3GPP TSG-RAN WG2 Meeting #121-bis electronic R2-2xxxxxx

Online, April 17-26, 2023

Agenda item: 8.10

Source: Session Chair (Ericsson)

Title: Report from eRedCap breakout session

# Organizational

## At meeting email discussions:

* [AT121bis-e][750] Organizational – eRedCap (Ericsson)

Scope:

* + - Share plans for the meeting and list of ongoing email discussions
		- Share meetings notes and agreements for review and endorsement

      Intended outcome:

* + - General information sharing about the sessions

      Deadline:

* + - Deadline: EOM
* [AT121bis-e][751] eDRX for RRC\_INACTIVE (OPPO)

Scope:

* + - Summarize and identify agreeable proposals for agenda item 7.19.2

      Intended outcome:

* + - Report with agreeable proposals in [R2-2304361](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304361.zip)

Deadline:

* + - Deadline for comments: Wednesday 23:59 UTC
		- Rapporteur proposals: Thursday 10:00 UTC
		- Document deadline: 1h before session

Closed

* [AT121bis-e][752] Further reduced UE complexity in FR1 (Huawei)

Scope:

* + - Summarize and identify agreeable proposals for agenda item 7.19.3

      Intended outcome:

* + - Report with agreeable proposals in [R2-2304362](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304362.zip)

      Deadline:

* + - Deadline for comments: Wednesday 23:59 UTC
		- Rapporteur proposals: Thursday 10:00 UTC
		- Document deadline: 1h before session

Closed

## Schedule:

**Dates and deadlines (see also** [**RP-230050**](http://www.3gpp.org/ftp//tsg_ran/TSG_RAN/TSGR_99/Docs//RP-230050.zip)**)**

March 31st Deadline for Long email discussions into R2 121.

April 3rd – 7th Inactive period, no email discussions.

April 7th 1000 UTC **Tdoc Submission Deadline**.

April 17th 0700 UTC **e-Meeting Start** (by email), Week 1
Rapporteurs in non-favourable time zones may kick off AT meeting offline / email discussions before meeting start (at most 12h before). It is assumed that participants starts paying attention to offline / email discussions after e-meeting start.

April 21st 1000 UTC **Weekend break**, Suspend decision making in email discussions (= no deadlines etc). It should be possible for a delegate to take the weekend off, rejoin and not miss decisions.

April 24th 1000 UTC **Resume after weekend**. Resume decision making in email discussions, Week 2.

April 26th 1000 UTC **e-Meeting Stop**, no more technical comments for AT-meeting email discussions. Decision confirmations announced within 24h. Session notes for email checking.

April 28th 1000 UTC Deadline Short Email Discussions (***limited possibility*** - for very short email discussions, if needed short email discussion can be started before e-meeting Stop). E.g. for LS outs, or other priority topics e.g. conclusion of R17 CRs.

May 1st – 5th Inactive period, no email discussions.

May 12th 1000 UTC Tdoc submission deadline RAN2 122 (next meeting).

 Very limited possibility for long email discussions.

**Web Conference Schedule**

Note that this schedule is indicative and can change. After Week 1 the schedule for Week 2 will be updated.

**WEEK 1:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time ZoneUTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** | **Offline GTW Session** **(limited use, only specific issues if needed, need approval by session chair)** |
| **Monday** |  |  |  |  |
| 12:30-13:30 | NR18 Mobility Enh [2] (Johan) | NR18 XR [2] (Tero) | NR18 SL Relay [1.5] (Nathan) |  |
|  |
| 13:30-14:30 | NR18 Mobile IAB [0.5] (Johan) | NR18 UAV [1] (Diana) | NR18 Pos [2] (Nathan) |  |
|  |
| 14:30-15:30 | NR18 AIML [1] (Johan) | NR18 NCR [0.5] (Sasha) | Maintenance Early items (Nathan Kyeongin/Qianxi) |  |
|  |
| **Tuesday** |  |  |  |  |
| 12:30-13:30 | NR18 LP WUS [0.5] (Johan)  | NR18 NTN enh [1] (Sergio) | NR18 SL evolution [1] (Kyeongin/Qianxi) |  |
|  |
| 13:30-14:30 | NR18 Other [2] (Johan) | NR18 NTN enh [1] (Sergio) | NR18 SL evolution [1] (Kyeongin/Qianxi) |  |
|  |
| 14:30-15:30 | NR18 Mobility Enh [2] (Johan) | Maintenance Early Items (Sergio, Tero) | NR18 SL evolution [1] (Kyeongin/Qianxi) |  |
|  |
| **Wednesday** |  |  |  |  |
| 12:30-13:30 | NR18 AIML [1] (Johan) | NR18 QoE [1] (Tero) | NR18 SL Relay [1.5] (Nathan) |  |
|  |
| 13:30-14:30 | – TBD (Johan) | NR18 Network Energy Saving [1] Early items (Diana) | NR18 SL Relay [1.5] (Nathan) |  |
| NR18 MBS UP/CP [0.75] (Dawid) |  |
| 14:30-15:30 | NR18 MBS [0.75] (Dawid) | NR18 URLLC [0.5] (Diana) | NR18 Pos [2] (Nathan) |  |
|  |
| **Thursday** |  |  |  |  |
| 03:30-04:30 | NR18 Other [2], NR18 TEI [1] (Johan) | NR18 XR [2] (Tero) | LTE18 IoT NTN [1] (Sergio)  |  |
|  |
| 04:30-05:30 | NR18 Mobility Enh [2] (Johan) | NR18 XR [2] (Tero) | LTE18 IoT NTN [1] (Sergio)  |  |
|  |
| **Friday** |  |  |  |  |
| 03:30-04:30 | NR18 MIMO evo [0.5] (Erlin) | eRedcap [1] (Mattias)7.19.1 Organizational7.19.2 Enhanced eDRX in RRC\_INACTIVEIncl. AT-meeting email disc summary7.19.3 Further reduced UE complexity in FR1Incl. AT-meeting email disc summary  | NR18 SONMDT [0.5] (HuNan) |  |
|  |
| 04:30-05:30 | NR18 fCovEnh [0.5] (Eswar) | NR18 Pos [2] (Nathan) |  |
|  |

**WEEK 2:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time ZoneUTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** | **Offline GTW Session****(limited use, only specific issues if needed, need approval by session chair)** |
| **Monday** |  |  |  |  |
| 12:30-13:30 | NR18 Mobility Enh [2] (Johan) | NR18 XR [2] (Tero) | NR18 Pos [2] (Nathan) |  |
|  |
| 13:30-14:30 | Maintenance CB (Johan) | NR18 MUSIM [0.5] (Tero) | NR18 UAV [1] (Diana) |  |
|  |
| 14:30-15:30 | Maintenance CB (Johan) | CB (Sergio, Tero) | NR18 Network Energy Saving [1] (Diana) |  |
|  |
| **Tuesday** |  |  |  |  |
| 12:30-13:30 | Maintenance CB (Johan) | NR18 QoE [1] (Tero) | Maintenance CB (Diana) |  |
|  |
| 13:30-14:30 | NR18 CBs (Sasha) | NR18 CBs (Sergio) | NR18 CB (Diana) |  |
|  |
| 14:30-15:30 | NR18 CBs  | NR17/18 CBs (Dawid) | CBs (Kyeongin/Qianxi) |  |
|  |
| **Wednesday** |  |  |  |  |
| 03:30-04:30 | NR18 CBs (All?) | CBs (Tero) | NR18 CBs (Nathan) |
| 04:30-05:30 | CB (All)  | CB (Sergio?) | CB (Nathan?) |

## 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, etc.

[R2-2302417](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302417.zip) Reply LS on long eDRX support for RRC\_INACTIVE ([R3-230803](http://www.3gpp.org/ftp//tsg_ran/WG3_Iu/TSGR3_119/Docs//R3-230803.zip); contact: Ericsson) RAN3 LS in Rel-18 FS\_REDCAP\_Ph2 To:SA2, RAN2

* Noted

**Running CR rapporteurs:**

38.300 OPPO

38.304 Huawei

38.306 Intel

38.321 Vivo

38.331 Ericsson

Chair: Running CR rapporteurs are invited to provide a proposal for baseline for the running CR to the May-meeting, if they identify that there is meaningful progress which can be captured in the CRs.

### 7.19.2 Enhanced eDRX in RRC\_INACTIVE

PTW location and duration in overlapping/non-overlapping PHs. Which paging to monitor in the PTWs/calulation of T.

Fallback behaviour when UE moves to cell not supporting INACTIVE eDRX > 10.24s.

Support of INACTIVE eDRX (only for UEs supporting Rel-17 eDRX?).

[R2-2304361](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304361.zip) Summary of [AT121bis-e][751][eRedCap] eDRX for RRC\_INACTIVE (OPPO)

Capabilities

Proposal 1: [Easy] (18/18) Introduce an optional UE capability with signalling for Rel-18 enhanced eDRX in RRC\_INACTIVE.

Proposal 2: [For discussion] (14/18) UE can support Rel-18 enhanced eDRX, only if it supports Rel-17 RRC\_IDLE eDRX and RRC\_INACTIVE eDRX.

Proposal 3: [For discussion] For cell supporting Rel-18 INACTIVE eDRX, RAN2 further discuss among the following options:

• Option 2: (7) A cell can indicate support for Rel-18 INACTIVE eDRX, only if eDRX-AllowedIdle is configured.

• Option 3: (11) A cell can indicate support for Rel-18 INACTIVE eDRX, only if eDRX-AllowedIdle and eDRX-AllowedInactive are configured.

Discussion P2:

* MediaTek does not see a necessary dependency with Rel-17 INACTIVE eDRX, Apple agrees. ZTE agrees.
* Vodafone thinks that R18 INACTIVE eDRX is an enhancement of R17 INACTIVE eDRX, so wants to couple these. OPPO agrees and thinks this discussion relates to the fallback. Nokia supports the proposal. QC agrees with P2 and wants to have Option 3 in P3, to align. Vivo and CATT also supports P2.
* Intel thinks that R17 and R18 INACTIVE eDRX are independent, but similar.
* Introduce an optional UE capability with signalling for Rel-18 enhanced eDRX in RRC\_INACTIVE.
* UE can support Rel-18 enhanced eDRX, only if it supports Rel-17 RRC\_IDLE eDRX. TBD if it must also support Rel-17 RRC\_INACTIVE eDRX.
* A cell can allow Rel-18 INACTIVE eDRX, only if eDRX-AllowedIdle is configured. TBD if it must also configure Rel-17 RRC\_INACTIVE eDRX.

Fallbacks, etc.

Proposal 4: [Easy] (18/18) UEs configured with Rel-18 enhanced INACTIVE eDRX should apply Rel-18 enhanced INACTIVE eDRX if Rel-18 enhanced INACTIVE eDRX is allowed in the serving cell, regardless of whether Rel-17 INACTIVE eDRX is allowed in the serving cell.

Proposal 5: [Easy] (16/17) UEs configured with Rel-18 enhanced INACTIVE eDRX should apply INACTIVE DRX (i.e. the legacy RAN paging cycle) if both Rel-18 enhanced INACTIVE eDRX and Rel-17 INACTIVE eDRX are not allowed in the serving cell.

Proposal 6: [For discussion] (13/18) UEs configured with Rel-18 enhanced INACTIVE eDRX should fall back to use Rel-17 INACTIVE eDRX (if capable of 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.

Proposal 7: [For discussion] (12/17) gNB configures both Rel-17 INACTIVE eDRX and Rel-18 INACTIVE eDRX, and UE falls back to use Rel-17 INACTIVE eDRX.

Discussion on P5:

* Apple questions the need to monitor according to INACTIVE DRX, the network would not page the UE anyway in their mind. Intel thinks there can be RAN triggered paging and UE must followed INACTIVE DRX.

Discussion on P6:

* Xiaomi thinks it is complex to fallback to R17 INACTIVE eDRX, especially if the NW must configure both R17 and R18 INACTIVE eDRX. They can accept falling back to a default R17 eDRX INACTIVE cycle.
* Huawei supports the proposal and no additional NW complexity is foreseen. QC, Apple agrees.
* Nokia thinks this is very complex and does not understand how it works, which cycle to follow? NW needs to configure both R17 and R18? ZTE also does not agree. ZTE assumes the scenario is that the UE moves from a R18 gNB to a R17 gNB. The solution is complex from a UE point of view, with more branches. Also, it assumes that the old gNB configures both R18 and R17 cycles.
* MediaTek thinks it can work if UE fallsback depending on “if configured” rather than “if configured”.
* Vodafone says that the scenario where R17 gNBs and R18 gNBs (e.g. of different vendors) are mixed in a RAN area, so the scenario is valid. Vodafone wonders why this would be complex for the R17 gNB. Nokia wonders which R17 cycle the UE would apply when falling back to R17 INACTIVE eDRX.
* UEs configured with Rel-18 enhanced INACTIVE eDRX should apply Rel-18 enhanced INACTIVE eDRX if Rel-18 enhanced INACTIVE eDRX is allowed in the serving cell, regardless of whether Rel-17 INACTIVE eDRX is allowed in the serving cell.
* UEs configured with Rel-18 enhanced INACTIVE eDRX should apply INACTIVE DRX if both Rel-18 enhanced INACTIVE eDRX and Rel-17 INACTIVE eDRX are not allowed in the serving cell.
* 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.

Configuration

Proposal 8: [Easy] (17/17) Introduce a new IE for INACTIVE eDRX to include the eDRX cycle values larger than 10.24s.

* Introduce a new IE for INACTIVE eDRX to include the eDRX cycle values larger than 10.24s.

Invalid cases

Proposal 9: [Easy] (17/17) Following cases are invalid.

• Case 1: UE is configured with a Rel-18 enhanced INACTIVE eDRX cycle but not configured with the IDLE eDRX cycle.

• Case 2: UE is configured with a Rel-18 enhanced INACTIVE eDRX cycle longer than the IDLE eDRX cycle.

* Following cases are invalid:

Case 1: UE is configured with a Rel-18 enhanced INACTIVE eDRX cycle but not configured with the IDLE eDRX cycle.

Case 2: UE is configured with a Rel-18 enhanced INACTIVE eDRX cycle longer than the IDLE eDRX cycle.

PTW and PHs

Proposal 10: [For discussion] (6 v.s. 9) RAN2 to discuss whether to have the restriction that the RAN configured PTW length should be no longer than the CN configured PTW length.

Chair: P10 will not be treated now.

Proposal 11: [For discussion] (10/17) RAN PTW length is mandatorily present within Rel-18 INACTIVE eDRX’s configuration.

* RAN PTW length is mandatorily present within Rel-18 INACTIVE eDRX’s configuration.

Proposal 12: [Easy] (17/17) Use the same UE\_ID\_H as IDLE eDRX for calculating the PH for RAN paging when INACTIVE eDRX is longer than 10.24s.

* Use the same UE\_ID\_H as IDLE eDRX for calculating the PH for RAN paging when INACTIVE eDRX is longer than 10.24s.

Proposal 13: [Easy] (16/16) Use TeDRX\_RAN instead of TeDRX\_CN to calculate the PH for RAN paging when TeDRX\_RAN is longer than 10.24s.

* Use TeDRX\_RAN instead of TeDRX\_CN to calculate the PH for RAN paging when TeDRX\_RAN is longer than 10.24s.

Proposal 14: [Easy] (16/17) For the overlapping PH, PTW starting location is determined based on CN eDRX cycle.

* For the overlapping PH, RAN PTW starting location is determined based on CN eDRX cycle.

Proposal 15: [For discussion] (11/16) UE determines separate PTWs for CN paging and RAN paging according to the CN-configured PTW length and RAN-configured PTW length, respectively, for the overlapping PH.

Chair: Leave this to CR implementation, the running CR rapp can suggest a good approach.

Proposal 16: [For discussion] (13/17) For the non-overlapping PH, PTW starting location for RAN PTW is determined based on the CN eDRX cycle.

Discussion P16:

* OPPO clarifies that the motivation for the proposal is to align with the overlapping PHs. So to use CN would be aligned with how we do it in the overlapping PHs.
* Intel thinks it may be better to use CN eDRX cycle to distribute paging load? Chair wonders if the distribution of the paging load is already not messed up (if indeed it is an issue) due to us using the CN cycle in the overlapping PHs. Ericsson thinks that the benefit of this proposal is that the uniform distribution of the cycles between PTWs is a benefit of this. MediaTek thinks that we have the same UE-ID so you anyway don’t have any control over this.
* Huawei does not see the benefit of this proposal.
* Vivo thinks its simpler and results in uniform distribution, which they think is good. OPPO agrees.
* For the non-overlapping PH, PTW starting location for RAN PTW is determined based on the CN eDRX cycle.

T-calculation

Proposal 17: [Easy] (14/16) Within RAN PTW and outside CN PTW, T = RAN configured DRX cycle.

Proposal 18: [For discussion] (12/16) Within CN PTW and outside RAN PTW, T = min {CN configured DRX cycle, default paging cycle broadcast in system information}.

Proposal 19: [Easy] (14/16) Within both CN PTW and RAN PTW, T = min {CN configured DRX cycle, RAN configured DRX cycle, default paging cycle broadcast in system information}.

Discussion P17:

* Huawei wants to consider also the default DRX to allow cell-specific default DRX settings.

Discussion P18:

* MediaTek are not sure the case is valid.
* In an overlapped or non-overlapped PH: Within RAN PTW and outside CN PTW, T = RAN configured DRX cycle
* If this is even a valid case (we will decide later): In an overlapped PH: Within CN PTW and outside RAN PTW, T = min {CN configured DRX cycle, default paging cycle broadcast in system information}.
* In an overlapped PH: Within both CN PTW and RAN PTW, T = min {CN configured DRX cycle, RAN configured DRX cycle, default paging cycle broadcast in system information}.

SI modification and Short message

Proposal 20: [Easy] (16/16) Legacy systemInfoModification-eDRX indication in Short message and eDRX modification boundaries are also applicable for Rel-18 UEs configured with INACTIVE eDRX > 10.24sec, and in this case, the CN eDRX cycle is used to compare with the modification period.

* Legacy systemInfoModification-eDRX indication in Short message and eDRX modification boundaries are also applicable for Rel-18 UEs configured with INACTIVE eDRX > 10.24sec, and in this case, the CN eDRX cycle is used to compare with the modification period.

[R2-2302496](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302496.zip) Fallback behaviour for eRedcap UE NEC discussion NR\_redcap\_enh-Core

[R2-2302497](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302497.zip) Paging monitoring for Inactive UE in enhanced eDRX NEC discussion NR\_redcap\_enh-Core

[R2-2302531](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302531.zip) Discussion on enhanced eDRX in RRC\_INACTIVE OPPO discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302565](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302565.zip) Discussion on enhanced eDRX in RRC\_INACTIVE CATT discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302642](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302642.zip) Discussion on enhanced eDRX in RRC\_INACTIVE China Telecommunications discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302703](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302703.zip) Discussion on e-DRX for eRedcap Devices Xiaomi Communications discussion

[R2-2302735](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302735.zip) RAN2 impacts to support eDRX in RRC\_INACTIVE above 10.24 sec Intel Corporation discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302803](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302803.zip) On eDRX for enhanced RedCap Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302815](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302815.zip) Discussion on UE fallback behaviour for INACTIVE eDRX vivo, Guangdong Genius discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302816](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302816.zip) Enhanced eDRX cycle in RRC\_INACTIVE for eRedCap UEs vivo, Guangdong Genius discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302824](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302824.zip) Further discussion on longer eDRX in RRC\_INACTIVE ZTE Corporation, Sanechips discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303304](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303304.zip) Enhanced eDRX in RRC\_INACTIVE MediaTek Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303321](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303321.zip) Discussion on available eDRX configurations Samsung discussion Rel-18

[R2-2303322](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303322.zip) Discussion on enhanced eDRX in RRC\_INACTIVE Samsung discussion Rel-18

[R2-2303396](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303396.zip) RedCap PTW/PH operation for >10.24sec INACTIVE eDRX Apple discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303397](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303397.zip) RedCap UE behavior in cells not supporting R18 eDRX Apple discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303468](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303468.zip) Discussion on enhanced eDRX in RRC\_INACTIVE Huawei, HiSilicon discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303542](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303542.zip) Discussion on eDRX in RRC\_INACTIVE CMCC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303561](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303561.zip) Discussion on enhanced eDRX in RRC inactive Qualcomm Incorporated discussion NR\_redcap\_enh-Core

[R2-2304063](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304063.zip) Extending eDRX cycles in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_redcap\_enh-Core

### 7.19.3 Further reduced UE complexity in FR1

Early indication.

Access restriction for eRedCap.

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

[R2-2304362](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304362.zip) Summary of [AT121bis-e][752] Further reduced UE complexity in FR1 (Huawei)

NW indication of eRedCap support/allowance

Proposal 1a [Easy, 20+/22]: SIB1 should be able to indicate whether the cell supports eRedCap UE or not (assuming that eRedCap UE is not allowed to access to the legacy cell nor the cell not supporting eRedCap). FFS on the relationship with the access control/cell barring purpose indication.

Proposal 1b [Low priority]: RAN2 assume:

- FFS: Leave it up to NW implementation on whether it is a valid case that the NW only supports eRedCap UE but does not support RedCap UE (not necessarily implying any spec impact).

- If there is the cell “supporting eRedCap UE but not supporting RedCap UE”, it can still use some R17 RedCap parameters in SIB1, if any agreed by RAN2.

Discussion:

* TMO-US has concerns to add these new indications, it adds complexity. Chair thinks that at least for Msg3 indications, we need a way to indicate if the eRedCap UEs are allowed. MediaTek wonders what outcome TMO-US wants? TMO-US wants eRedCap UEs should follow the Rel-17 behaviour. MediaTek thinks this will not work, i.e. they cannot serve eRedCap UEs unless they upgrade their networks to support eRedCap. TMO-US understands MediaTeks argument.
* Nokia is not sure how this SIB1 indication would work considering that a NW may want to bar BB BW reduced UEs vs. peak rate reduced UEs? Chair thinks this will be discussed later.
* SIB1 should be able to indicate whether the cell enables access for eRedCap UEs or not (assuming that eRedCap UE is not allowed to access to the legacy cell nor the cell not supporting eRedCap). FFS on the relationship and granularity with the access control/cell barring purpose indication.

Chair: P1b can be postponed, but also: Companies should consider if a cell can allow eRedCap UEs to connect, while not allowing RedCap UEs to connect? We can discuss in the next meeting.

UE capabilities

Proposal 2a [Easy, 20+/22]: There should be an explicit IE in the capability signaling, which is dedicated and mandatory for the eRedCap UE. FFS on the ASN.1 design of this IE.

Proposal 2b [Easy, 19/20]: Even though the R18 eRedCap type UE does not have to indicate the support of legacy supportOfRedCap-r17, R18 eRedCap UE can still reuse some R17 RedCap configurations (e.g. initial BWP configuration, etc.), if agreed any.

Chair: P2b can be postponed, but also: Companies should consider if a UE can be eRedCap and RedCap at the same time. Can be discussed next meeting.

* A Rel-18 eRedCap UE should be able to indicate its support via new UE capability signaling specific to Rel-18 eRedCap.

IFRI

Proposal 3a [Easy, 20/20]: Introduce R18 eRedCap UE specific IFRI in SIB1.

Proposal 3b [Easy]: RAN2 agree the new R18 eRedCap UE specific IFRI functionality as:

- [20/20] Controls cell selection/reselection to intra-frequency cells for eRedCap UEs when this cell is barred, or treated as barred by the eRedCap UE, as specified in TS 38.304 [20].

- [17/20] FFS: If not present, an eRedCap UE treats the cell as barred, i.e., the UE considers that the cell does not support eRedCap.

Discussion on the FFS in 3b:

* Intel does not want to mix barring with IFRI-behaviour. MediaTek agrees.
* Huawei thinks that legacy IFRI was mandatory, but in R17 RedCap IFRI is optional, so lack of it could mean non-support of RedCap.
* OPPO and several other companies, prefers to follow Rel-17 behaviour.
* Introduce R18 eRedCap UE specific IFRI in SIB1.
* The new R18 eRedCap UE specific IFRI functionality works as follows:

- Controls cell selection/reselection to intra-frequency cells for eRedCap UEs when this cell is considered barred by the eRedCap UE, as specified in TS 38.304 [20].

- Working assumption (pending check in running CRs): If not present, an eRedCap UE treats the cell as barred, i.e., the UE considers that the cell does not support eRedCap.

Barring

Proposal 4a [15/22]: Introduce the R18 eRedCap UE specific cell barring indication(s), i.e. cellBarredEnhanceRedCap1Rx-r18 and cellBarredEnhanceRedCap2Rx-r18.

Proposal 4b [15/17]: If introducing the R18 eRedCap UE specific cell barring indication(s), 1Rx and 2Rx eRedCap UEs can be barred separately via the indications.

HD-FDD

Proposal 5 [Low priority]: It is FFS on:

- Option 1: eRedCap UE reuses the legacy halfDuplexRedCapAllowed-r17

- Option 2: introduce a new eRedCap UE specific “HD-FDD only” broadcasting indication

Discussion on 4a - 5:

* MediaTek does not want new (R18) bits, at least for 1Rx/2Rx. Apple and TMO-US agrees.
* Chair wonders if RAN1 needs to be involved in this discussion.
* Ericsson thinks we can ask RAN1 about these parameters (1Rx, 2Rx, HD-FDD). OPPO thinks that in R17 plenary was involved in this decision.
* Chair: We postpone this discussion to May to see if we can agree directly, or if plenary/other WGs needs to be involved.

Inter-frequency info

Proposal 6 [Easy, 18/19]: Introduce eRedcapAccessAllowed-r18 in interFreqCarrierFreqList in SIB4, about the frequency of neighbour cell supporting eRedCap, similar to R17.

* Introduce eRedcapAccessAllowed-r18 in interFreqCarrierFreqList in SIB4, about the frequency of neighbour cell supporting eRedCap, similar to R17.

eRedCap BWP

Proposal 7a [Easy, 17+/20]: From RAN2 perspective, there is no need to introduce eRedCap UE specific initial BWP configuration (i.e. no R18 new field and at most one specific initial UL/DL BWP can be configured).

Proposal 7b [Easy, 21/21]: If the R17 RedCap specific initial BWP is configured, eRedCap UEs always use it as its specific initial BWP (assuming no eRedCap UE specific initial BWP configuration field introduced).

* From RAN2 perspective, there is no need to introduce eRedCap UE specific initial BWP configuration (i.e. no R18 new field and at most one specific initial UL/DL BWP can be configured).
* If the R17 RedCap specific initial BWP is configured, eRedCap UEs always use it as its specific initial BWP (assuming no eRedCap UE specific initial BWP configuration field introduced).

Msg3 indication

Proposal 8 [Easy, 19/22]: Working assumption: Use two new LCID values to support Msg3 early identification for eRedCap UE (can be revised and discussed together with other R18 WIs, if R18 WIs may occupy relatively many LCIDs).

* Working assumption: Use two new LCID values to support Msg3 early identification for eRedCap UE (can be revised and discussed together with other R18 WIs, if R18 WIs may occupy relatively many LCIDs).

[R2-2302528](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302528.zip) Discussion on access restriction for eRedCap Futurewei discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302532](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302532.zip) Discussion on early indication for eRedCap UE OPPO discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302544](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302544.zip) Discussion on cellbarring for eRedCap UEs OPPO discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302566](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302566.zip) Discussion on further UE complexity reduction CATT discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302640](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302640.zip) Discussion on access restriction and capability related for eREDCAP China Telecommunications discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302641](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302641.zip) Discussion on Early Indication for eREDCAP China Telecommunications discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302704](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302704.zip) Discussion on early indication for eRedcap devices Xiaomi Communications discussion

[R2-2302705](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302705.zip) Discussion on UE access restrictions and other impacts for eRedcap devices Xiaomi Communications discussion

[R2-2302736](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302736.zip) RAN2 impacts to support Rel-18 RedCap UEs Intel Corporation discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302737](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302737.zip) Capability impacts to support Rel-18 RedCap UEs Intel Corporation discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302802](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302802.zip) On access restrictions for enhanced RedCap Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302817](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302817.zip) Discussion on access restriction and capability for eRedCap vivo, Guangdong Genius 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) Early indication and access restriction 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) Capability definition and report for eRedCap UE ZTE Corporation, Sanechips discussion Rel-18 NR\_redcap\_enh-Core

[R2-2302949](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2302949.zip) Discussion on early indication and access restriction for eRedCap NEC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303069](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303069.zip) Early identification and access restriction for eRedCap UEs Huawei, HiSilicon discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303070](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303070.zip) Discussion on how to define and capture the capability of eRedCap UEs Huawei, HiSilicon discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303149](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303149.zip) Discussion on access restriction for eRedCap Sharp discussion

[R2-2303305](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303305.zip) Early identification for eRedCap devices MediaTek Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303306](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303306.zip) Access restrictions for eRedCap devices MediaTek Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303323](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303323.zip) Discussion on early indication and access restriction Samsung discussion Rel-18

[R2-2303543](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303543.zip) Discussion on further reduced UE complexity CMCC discussion Rel-18 NR\_redcap\_enh-Core

[R2-2303562](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303562.zip) Discussion on further complexity reduction for eRedCap UE Qualcomm Incorporated discussion NR\_redcap\_enh-Core

[R2-2303563](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303563.zip) Discussion on optional UE capability filter for eRedCap UE Qualcomm Incorporated, Ericsson, Intel discussion NR\_redcap\_enh-Core [R2-2301294](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121/Docs//R2-2301294.zip)

[R2-2303568](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303568.zip) Discussion on further reduced UE complexity in FR1 for Rel-18 RedCap UE Spreadtrum Communications discussion Rel-18

[R2-2303657](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303657.zip) Early indication and access restrictions for eRedCap UE Sierra Wireless. S.A. discussion

[R2-2303689](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2303689.zip) On early indication for enhanced RedCap Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304010](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304010.zip) Further discussion on early indication for Rel-18 RedCap UE LG Electronics Inc. discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304062](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304062.zip) Early indication for eRedCap UEs Ericsson discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304064](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304064.zip) Discussion on cell barring for eRedCap UEs Ericsson discussion Rel-18 NR\_redcap\_enh-Core

[R2-2304069](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304069.zip) Discussion on further UE complexity reduction for eRedCap NTT DOCOMO INC. discussion Rel-18 NR\_redcap\_enh-Core

=> Revised in [R2-2304190](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304190.zip)

[R2-2304190](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_121bis-e/Docs//R2-2304190.zip) Discussion on further UE complexity reduction for eRedCap NTT DOCOMO INC. 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) Considerations on Further reduced UE complexity for eRedcap Sequans Communications discussion Rel-18 NR\_redcap\_enh-Core