2 Rapporteur CRs

CR Rapporteurs to provide input CRs, if needed.

Stage-2 CR

R2-2206411 Correction for NR coverage enhancements China Telecom CR Rel-17 38.300 17.0.0 XXXX - F NR\_cov\_enh-Core

38.331 CR

Moved here from 6.19.1

[R2-2205069](file:///C:\Data\3GPP\RAN2\Docs\R2-2205069.zip) Report of [Pre118-e][103][CovEnh] 38331 CR and rapporteur resolutions (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_cov\_enh-Core Late

* Discussed in offline 103

[R2-2205070](file:///C:\Data\3GPP\RAN2\Docs\R2-2205070.zip) Correction for NR coverage enhancements (CR rapporteur) Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3039 - F NR\_cov\_enh-Core Late

* Revised in R2-2206410

R2-2206410 Correction for NR coverage enhancements (CR rapporteur) Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3039 1 F NR\_cov\_enh-Core

38.321 CR

R2-2206412 Correction for NR coverage enhancements ZTE Corporation CR Rel-17 38.321 17.0.0 XXXX - F NR\_cov\_enh-Core

### 6.19.2 General

All aspects, including possible corrections/TPs for the running CRs.

Stage 2 CRs

[R2-2205842](file:///C:\Data\3GPP\Extracts\R2-2205842%20Corrections%20on%20MSG3%20repetition.docx) Corrections on MSG3 repetition Nokia, Nokia Shanghai Bell CR Rel-17 38.300 17.0.0 0467 - F NR\_cov\_enh-Core

* Continue in offline 117

[R2-2204726](file:///C:\Data\3GPP\Extracts\R2-2204726%20stage-2%20correction.docx) Stage-2 correction on CE OPPO CR Rel-17 38.300 17.0.0 0443 - F NR\_cov\_enh-Core

* Continue in offline 117
* [AT118-e][117][CovEnh] Stage-2 CR (China Telecom)

Scope: Update the Stage-2 CR considering the submitted contributions

Intended outcome: Agreeable Stage-2 CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206411): Friday 2022-05-20 08:00 UTC

BWP with only CE RACH resources

[R2-2205841](file:///C:\Data\3GPP\Extracts\R2-2205841%20CE%20RACH%20only%20BWP%20handling.docx) CE RACH only BWP handling Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.0.0 1289 - F NR\_cov\_enh-Core

- HW thinks we can consider this as a baseline for further discussion

- LG thinks we might not need any MAC CR but just a clarification in the field description. QC/ZTE is fine.

* Continue in offline 103

[R2-2205068](file:///C:\Data\3GPP\Extracts\R2-2205068%20Discussion%20on%20the%20leftover%20issues%20for%20CE-specific%20RACH.DOCX) Discussion on the leftover issues for CE-specific RACH Huawei, HiSilicon discussion Rel-17 NR\_cov\_enh-Core

[R2-2205851](file:///C:\Data\3GPP\Extracts\R2-2205851%20Further%20issues%20on%20coverage%20enhancements.docx) Further issues on coverage enhancements Ericsson discussion NR\_cov\_enh

[R2-2206034](file:///C:\Data\3GPP\Extracts\R2-2206034%20On%20BWP%20configured%20with%20RACH%20resources%20only%20for%20Msg3%20repetition.docx) On BWP configured with RACH resources only for Msg3 repetition Qualcomm Incorporated discussion Rel-17 NR\_cov\_enh-Core

CFRA with PUSCH repetition

[R2-2205852](file:///C:\Data\3GPP\Extracts\R2-2205852%20On%20CFRA%20Msg3%20repetition.docx) On CFRA Msg3 repetitions Ericsson discussion NR\_cov\_enh

Proposal 1 CFRA for Msg3 (PUSCH scheduled by RAR) is only applicable to reconfiguration with sync.

Proposal 2 Introduce a flag in CFRA configuration where UE should be considered to have requested repetitions if present applicable for reconfiguration with sync.

Proposal 3 Take the RRC excerpt as a baseline for introducing Msg3 repetitions for CFRA.

- QC think that at this stage we can support this proposal. But when this is enabled repetition level=1 should be included in the set of candidate values. ZTE is fine with this.

- HW thinks there might be a RAN1 issue

- Nokia does not have a strong view but this would be an optimization

* Continue in offline 103 to check if this (CFRA for Msg3 (PUSCH scheduled by RAR) is only applicable to reconfiguration with sync) can be a RAN2 self-contained solution. Also discuss spec impacts if a solution for CFRA with PUSCH repetition is NOT agreed.

[R2-2204837](file:///C:\Data\3GPP\Extracts\R2-2204837%20Discussion%20on%20CFRA%20PUSCH%20with%20Repetition.docx) Discussion on CFRA PUSCH with Repetition vivo discussion Rel-17 NR\_cov\_enh-Core [R2-2202981](file:///C:\Data\3GPP\archive\RAN2\RAN2%23117\Tdocs\R2-2202981.zip)

Proposal 1: CFRA PUSCH with repetition is supported for PDCCH order and reconfiguration with sync.

Proposal 2: To support CFRA PUSCH with repetition:

1> separate ROs with CBRA preamble partition for CovEnh are configured along with shared ROs;

2> Msg3 PUSCH repetition check is done before the selection of SSB;

3> UE transmits the CF preamble on separate RO if Msg3 PUSCH repetition conditions are fulfilled.

4> RAR is interpreted in Msg3 PUSCH repetition method if 3> is performed.

* [AT118-e][103][CovEnh] RRC CR (Huawei)

Initial scope: continue the discussion on the CovEnh WI-specific RILs, also considering the submitted contributions

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

* List of resolved RILs
* List of RILs for online discussion
* List of RILs for further offline discussion

Deadline (for companies' feedback): Thursday 2022-05-12 0000 UTC

Deadline (for rapporteur's summary in [R2-2206193](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206193.zip)): Thursday 2022-05-12 0200 UTC

Updated scope: 1. Discuss needed changes for BWP with only CE RACH resources and 2. Continue the discussion on CFRA with PUSCH repetition

Updated intended outcome: Summary of the offline discussion with:

1. agreeable proposals/TP for 38.331 (and 38.321, if needed) for BWP with only CE RACH resources
2. Status of the discussion on CFRA with PUSCH repetition

Deadline (for companies' feedback): Wednesday 2022-05-18 0600 UTC

Deadline (for rapporteur's summary in [R2-2206200](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206200.zip)): Wednesday 2022-05-18 0800 UTC

[R2-2206193](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206193.zip) [offline-103] RRC CR Huawei discussion Rel-17 NR\_cov\_enh

CE RIL issues (class 1 and 2)

Proposal 1(7/7): RIL I025 is agreed and Z121 is modified: Change the field name of repK-r17 to repK-v1700.

Proposal 2(7/7): RIL Z122 is agreed: Change the note of field descriptions of pusch-FrequencyHoppingInterval : For unpaired spectrum, the UE is not expected to be configured the value of s6, s8, s12, s14 and s16.

Proposal 3(7/7): RIL I039 is agreed: For pucch-RepetitionNrofSlots-r17, change Need Code to Need R.

Proposal 4(7/7): RIL I038 is agreed: For numberOfSlots-TBoMS-r17, change Need Code to Need R.

Proposal 5(5/7): RIL E058 is agreed: Add the following sentence to the field descriptions of numberOfSlots-TBoMS: Number of slots allocated for TB processing over multi-slot PUSCH for DCI format 0\_1/0\_2. If a number of repetitions K is configured by numberOfRepetitions or numberOfRepetitionsExt, the network configures numberOfSlots-TBoMS (N) and K such that N\*K ≤ 32 (see TS 38.214 [19], clause 6.1.2.1).

CE Cross-WI RIL issues (class 1 and 2)

Proposal 6(6/7): RIL N104 is agreed from CE session perspective: Change the Need Code from Need S to Need R for relevant CE parameters including pucch-DMRS-Bundling-r17, pucch-WindowRestart-r17, pusch-DMRS-Bundling-r17 and pusch-WindowRestart-r17.

Proposal 7(6/7): RIL E146 is agreed from CE session perspective: Rename covEnh to msg3-Repetitions and change the description to “indicates that msg3 repetition is signaled as part of this feature combination”. FFS whether to implement this RIL into CE RRC CR or RA partitioning RRC CR.

CE RILs issues (class 0)

Proposal 8(7/7): Class 0 RIL Issue 378, 379 and 380 are agreed and captured into the CE RRC CR.

CE other RRC open issues

Proposal 9(7/7): Change to “the maximum duration for DMRS bundling for PUCCH/PUSCH as specified in TS 38.306 [26]” in the field description of pucch-TimeDomainWindowLength and pusch-TimeDomainWindowLength.

Proposal 10(7/7): Add n1 into the value range of pucch-RepetitionNrofSlots-r17.

* P1~P10 are agreed (for P6 the final decision is up to the main room discussion)

Proposal 11: To discuss how to implement the remaining CE-RACH parameters in terms of numberOfMsg3Repetitions and mcs-Msg3Repetition

Option 1: Per RA partition configuration: To add them in the field of featureSpecificParameters-r17 with conditional presence indicating it can be only present if CE is present in the feature combination

Option 2: Common/Per RA configuration (separate RO): To add them in IE RACH-ConfigCommon and explicitly indicate these parameters are only used for CE feature

Option 3: Common configuration: To add them in IE BWP-UplinkCommon and explicitly indicate these parameters are only used for CE feature

- Ericsson prefers option 3. LG/HW agrees

- ZTE prefers option 2 as this is aligned to RAN1 and if we change this we need to inform RAN1

- CATT slightly prefers 1 but can accept 3

* Adopt option 3

Agreements:

1. RIL I025 is agreed and Z121 is modified: Change the field name of repK-r17 to repK-v1700.
2. RIL Z122 is agreed: Change the note of field descriptions of pusch-FrequencyHoppingInterval : For unpaired spectrum, the UE is not expected to be configured the value of s6, s8, s12, s14 and s16.
3. RIL I039 is agreed: For pucch-RepetitionNrofSlots-r17, change Need Code to Need R.
4. RIL I038 is agreed: For numberOfSlots-TBoMS-r17, change Need Code to Need R.
5. RIL E058 is agreed: Add the following sentence to the field descriptions of numberOfSlots-TBoMS: Number of slots allocated for TB processing over multi-slot PUSCH for DCI format 0\_1/0\_2. If a number of repetitions K is configured by numberOfRepetitions or numberOfRepetitionsExt, the network configures numberOfSlots-TBoMS (N) and K such that N\*K ≤ 32 (see TS 38.214 [19], clause 6.1.2.1).
6. RIL N104 is agreed from CE session perspective: Change the Need Code from Need S to Need R for relevant CE parameters including pucch-DMRS-Bundling-r17, pucch-WindowRestart-r17, pusch-DMRS-Bundling-r17 and pusch-WindowRestart-r17. (final decision is up to the main room discussion)
7. RIL E146 is agreed from CE session perspective: Rename covEnh to msg3-Repetitions and change the description to “indicates that msg3 repetition is signaled as part of this feature combination”. FFS whether to implement this RIL into CE RRC CR or RA partitioning RRC CR.
8. Class 0 RIL Issue 378, 379 and 380 are agreed and captured into the CE RRC CR.
9. Change to “the maximum duration for DMRS bundling for PUCCH/PUSCH as specified in TS 38.306 [26]” in the field description of pucch-TimeDomainWindowLength and pusch-TimeDomainWindowLength.
10. Add n1 into the value range of pucch-RepetitionNrofSlots-r17.
11. Regarding the remaining CE-RACH parameters in terms of numberOfMsg3Repetitions and mcs-Msg3Repetition, adopt a Common configuration: To add them in IE BWP-UplinkCommon and explicitly indicate these parameters are only used for CE feature

[R2-2206220](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206220.zip) [offline-103] RRC CR – second round Huawei discussion Rel-17 NR\_cov\_enh

For easy agreements:

Proposal 1: RAN2 confirms that for a dedicated BWP configured with only CE RACH resources, the RSRP threshold for requesting Msg3 repetition will not be configured, so the UE shall assume Msg3 repetition is applicable for the current Random Access resources, no need to perform CE vs non-CE selection.

* Agreed

Proposal 2: The corresponding RRC field description of RSRP threshold for requesting Msg3 repetition will go to RA partitioning RRC CR.

* Agreed

CFRA with Msg3/PUSCH repetitions

Observation 1: For Option 1: NW request CFRA PUSCH repetition as in R2-2205852, the specification impacts can be as follows:

- RAN1 TS (7/9): to add a reference to RRC, and a scenario of NW request CFRA PUSCH repetition

- Stage 2 TS (9/9): to add a scenario of CFRA PUSCH repetition

- MAC TS (8/9): no impact

- RRC TS (9/9): to add a new RRC parameter

- UE capability TS (7/9): to add a new UE capability

Observation 2: For Option 2: UE request CFRA PUSCH repetition in coordination with NW configuration as in R2-2204837, the specification impacts can be as follows:

- RAN1 TS (9/9): no impact

- Stage 2 TS (9/9): to add a scenario of CFRA PUSCH repetition

- MAC TS (9/9): to add the procedure selection of ROs for CFRA

- RRC TS (7/9): to add how to indicate the RO for CE CBRA and the CFRA preamble

- UE capability TS (5/9): no consensus

Observation 3: For Option 3: UE request CBRA Msg3 repetition as in R2-2205068, the specification impacts can be as follows:

- RAN1 TS (9/9): no impact

- Stage 2 TS (8/9): no impact

- MAC TS (9/9): to change the procedure to allow CE CBRA can be prioritized over CFRA

- RRC TS (8/9): no impact

- UE capability TS (9/9): no impact

For online discussion:

Proposal 3: RAN2 to decide on CFRA with Msg3 repetition in Rel-17:

- CFRA with Msg3 repetition is not considered in Rel-17 (7/9).

- CFRA with Msg3 repetition is supported through NW indicating the request of PUSCH repetitions for CFRA to the UE (4/9).

38.321 CRs

[R2-2204739](file:///C:\Data\3GPP\Extracts\R2-2204739%20-%20Correction%20to%2038.321%20on%20redundancy%20version%20for%20Msg3%20repetition.doc) Correction to 38.321 on redundancy version for Msg3 repetition OPPO CR Rel-17 38.321 17.0.0 1227 - F NR\_cov\_enh-Core

* Continue in offline 118

[R2-2205067](file:///C:\Data\3GPP\Extracts\R2-2205067%20Clarification%20on%20Msg3%20repetition%20RV%20determination%20to%20MAC%20spec.doc) Clarification on Msg3 repetition RV determination to MAC spec Huawei, HiSilicon CR Rel-17 38.321 17.0.0 1251 - F NR\_cov\_enh-Core

* Continue in offline 118
* [AT118-e][118][CovEnh] MAC CR (ZTE)

Scope: Update MAC CR considering the submitted contributions

Intended outcome: Agreeable MAC CR

Deadline (for companies' feedback): Thursday 2022-05-19 12:00 UTC

Deadline (for final CR in R2-2206412): Friday 2022-05-20 08:00 UTC

## Summary

Agreed CRs

Approved LSs out

NR NTN

RedCap

[R2-2206611](file:///C:\Data\3GPP\RAN2\Inbox\R2-2206611.zip) Draft Reply LS on operation with and without SSB for RedCap UE ZTE LS out Rel-17 NR\_redcap-Core To:RAN1, RAN4

* Approved

[POST118-e] Email discussions

Short

Long