3GPP TSG-RAN WG2 Meeting #122 R2-2xxxxxx

Incheon, Korea, May 22-26, 2023

Agenda item: 9.10

Source: Session chair (Ericsson)

Title: Report from eRedCap breakout session

Document for: Approval

# Organizational

**Organizational**

* [AT122][750] Organizational – eRedCap (Ericsson)

Scope:

* + - Share plans for the meeting and list of ongoing email discussions related to eRedCap
    - Share meetings notes and agreements for review and endorsement
    - Flag LSs and in-principle agreed CRs for discussion

      Intended outcome:

* + - General information sharing about the sessions

**Post-meeting email discussions:**

-

**AT-meeting offline discussions:**

**-**

**Comebacks:**

-

Schedule:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Main room** | **Brk 1 room** | **Brk 2 room** | **Brk 3 room** |
| **Monday May 22** | | | | |
| 09:00 – 10:30 | Opening:  [1], [2], [3] 20-25 min  NR1516 CP (Johan)  - Common [5.1.1] [5.1.3]  NR17 (Johan)  - Common [6.1.1] [6.1.3.0, 6.1.3.1, 6.1.3.3]: In the order: General, 71GHz, feMIMO, TEI, Slicing, ePowSav, MGE, RedCap, QoE, DCCA,  [6.1.3.2] UE cap | Breakout to start after formal opening of meeting and NR CPUP - common items if any in the main room:  NR151617 UP (Diana)  NR18 MT-SDT [0.5] (Diana)  NR18 Network Energy Saving [1] (Diana)  - DTX/DRX,  - SSB-less (if time allows) | Breakout to start after formal opening of meeting in main room:  NR17 Pos (Nathan)  NR17 SL Relay (Nathan) - UP items if time permits |  |
| 11:00 – 13:00 |
| 14:30 – 16:30 | NR18 UAV [1] (Diana)  - measurement reporting,  - flight path,  - BRID (if time allows) | NRLTE1516 (Kyeongin)  NR17 (Kyeongin) |
| 17:00 – 19:00 | NR17 (Johan)  - Common[6.1.1] [6.1.3] SDT, IAB  NR18 MIMO evo [0.5] (Erlin)  - 7.20.1 (if any)  - 7.20.2 | NR18 NTN enh [1] (Sergio)  - 7.7.1  - 7.7.4.1  - 7.7.4.2  - 7.7.3 (if time allows) | NR18 SL evolution [1] (Kyeongin) |
| **Tuesday May 23** | | | | |
| 08:30 – 10:30 | NR18 LP WUS [0.5] (Johan)  NR18 fCovEnh [0.5] (Eswar)   * Start with Stage-2 CP issues (7.21.2) after organizational   + CBRA open issues, CFRA support, RSRP thresholds etc * UP issues (7.21.3)   + fallbacks * Stage-3 CP issues if time left (how to signal partitions, priorities and capability etc) | NR17 MBS (Dawid):  - 6.2.0, 6.2.1 (CP), 6.2.2 (UP)  NR18 eQoE [0.5] (Tero)  - 7.14.2: Area scope + other aspects if time allows | NR17 (Nathan)  - SL Relay |  |
| 11:00 – 13:00 | NR17 NTN Maint (Sergio)  - 4.2  - 6.4  NTN Self Evaluation (Sergio)  - 7.25.4 | NR18 eQoE [0.5] (Tero)  - 7.14.2: Area scope, buffer sizes, other RRC details  - 7.14.3: Need for RVQoE events in RRC, LS replies to RAN3/SA4  EUTRA16+ (Tero) – 12:30-13:00- 4.1: HO completion in Stage-2, QoE configuration release | NR18 Pos [2] (Nathan) |
| 14:30 – 16:30 | NR18 Other [2] (Johan)  [7.25.1] Non-simultaneous UL and DL, Scell Activation Enh,  [7.25.2] MCE UL TX sw,  [7.25.1 - 7.25.3] all other, except eNPN | NR18 XR [2] (Tero)  - 7.5.1: LSs, rapporteur input, running CR(s)  - 7.5.4.1: Delay reporting, BSR tables for XR  - 7.5.4.2: Discard operation for XR | NR18 SL relay [1.5] (Nathan)- |
| 17:00 – 19:00 | NR18 feMob [2] (Johan)  [7.4.1], [7.4.4], ([7.4.3]), [7.4.2] | NR18 XR [2] (Tero)  - 7.5.3: Non-integer periodicity for DRX, SFN wrap-around  - 7.5.2: UL jitter signaling, UL EoDB detection at gNB  - 7.5.4.3: Retransmission-less, CG, other CG enhancements | NR17 (Nathan)  NR18 SL relay [1.5] (Nathan) |
| **Wednesday May 24** | | | | |
| 08:30 – 10:30 | NR18 feMob [2] (Johan)  [7.4.2] continuation  - [005][Mob18] LTM L1 measurements  - [006][Mob18] Partial MAC reset  - MAC CE  - other aspects if time. | NR18 NCR [0.5] (Sasha) | NR18 Pos [2] (Nathan) |  |
| 11:00 – 13:00 | NR18 Mobile IAB [0.5] (Johan)  NR18 Other [2] (Johan) | NR18 RedCap [1] (Mattias)  7.19.1 Organizational  - LSs  R2-2304619, R2-2304624, R2-2304648, R2-2304649  - Terminology  R2-2305004  - Running CRs  R2-2305011, R2-2305377, R2-2305471, R2-2306039, R2-2306040, R2-2306223  7.19.2 Enhanced eDRX in RRC\_INACTIVE  - Capabilities, Fallbacks, PTWs, etc.  R2-2304682, R2-2305312  - SDT  R2-2305436  7.19.3 Further reduced UE complexity in FR1  - Barring  R2-2305963, R2-2304921  - Decoding of Msg4  R2-2306314, R2-2305003  - Capability filter  R2-2305797  - Early indication  R2-2305098 | NR17 SONMDT (HuNan) |
| 14:30 – 16:30 | NR18 URLLC [0.5] (Diana)  NR18 Network Energy Saving [1] (Diana)  - Mobility,  - Cell reselection | NR17 MBS (Dawid)  - Continuation, if needed  NR 18 MBS [0.75] (Dawid)  - 7.11.1 (Organizational)  - 7.11.3 (Shared processing)  - 7.11.2.1 (CP issues for INACTIVE) | NR18 SONMDT [1] (HuNan) |
| 17:00 – 19:00 | NR18 AIML [1] (Johan)  - [001], Data collection, Model deliv/trf, Arch, Control Procedures. | R18 IoT-NTN [1] (Sergio)  - 7.6.1  - 7.6.2.2: Report of [101]  - 7.6.3: Report of [102]  - 7.6.4  - 7.6.2.1 (if time allows) | NR18 IDC [1] (Yi) |
| **Thursday May 25** | | | | |
| 08:30 – 10:30 | CB NR151617 (Johan) | CB Diana  - maintaince CRs,  - NES CBs . | CB Kyeongin |  |
| 11:00 – 13:00 | NR18 TEI [1] (Nathan)  No SL Relay proposals.  NR18 TEI [1] (Johan)  - [003][TEI18] Inter-freq Measurements, and more if time. | CB Diana  - NES CBs  - UAV CBs and subscription based AI. | CB Kyeongin |
| 14:30 – 16:30 | CB NR17 (Johan) | CB Sergio (14:30-15:30)  - NR18 NTN CB  CB Tero (15:30 – 16:30)  - NR18 eQoE leftovers and CBs  - 7.14.4: Remaining RRC details | CB Nathan |
| 17:00 – 19:00 | CB NR17 (Johan)  CB NR18 (Johan)  - [002][TEI18] SR Periodicity  - [004][eNPN] 38331 and 38304 | CB Tero  - 4.1: LTE CBs (if any)  - 7.5.X: XR leftovers and CBs | CB Nathan |
| **Friday May 26** | | | | |
| 08:30 – 10:30 | NR18 MIMO evo [0.5] (Erlin)  - CBs from 7.20.2 (if any),  - 7.20.3.  CB Dawid | CB Mattias:   * CB on R18 versions of 1Rx/2Rx barring flags and HF-FDD flag (ZTE) * CB on capability filter relaxation (QC) * Early indication * AoB | CB Nathan, Kyeongin TBD |  |
| 11:00 – 13:00 | CB Johan, Eswar TBD | CB Sergio  - R18 IoT-NTN CB  - R17 NTN Maint CB | CB Yi |
| 14:30 – 16:00 | CB Johan | CB Sasha, Tero | CB HuNan |
| 16:00 – 17:00 | CB and conclusion (Johan) |  |  |  |

## 7.19 Enhanced support of reduced capability NR devices

(NR\_redcap\_enh-Core; leading WG: RAN1; REL-18; WID: [RP-223544](http://www.3gpp.org/ftp//tsg_ran/TSG_RAN/TSGR_98e/Docs//RP-223544.zip))

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 7.19.1 Organizational

Incoming LSs, running CRs, etc.

LSs

[R2-2304619](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304619.zip) LS on Msg4 PDSCH transmission to Rel-18 eRedCap UEs ([R1-2304262](http://www.3gpp.org/ftp//tsg_ran/WG1_RL1/TSGR1_112b-e/Docs//R1-2304262.zip); contact: Ericsson) RAN1 LS in Rel-18 NR\_redcap\_enh-Core To:RAN2

* Noted

[R2-2304624](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304624.zip) RAN3 progress on Rel-18 RedCap enhancements to address remaining ENs in TS 23.502 (R3-231951; contact: Ericsson) RAN3 LS in Rel-18 NR\_redcap\_enh To:SA2 Cc:RAN2, CT4

* Noted

[R2-2304648](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304648.zip) Reply LS on Paging Policy Information for Network Triggered Connection Resume ([S2-2305617](http://www.3gpp.org/ftp//tsg_sa/WG2_Arch/TSGS2_156E_Electronic_2023-04/Docs//S2-2305617.zip); contact: Ericsson) SA2 LS in Rel-18 NR\_REDCAP\_Ph2 To:CT4 Cc:RAN3, RAN2

* Noted

[R2-2304649](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304649.zip) Reply LS on INACTIVE eDRX above 10.24sec and SDT ([S2-2305619](http://www.3gpp.org/ftp//tsg_sa/WG2_Arch/TSGS2_156E_Electronic_2023-04/Docs//S2-2305619.zip); contact: Intel) SA2 LS in Rel-18 NR\_REDCAP\_Ph2, NR\_redcap\_enh-Core To:RAN2, RAN3 Cc:CT4

* Noted

Terminology

[R2-2305004](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305004.zip) How to capture “eRedCap UE” in the running CRs/Rel-18 specifications Huawei, HiSilicon discussion Rel-18 NR\_redcap\_enh-Core

Proposal 1a: In the R18 specification descriptions, the R17 legacy texts for RedCap UEs descriptions are NOT inherited/applied by default to the eRedCap UEs, i.e. we use following terminologies:

- “(e)RedCap UE” to describe the same behaviors for both RedCap and eRedCap UEs;

- “RedCap UE” to describe the RedCap UE only/specific behaviors;

- “eRedCap UE” to describe the eRedCap UE only/specific new behaviors.

Proposal 1b: Inform other WGs about RAN2 agreement on how to use (e)RedCap UE terminologies in the Rel-18 specifications.

Proposal 2: RAN2 captures the eRedCap UE definition by adding a new sub-clause “4.2.21.1a Definition of eRedCap UE” under the “4.2.21 RedCap Parameters” in TS 38.306, which:

- copies the existing sentences which are same as RedCap UEs;

- adds/clarifies the eRedCap UE specific capabilities (e.g. about peak data rate and BB bandwidth, detailed capabilities are FFS).

Discussion P1:

* MediaTek thinks we need to look at the specs. Intel thinks this can be done as email discussion. Vivo thinks we can agree P1a/1b. Intel would like to see the spec impact, and suggests that the running CR rapporteurs keeps this guidance in mind when implementing the CRs. Huawei wants to agree P1a/P1b now and then we can come back if we see issues. LG agrees with P1a/P1b. CATT agrees with Huawei.
* We will use the approach suggested by P1a above when implementing the running CRs and the rapporteurs will identify if there are issues with this approach and we can discuss further in later meetings.

Running CRs

[R2-2305011](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305011.zip) Running MAC CR for eRedCap vivo (Rapporteur) draftCR Rel-18 38.321 17.4.0 NR\_redcap\_enh-Core

[R2-2305377](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305377.zip) Running CR for TS 38.300 for Rel-18 eRedCap OPPO CR Rel-18 38.300 17.4.0 0677 - B NR\_redcap\_enh-Core

[R2-2305471](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305471.zip) Running 38.304 CR for enhanced support of reduced capability NR devices Huawei, HiSilicon draftCR Rel-18 38.304 17.4.0 B NR\_redcap\_enh-Core

[R2-2306039](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306039.zip) 38.306 UE capability for Rel-18 eRedCap Intel Corporation draftCR Rel-18 38.306 17.4.0 B NR\_redcap\_enh-Core

[R2-2306040](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306040.zip) 38.331 UE capability for Rel-18 eRedCap Intel Corporation draftCR Rel-18 38.331 17.4.0 B NR\_redcap\_enh-Core

[R2-2306223](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306223.zip) Introduction of eRedCap in 38331 Ericsson draftCR Rel-18 38.331 17.4.0 NR\_redcap\_enh-Core

* The above draft running CRs will be used as baseline and we will have post meeting email discussions to endorse them

### 7.19.2 Enhanced eDRX in RRC\_INACTIVE

Pre-requisites for UE supporting/NW allowing INACTIVE eDRX > 10.24 s, e.g. requires R17 INACTIVE eDRX?

PTW details, e.g. restriction that RAN PTW is longer/shorter/same as CN PTW.

Fallback details.

Capabilities, Fallbacks, PTWs, etc.

[R2-2304682](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304682.zip) Fallback behaviour for eRedcap UE NEC discussion NR\_redcap\_enh-Core

Proposal-1: The UE support of Rel-17 RRC\_INACTIVE eDRX is decoupled from its support of Rel-18 enhanced eDRX in RRC\_INACTIVE.

Proposal-2: Whether a cell that can allow Rel-18 INACTIVE eDRX must also configure Rel-17 RRC\_INACTIVE eDRX is up to network implementation.

Proposal-3: RAN2 turns the following work assumption into formal agreement .

Working assumption (pending specification complexity and NW complexity evaluation): UEs configured with Rel-18 enhanced INACTIVE eDRX should fall back to use Rel-17 INACTIVE eDRX (if capable and configured with Rel-17 INACTIVE eDRX) if the Rel-18 enhanced INACTIVE eDRX is not allowed but the Rel-17 INACTIVE eDRX is allowed by the current cell. gNB has the possibility to configure both Rel-17 INACTIVE eDRX and Rel-18 INACTIVE eDRX, allowing the UE to fall back to use Rel-17 INACTIVE eDRX.

[R2-2305312](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305312.zip) Discussion on enhanced eDRX in RRC\_INACTIVE Samsung discussion Rel-18 NR\_redcap\_enh-Core

Proposal 1. UE can support Rel-18 INACTIVE eDRX, only if it supports IDLE eDRX and Rel-17 INACTIVE eDRX.

Proposal 2. A cell can allow Rel-18 INACTIVE eDRX, only if it allows IDLE eDRX and Rel-17 INACTIVE eDRX.

Proposal 3: Discuss which fallback options can be adopted, when 1) UE is configured with Rel-18 INACTIVE eDRX 2) but the cell does not allow Rel-18 INACTIVE eDRX 3) but allows Rel-17 INACTIVE eDRX,

- Option 1 (gNB can configure Rel-17 INACTIVE eDRX, together with Rel-18 INACTIVE eDRX)

- UE uses Rel-17 INACTIVE eDRX cycle for RAN paging monitoring, if gNB configured it.

- UE uses RAN paging cycle for RAN paging monitoring, if gNB did not configure Rel-17 INACTIVE eDRX.

- Option 2 (gNB cannot configure Rel-17 INACTIVE, together with Rel-18 INACTIVE eDRX)

- UE uses 10.24s for RAN paging monitoring.

Proposal 4. There is no restriction on RAN configured PTW length compared to CN configured PTW length.

Proposal 5. In an overlapped PH: Within CN PTW and outside RAN PTW, T = min {CN configured DRX cycle, default paging cycle broadcast in system information}.

Discussion on P1:

* MediaTek does not see a technical reason for coupling. Intel and Vodafone agrees. OPPO and Vivo sees no reason why a UE would support R18 but not R17. Vivo acknowledges that there is no technical problem if we don’t couple.
* UE can support Rel-18 INACTIVE eDRX (which comprises eDRX cycles and PTWs), even if it doesn’t support Rel-17 INACTIVE eDRX.
* A cell can allow Rel-18 INACTIVE eDRX (which comprises eDRX cycles and PTWs), even if it doesn’t allow Rel-17 INACTIVE eDRX, but the cell must allow IDLE eDRX.
* We confirm the working assumption: UEs configured with Rel-18 enhanced INACTIVE eDRX should fall back to use Rel-17 INACTIVE eDRX (if capable and configured with Rel-17 INACTIVE eDRX) if the Rel-18 enhanced INACTIVE eDRX is not allowed but the Rel-17 INACTIVE eDRX is allowed by the current cell. gNB has the possibility to configure both Rel-17 INACTIVE eDRX and Rel-18 INACTIVE eDRX, allowing the UE to fall back to use Rel-17 INACTIVE eDRX.
* A UE configured with Rel-18 INACTIVE eDRX will fallback to use INACTIVE RAN DRX if it is either not configured with Rel-17 INACTIVE eDRX or the cell does not allow Rel-18 INACTIVE eDRX and Rel-17 INACTIVE eDRX.

SDT:

[R2-2305436](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305436.zip) Further impacts to support eDRX in RRC\_INACTIVE above 10.24 sec Intel Corporation discussion NR\_redcap\_enh-Core

*Focus on P1, P2*

*Proposal 1. RAN2 responds to SA2 that the QFI of the QoS Flow provided from CN to RAN when requesting connection resume via an N2 message is sufficient for RAN to determine whether the DL data available in CN belongs or not to a RB configured for SDT.*

*Proposal 2. To discuss whether CN should inform to RAN about the amount of DL SDT data available in CN or whether there is also non-SDT data available in CN when requesting to resume the connection.*

Discussion P1:

* Qualcomm agrees with P1, but thinks that this discussion should take place in RAN3. LG and Huawei agrees that this is a RAN3 issue. Intel can accept that this is discussed in RAN3, but think that RAN2 should discuss how the information that the gNB receives from CN should be discussed in RAN2.
* Vodafone wonders if the CN can know how much data will be provided, and if the CN can know if there is SDT data and/or non-SDT data. Intel thinks that SA2 have not discussed this. Intel thinks that no other WG is discussing P2 above (amount of data). Ericsson thinks that RAN3 can and should discuss P2.
* Apple wonders, if we don’t do anything, i.e. no input from CN to RAN about amount of SDT/non-SDT data, is the impact only that data delivery will be delayed? Intel explains that if the data that is pending for the UE is non-SDT data, and the gNB initiates the MT-SDT procedure anyway, the non-SDT data will be delayed.
* LG prefers that this is discussed in RAN3 instead.

[R2-2304738](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304738.zip) Discussion on enhanced eDRX in RRC\_INACTIVE OPPO discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304901](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304901.zip) Discussion on enhanced eDRX in RRC\_INACTIVE CATT, CEPRI discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304920](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304920.zip) Remaining issues on Enhanced eDRX for eRedCap vivo, Guangdong Genius discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304996](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304996.zip) Discussion on e-DRX for eRedcap Devices Xiaomi Communications discussion

[R2-2305472](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305472.zip) Discussion on enhanced eDRX in RRC\_INACTIVE Huawei, HiSilicon discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305622](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305622.zip) Discussion on eDRX in RRC\_INACTIVE CMCC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305794](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305794.zip) Discussion on enhanced eDRX in RRC inactive Qualcomm Incorporated discussion NR\_redcap\_enh-Core

[R2-2305900](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305900.zip) Remaining issues for enhanced eDRX in RRC\_INACTIVE MediaTek Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305905](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305905.zip) On eDRX for enhanced RedCap Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305962](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305962.zip) Remaining issues of enhanced eDRX in RRC\_INACTIVE ZTE Corporation, Sanechips discussion Rel-18 NR\_redcap\_enh-Core

[R2-2306228](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306228.zip) Extended eDRX cycles in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_redcap\_enh-Core Revised

[R2-2306528](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306528.zip) Extended eDRX cycles in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_redcap\_enh-Core [R2-2306228](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306228.zip)

### 7.19.3 Further reduced UE complexity in FR1

Early indication.

Access restrictions for eRedCap. Which granularity is required for access restriction, e.g. need for R18 versions of 1Rx/2Rx-barring indications and HD-FDD allowed? Can a NW allow R18 eRedCap without allowing R17 RedCap?

*Capability related, e.g. how to define an eRedCap UE.*

Barring

[R2-2305963](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305963.zip) Early indication and access restriction for eRedCap UE ZTE Corporation, Sanechips discussion Rel-18 NR\_redcap\_enh-Core [R2-2302825](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302825.zip)

*Focus on P3, P4*

*Proposal 3: A cellBarredEnhRedCap bit is introduced in SIB1 for eRedCap UE. Whether finer granularity with the access control/cell barring purpose indication for eRedCap UE can wait for RAN1 decision on the eRedCap UE type definition.*

*Proposal 4: If the NW allows Rel-18 eRedCap UE to access, it should also allow Rel-17 RedCap UE to access.*

[R2-2304921](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304921.zip) Discussion on access restriction for eRedCap vivo, Guangdong Genius discussion Rel-18 NR\_redcap\_enh-Core

*Focus on P1-P5*

*Proposal 1: RAN2 confirms there are cell(s) supporting Rel-18 eRedCap only, i.e. not supporting Rel-17 RedCap UE to camp and access.*

*Proposal 2: Introduce two separate cell bar IEs(e.g. cellBarred-eRedCap1Rx-r18 and cellBarred-eRedCap2Rx-r18) in SIB1 to indicate whether to bar Rel-18 eRedCap UEs with 1Rx/2Rx or not respectively.*

*Proposal 3: Introduce an additional eRedCap specific halfDuplex indication (e.g. halfDuplex-eRedCapAllowed-r18) in SIB1 to indicate whether to bar Rel-18 eRedCap UEs supporting only half-duplex FDD operation.*

*Proposal 4: Send an LS to inform RAN1 that the eRedCap specific cell bar indication to check whether there is any concern to differentiate Rx number and halfDuplex from RAN1 point of view.*

Discussion:

P1 from vivo paper:

* Apple does not agree with P1. NEC, Vivo and Ericsson supports P1.

P2:

* OPPO supports P2, i.e. to have separate flags, and thinks that in R17 the 1Rx/2Rx flags were agreed in plenary so RAN1 does not need to be consulted. CATT does not support P2. OPPO thinks its important to have separate flags since the NW cannot differentiate different RedCap UEs of different releases. ZTE thinks that RAN1 is discussing 2 Rx for eRedCap. Intel thinks that we need to wait for RAN1, but would like to send an LS to RAN1 saying that we in RAN2 wants to add separate flags but RAN1 can indicate if this is problematic. ZTE wants to ask RAN1 if there is a need to have separate flags. Vivo and QC thinks that RAN2 should decide on the need. CATT thinks its is RAN1 who should decide.
* RAN2 confirms there are cell(s) supporting Rel-18 eRedCap only, i.e. not supporting Rel-17 RedCap UE to camp and access.
* CB (Friday) whether we should have separate 1Rx/2Rx barring flags as well as if we need a separate R18 version of the HD-FDD flag, for Rel-18 eRedCap UEs and who decides this (RAN1 or RAN2) (ZTE)

*Proposal 5: No need to introduce separate cell bar IEs in SIB1 for Rel-18 eRedCap UEs with BW3+PR1 and Rel-18 eRedCap UEs with PR1 only.*

*Discussion P5:*

* *Ericsson thinks the NW should be allowed to allow e.g. only reduced peakrate UEs but not BB BW-limited UEs. Nokia and Sierra Wireless agrees. Huawei wants to ACK the agreement from plenary about initial access looking the same for Rel-18 eRedCap UEs with BW3+PR1 and Rel-18 eRedCap UEs with PR1 only.*
* *ZTE thinks that the point of separate barring bits would be to alleviate load, and if there is no such issue we shouldn’t add separate bits, Apple agrees with this view.*

Decoding of Msg4

[R2-2306314](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306314.zip) On Msg4 with larger number of PRBs Nokia, Nokia Shanghai Bell discussion

Proposal: Send a reply LS to RAN1 indicating how the concerned case is handled by the current specification and that RAN2 expect no specification change: if Rel-18 RedCap UE detects a DCI scheduling a Msg4 PDSCH with a larger bandwidth, the UE keeps running the ra-ContentionResolutionTimer and considers the Contention Resolution not successful upon expiry of the ra-ContentionResolutionTimer.

[R2-2305003](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305003.zip) eRedCap access restriction and the issue in RAN1 LS Huawei, HiSilicon discussion Rel-18 NR\_redcap\_enh-Core

Proposal 4: As to the R1 LS, RAN2 agrees the option 1, i.e. eRedCap UE considers the contention resolution as not successful and stop the ra-ContentionResolutionTimer, when the eRedCap UE detects a DCI scheduling a Msg4 PDSCH transmission with a larger bandwidth than it can receive or process.

Discussion on both the above:

* OPPO thinks Nokia’s approach is better and assumes there is no spec change needed in RAN2 and the contention resolution timer will eventually expire. MediaTek thinks it makes no sense to continue to monitor in this scenario as it wastes power. LG thinks that there will be more impact of stopping the timer in this scenario. NEC supports the Nokia approach, and thinks this is an optimization and we need cross-layer communication to stop the timer. Qualcomm thinks power consumption is an issue of letting the timer running. CATT agrees with Nokia and wants to leave this to RAN1. Apple thinks that the existing wording in RAN1 specs about inconsistent DCIs is not applicable here (by default at least).
* Intel suggests that we can at least rule out the UE implementation option. Intel wants to stop the timer.
* Vivo thinks the timer should be stopped.
* ZTE thinks that if we do an optimization, we must consider 2-step RACH
* We will discuss further next meeting.

Capability filter

[R2-2305797](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305797.zip) Discussion on optional UE capability filter for eRedCap UE Qualcomm Incorporated, Ericsson, Intel discussion NR\_redcap\_enh-Core [R2-2303563](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303563.zip)

Proposal 1: For eRedCap, RAN2 to specify UE capability transfer procedure where UE capability filtering by the UE is optional.

Proposal 2: An eRedCap UE sends all supported bands in the mirrored UE capability filter when the capability filter received in the capability enquiry is ignored.

Discussion:

* Huawei are hesitant and thinks that we already reduced the UE capabilities in eRedCap and thinks that the capa filter functionality is not complicated.
* OPPO and Vivo agrees with the intention of the QC-proposal. Intel supports the QC proposal too.
* MediaTek thinks that this is a minor optimization.
* Nokia wonderws what happens if the UE sends bands that the NW is not interested in.
* QC explains that the capability filter needs to be considered when generating the capabilities, and that is complex in their mind.
* CB (Friday) Try to progress if/how we do the capability filter relaxation proposal (QC).

Early indication

[R2-2305098](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305098.zip) Early identification of eRedCap UE at RACH Apple discussion Rel-18 NR\_redcap\_enh-Core

Proposal 1: two new LCID values to support Msg3 early identification for eRedCap UE are meant to identify the eRedCap capable of BW3/PR3 + PR1.

Proposal 2: the eRedCap capable of PR1 uses the LCID codepoint of R17 RedCap UE and the gNB uses the UE capability to know about this eRedCap UE.

[R2-2304722](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304722.zip) Potential impacts to random access for Rel-18 eRedCap Ues Samsung Electronics Co., Ltd discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304739](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304739.zip) Discussion on early indication for eRedCap UE OPPO discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304752](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304752.zip) Discussion on cellbarring for eRedCap UEs OPPO discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304902](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304902.zip) Discussion on further UE complexity reduction CATT, CEPRI discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304922](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304922.zip) Discussion on capability for eRedCap vivo, Guangdong Genius discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304997](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304997.zip) Discussion on early indication for eRedcap devices Xiaomi Communications discussion

[R2-2304998](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304998.zip) Discussion on UE access restrictions and other impacts for eRedcap devices Xiaomi Communications discussion

[R2-2305099](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305099.zip) R17 RedCap support of R18 eRedCap supporting gNBs Apple discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305313](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305313.zip) Discussion on further reduced UE complexity in FR1 Samsung discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305359](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305359.zip) Discussion on Msg4 PDSCH transmission to Rel-18 eRedCap UE NEC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305360](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305360.zip) Further discussion on access restriction for eRedCap NEC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305437](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305437.zip) Capability impacts for Rel-18 eRedCap UEs Intel Corporation discussion NR\_redcap\_enh-Core

[R2-2305558](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305558.zip) Discussion on further reduced UE complexity in FR1 for eRedCap UE Spreadtrum Communications discussion Rel-18

[R2-2305623](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305623.zip) Discussion on further reduced UE complexity CMCC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305796](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305796.zip) Discussion on further complexity reduction for eRedCap UE Qualcomm Incorporated discussion NR\_redcap\_enh-Core

[R2-2305797](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305797.zip) Discussion on optional UE capability filter for eRedCap UE Qualcomm Incorporated, Ericsson, Intel discussion NR\_redcap\_enh-Core [R2-2303563](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303563.zip)

[R2-2305869](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305869.zip) Access restrictions for eRedCap UE Sierra Wireless. S.A. discussion

[R2-2305901](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305901.zip) Open aspects of initial access for eRedCap UEs MediaTek Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305904](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305904.zip) On access restrictions for enhanced RedCap Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_redcap\_enh-Core

[R2-2305932](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305932.zip) Considerations on Further reduced UE complexity for eRedcap Sequans Communications discussion Rel-18 NR\_redcap\_enh-Core [R2-2304171](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304171.zip)

[R2-2305964](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305964.zip) Capability definition and report for eRedCap UE ZTE Corporation, Sanechips discussion Rel-18 NR\_redcap\_enh-Core [R2-2302826](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302826.zip)

[R2-2306234](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306234.zip) Early indication and access control for BB BW reduced UEs Ericsson discussion Rel-18 NR\_redcap\_enh-Core

[R2-2306237](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306237.zip) Access restriction and capabilities for eRedCap UEs Ericsson discussion Rel-18 NR\_redcap\_enh-Core Revised

[R2-2306332](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306332.zip) Discussion on Cell barring for eRedCap NTT DOCOMO INC. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2306348](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306348.zip) Remaining issues on early indication for Rel-18 eRedCap UE LG Electronics Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2306426](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306426.zip) Further discussions on access restriction for eRedCap Futurewei discussion Rel-18 NR\_redcap\_enh-Core

[R2-2306524](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306524.zip) Access restriction and capabilities for eRedCap UEs Ericsson discussion Rel-18 NR\_redcap\_enh-Core [R2-2306237](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306237.zip)

[R2-2304905](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2304905.zip) [Draft] Reply LS on Msg4 PDSCH transmission to Rel-18 eRedCap Ues CATT LS out Rel-18 NR\_redcap\_enh-Core To:RAN1

*Moved from 7.19.1*

[R2-2306224](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2306224.zip) Discussion on Msg4 PDSCH transmission to Rel-18 eRedCap UEs Ericsson discussion Rel-18 NR\_redcap\_enh-Core

*Moved from 7.19.1*