3GPP TSG-RAN2#116bis-e Tdoc R2-22xxxx

Electronic meeting, 2022-01-17 - 2022-01-25

Agenda Item: 8.12 Reduced Capability

Source: Ericsson

Title: Open issue list for 38.304 for RedCap

Document for: Discussion, Decision

# 1 Introduction

This document relates to this offline discussion:

**\* [Post116bis-e][103][RedCap] 38.304 running CR and list of open issues (Ericsson)**

Scope: Update the 38.304 running CR and define the list of 38.304 open issues

Intended outcome: Endorsed RRC running CR and list of open issue

Deadline (for companies' feedback): Friday 2022-01-28 0800 UTC

Deadline (for updated running CR and list of open issues): Friday 2022-01-28 1600 UTC

Status: To be started at the beginning of week2

And this document captures a list of remaining open issue for 38.304 for RedCap.

The following delegates participated in the discussion:

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| --- | --- |
| Company | Contact Name, Email |
| Ericsson | Mattias Bergström, mattias.a.bergstrom@ericsson.com |
| Futurewei | Yunsong Yang, yyang1@futurewei.com |
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# 2 Open issue list

In the sections below, open issues are captured for each of the agenda items that has been used for RedCap. There is also one section in the end which captures open issues which does not fit well under any other section.

## 2.1 Open issues for "Definition of RedCap UE type and reduced capabilities"

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| **Slogan** | **Open issue description** | **Criticality**  Choose "Must be addressed" if the related WI-objective does not work without closing this, and "Potential enhancement" if the objective could be closed anyway | **Remark** |
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## 2.2 Open issues for "Identification, access and camping restrictions"

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| **Slogan** | **Open issue description** | **Criticality**  Choose "Must be addressed" if the related WI-objective does not work without closing this, and "Potential enhancement" if the objective could be closed anyway | **Remark** |
| **UE behaviour at absence of intraFreqReselectionRedCap in SIB1** | This relate to the yellow part of this Editor's note:  - If the UE is a RedCap UE, the UE shall in the remainder of this procedure consider '*intraFreqReselection* in MIB' to be '*intraFreqReselectionRedCap* in SIB1'*.*  Editor's note: The case when *intraFreqReselectionRedCap* in SIB1 is absent is FFS. Further consider whether to update above wording and refer only to 'IntraFreqReselection' below (i.e. without directly referring to “in MIB” to cover also the RedCap case). | Must be addressed |  |
| **Rewording for how to refer to *intraFreqReselection*** | This relate to the yellow part of the following Editor's note:  - If the UE is a RedCap UE, the UE shall in the remainder of this procedure consider '*intraFreqReselection* in MIB' to be '*intraFreqReselectionRedCap* in SIB1'*.*  Editor's note: The case when *intraFreqReselectionRedCap* in SIB1 is absent is FFS. Further consider whether to update above wording and refer only to 'IntraFreqReselection' below (i.e. without directly referring to “in MIB” to cover also the RedCap case).  - If the field *intraFreqReselection* in *MIB* message is set to "allowed":  - the UE may select another cell on the same frequency if re-selection criteria are fulfilled;  - If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:  - the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;  - else:  - the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.  - If the field *intraFreqReselection* in *MIB* message is set to "not allowed":  - If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:  - the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;  - If the cell operates in licensed spectrum:  - the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;  - else:  - the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.  - else:  - If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:  - the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;  - else:  - the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.  - the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds. | Potential enhancement | This would be a potential enhancement to the wording |
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## 2.1 Open issues for "eDRX cycles"

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| **Slogan** | **Open issue description** | **Criticality**  Choose "Must be addressed" if the related WI-objective does not work without closing this, and "Potential enhancement" if the objective could be closed anyway | **Remark** |
| **Terms used for eDRX cycles** | We have this editor's note:  Editor’s note: Consider referring to the cycles using the variables TeDRX, CN and TeDRX, RAN instead for better clarity. | Potential enhancement | The current CR works, but this issue relate to a potential polishing of the CR. |
| **Which eDRX formula to use when IDLE eDRX configured by upper layers, but not supported in the cell.** | We have this editor's note:  Editor's note: FFS which formula to apply if IDLE eDRX is configured by the upper layers but esDRX is not supported in the cell. | Must be addressed |  |
| **Number of bits of UE\_ID\_H is used to calculate Paging Hyperframe** | We have this editor's note:  The PH for CN is the H-SFN satisfying the following equations:  H-SFN mod TeDRX\_CN= (UE\_ID\_H mod TeDRX\_CN), where  - UE\_ID\_H  - xx most significant bits of the Hashed ID.  Editor’s note: FFS how many bits we use above for UE\_ID\_H. | Must be addressed |  |
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## 2.2 Open issues for "RRM relaxations"

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| **Slogan** | **Open issue description** | **Criticality**  Choose "Must be addressed" if the related WI-objective does not work without closing this, and "Potential enhancement" if the objective could be closed anyway | **Remark** |
| **TBDs for how relaxation is done** | Section 5.2.4.9.0 currently has "TBD" on **how** relaxation is performed. For example:  - if *stationaryMobilityEvaluation* is configured and *cellEdgeEvaluationWhileStationary* is not configured; and  - if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP after (re-)selecting a new cell; and  - if the relaxed measurement criterion in clause 5.2.4.9.X is fulfilled for a period of TSearchDeltaP-Stationary:  - the UE may choose to perform relaxed measurements for [TBD] according to relaxation methods in clauses [TBD];  RRM measurement relaxation does not work if this is not addressed. | Must be addressed | Pending RAN4 input. |
| **UE behaviour when both Rel-16 and Rel-17 criteria are fulfilled** | We have an editor's note on this:  Editor's note: When the network configures both R16/R17 relaxation criteria and the UE fulfils both, it is TBD if the UE performs Rel-17 RRM relaxation method or it is up to UE implementation to select either Rel-16 or Rel-17 relaxation operation. | Must be addressed | The currently described behaviour is that the UE can decide how to relax based on implementation. In absence of any other additions to the CR, that would be the UE behaviour. |
| **UE behaviour when both Rel-16 and Rel-17 criteria are configured but one is fulfilled first while the other is still pending for the measurement period to finish** | R16 low mobility and R17 stationary critria are evaluated based on independent Tsearch periods, which may have different durations and therefore can be out of synch. In practice, in most of the time, the UE determines one criterion is fulfilled first while still waiting for the measurement period for the other criterion to finish. Based on the current text, the UE may simply proceed with the RRM relaxation actions related to the first criterion fulfilled. Unless the UE waits for the measurement period of the second criterion to finish, the UE may never encounter the case where both criteria are fulfilled at the same time. Therefore, the current EN, as quoted by the issue above this one, is inadequate. | Should be addressed with the issue above together. | We see two options here:  Option 1. Upon the determination of a positive fulfillment of a first criterion, the UE waits until the current measurement period for the second criterion is finished and a determination on the fulfillment of the second criterion is made before the UE determines how to perform RRM relaxation.  Option 2. Upon the determination of a positive fulfillment of a first criterion, the UE is allowed to start to perform RRM relaxation in accordance with the RRM relaxation method corresponding to the first criteria. In this situation, RAN2 needs to discuss whether the UE is allowed to switch to the RRM relaxation method corresponding to the second criteria if the UE determines later that it also fulfills the second criterion. |

## 2.2 Other open issues

Below is a list of open issues which does not fit under any of the other agenda items.

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| **Slogan** | **Open issue description** | **Criticality**  Choose "Must be addressed" if the related WI-objective does not work without closing this, and "Potential enhancement" if the objective could be closed anyway | **Remark** |
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# 3 Conclusion

Based on the discussion above it is proposed:

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