3GPP TSG-RAN WG2 Meeting#112-e Draft\_R2-2010786

Online, 2nd - 13th November 2020

Agenda Item: 8.12.2.2

Source: Huawei

Title: Summary of [AT112-e][113][REDCAP] Identification and access restrictions (Huawei)

Document for: Discussion and Decision

# Introduction

This document is for the following offline discussion on RedCap:

* [AT112-e][113][REDCAP] Identification and access restrictions (Huawei)

Scope: Continue the discussion on remaining proposals from R2-2009936

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

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

Initial deadline (for companies' feedback): Monday 2020-11-10 23:00 UTC

Initial deadline (for rapporteur's summary in R2-2010786): Tuesday 2020-11-10 05:00 UTC

Proposals marked "for agreement" in R2-2010786 not challenged until Tuesday 2020-11-10 17:00 UTC will be declared as agreed by the session chair and can be considered for inclusion in the TP for the TR. For the rest there is a (little) chance to continue online in the final CB session on Friday 2020-11-13.

Status: Ongoing

# Discussion

During the online session, proposal 1 and proposal 2 of email summary [1] have been discussed and the following agreements were made:

Agreements:

1. Whether it is needed to identify RedCap UEs during Msg3 from RAN2 perspective or not depends on the following two aspects:

- Whether Msg4/5 special handing for RedCap UE is needed, pending RAN1

- Whether there is a need to reject part of RedCap UEs in addition to cell barring and UAC mechanism

According to the scope of this offline discussion, the rest of proposals in email summary [1] will be further discussed.

## UE identification

Regarding identifying RedCap UE in Msg5, the following summary was made in [1]：

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| Summary:  21 companies provided inputs. 17 companies think it is not needed from RAN2 perspective to identify RedCap UEs during Msg5. 1 company thinks MSG5 could be a good way compared to capability based solution since it can reduce signalling overhead and also can let the network handle it faster, 4 companies think this could be a possible optimization.  Rapporteur’s suggestion:  **Proposal 3: It is not needed from RAN2 perspective to identify RedCap UEs during Msg5.** |

According to above summary, there is majority view that identifying RedCap UEs in Msg5 is not needed from RAN2 perspective.

**Companies who do not agree with above proposal 3 are invited to provide their concerns.**

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| ***Company name*** | ***Concerns if any*** |
| Nokia | We are fine with the proposal in principle, however, it would seem feasible to agree that from RAN2 perspective, it is necessary to identify the RedCap UEs in Msg3/MsgA. |
| Fujitsu | We think it may be too early to decide that from RAN2 perspective to identify RedCap UEs by Msg5 is not needed before the number and the definition of the device type are made clear to us. Prefer to capture the Msg5 option in the TR.  The final decision on how to identify RedCap UEs can be made later based on RAN1 input. |
| Xiaomi | We think P3 is based on the condition that UE identification of RedCap UEs during Msg1, Msg3 or MsgA are agreed. If identification is not made in msg1/msg3 and the Redcap UEs also need to be identified to core network for subscription validation for its intended use cases, the identification by msg5 can be a good way to make the UE capabilities available to gNB before UE capability information as compared to msg3 since msg3 may not have enough bare bits as some company mentioned above. So it depends on whether Msg1/Msg3 indications would be specified. |
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**Summary:**

One company thinks it is too early to conclude it is not needed from RAN2 perspective to identify RedCap UEs in Msg5.

One company thinks Msg5 is useful in case UE identification in Msg1/3 or MsgA is no agreed.

One company is fine with the proposal but prefer to agree that from RAN2 perspective, it is necessary to identify the RedCap UEs in Msg3/MsgA.

Considering that most of companies think that it is not needed from RAN2 perspective to identify RedCap UEs during Msg5 in the previous email discussion [1] (17 companies out of 21) and only one company provides concern in this offline discussion, rapporteur would suggest to keep the original proposal 3.

**Proposal 3: It is not needed from RAN2 perspective to identify RedCap UEs during Msg5.**

Regarding identifying RedCap UE in MsgA for 2-step RACH, the following summary was made in [1]：

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| Summary:  21 companies provided inputs. All companies indicated that it should be the same as Q1 and Q2.  Rapporteur’s suggestion:  **Proposal 4: From RAN2 perspective, the need to identify RedCap UEs during MsgA is the same as the need to identify RedCap UEs during Msg1 or Msg3.** |

According to above summary, all companies indicated the same arguments as for identifying RedCap UE in Msg1/3 for 4-step RACH.

**Companies who do not agree with above proposal 4 are invited to provide their concerns.**

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| ***Company name*** | ***Concerns if any*** |
| Apple | We prefer to say “**From RAN2 perspective, the need to identify RedCap UEs during MsgA is the same as the need to identify RedCap UEs during Msg1** “  Msg3 is not critical if the gNB would know based on Msg1. |
| Intel | We could just add MSGA in RAN2 original agreements as  Whether it is needed to identify RedCap UEs during Msg3/MSGA from RAN2 perspective or not depends on the following two aspects:  - Whether Msg4/5 special handing for RedCap UE is needed, pending RAN1  - Whether there is a need to reject part of RedCap UEs in addition to cell barring and UAC mechanism |
| Ericsson | In our understanding “or Msg3” is included in the proposal for the case when there would be no need for Msg1 indication, but there would be need for indication from Msg3 perspective. If this is true, then indication would be needed in MsgA. Thus, we think Apple’s suggestion is not correct. |
| Fujitsu | As MsgA is the combination of Msg1 and Msg3, we prefer to say:  Whether it is needed to identify RedCap UEs during MSGA from RAN2 perspective or not depends on the following two aspects:  - Whether MSGB special handing for RedCap UE is needed, pending RAN1  - Whether there is a need to reject part of RedCap UEs in addition to cell barring and UAC mechanism |
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**Summary:**

One company thinks the need to identify RedCap UEs during MsgA is the same as the need to identify RedCap UEs in Msg1 but one company thinks it should be the same as for Msg3.

Two companies suggest to update the previous proposal with the similar wording as our agreement for 4-step RACH.

Based on above comments, rapporteur suggests the following updated proposal:

**Proposal 4: From RAN2 perspective, whether it is needed to identify RedCap UEs in MsgA or not depends on the following two aspects:**

* **Whether MsgB/5 special handing for RedCap UE is needed, pending RAN1**
* **Whether there is a need to reject part of RedCap UEs in addition to cell barring and UAC mechanism**

Regarding preference on UE identification from RAN2 perspective, the following summary was made in [1]:

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| Summary:  21 companies provided inputs. 7 companies indicated Msg3/A is preferred from RAN2 perspective. Other companies indicated for Msg1/Msg3 solutions, we should wait for RAN1. No clear conclusion can be made on solutions preference.  Rapporteur’s suggestion:  **Proposal 5: Capture options Msg1/A and Msg3/A in the TR with the following clarification:**   * **From RAN2 perspective, it is not needed to identify RedCap UEs during Msg1.** * **The final decision of solution selection is pending on RAN1 output.** |

According to above summary, companies have different views on when to identify RedCap UEs. Thus it was proposed to capture options Msg1/A and Msg3/A in the TR. The final decision can be made later based on RAN1 input or further RAN2 discussion.

**Companies who do not agree with above proposal 5 are invited to provide their concerns.**

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| ***Company name*** | ***Concerns if any*** |
| Apple | We prefer to defer this area until RAN1 concludes. We still have time to update the TR and this can be done once RAN2 discusses this topic after RAN1 conclusion. |
| vivo | We agree the first sub-bullet, as it can reflect some RAN2 preference.  For the second sub-bullet, we agree with Apple to defer this until RAN1 conclusion, as some RAN1 progress could be expected after this meeting. We can have some further discussion based on RAN1 decision. |
| Intel | The proposal is not clear, does that mean we only capture option MSG1/A and MSG3 in the TR?. To our understanding, all options discussed in the email discussion should be captured in the TR, MSG1, 3, 5, A,B. |
| Ericsson | Agree with the proposal and it already says pending RAN1 output, thus it is neutral from preference point of view.  We would prefer to capture the options in TR (thus agree with Intel on all options) already as they should be clear, we shouldn’t defer everything to the last meeting. Impacts can be updated once RAN1 has concluded their discussion, if there is anything to update. |
| Fujitsu | Agree with Intel that we should include all options before there is more input from RAN1. |
| Xiaomi | We think the second sub-bullet is OK. But the first sub-bullet is easy to cause misunderstanding. I guess in the previous email, majority companies think this pending on RAN1 output. Capturing this is enough.  However, if we say “**From RAN2 perspective, it is not needed to identify RedCap UEs during Msg1**”, the RAN1 people would think that we have discussed it and we do not want it. They would misunderstand it. |
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**Summary:**

Two companies think that for the second bullet, the final decision of solution selection should be made by RAN2 based on RAN1 input.

Three companies think that all the options discussed in email discussion [1] should be captured in the TR.

One company wants to remove the first subbullet.

The intention of previous proposal 5 was not leaving the decision to RAN1 as UE identification is a RAN2 led topic. The intention was to capture the options in the TR and make decision later in RAN2 based on further RAN1 input. Based on above comments, rapporteur suggests the following updated proposal:

**Proposal 5: Capture options Msg1, Msg3, Msg5 and MsgA in the TR with the following clarification:**

* **From RAN2 perspective, it is not needed to identify RedCap UEs in Msg1.**
* **From RAN2 perspective, it is not needed to identify RedCap UEs in Msg5.**
* **The final decision of solution selection will be discussed later pending on RAN1 output.**

Regarding whether to send LS about UE identification to RAN1, the following summary was made in [1]:

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| Summary:  21 companies provided inputs. 5 companies agree to send a LS to RAN1 and 13 companies don’t agree to send a LS to RAN1 as RAN1 is aware and already discussing. 2 companies have no strong view.  Rapporteur’s suggestion:  **Proposal 6: Do not send a LS on RedCap UE identification to RAN1 and wait for more RAN1 process.** |

According to above summary, more companies prefer not to send LS to RAN1 for the time being.

**Companies who do not agree with above proposal 6 are invited to provide their concerns.**

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**Summary:**

No company provides concern on proposal 6.

**Proposal 6: Do not send a LS on RedCap UE identification to RAN1 and wait for more RAN1 process.**

## Access restrictions

### UAC

UAC enhancements for RedCap UEs were discussed in email discussion [1] and the following summary was made:

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| Summary:  21 companies provided inputs. 18 companies generally agree to send a LS to SA1, among them, 5 companies think it is better to wait for more progress e.g. on the number of RedCap UE Types, other thinks RAN2 could just inform SA1 of our motivation and ask for immediate concern. 5 companies think it is too early to send a LS.  Rapporteur’s suggestion:  **Proposal 7: Send a LS to SA1 including the following contents:**   * **RAN2 motivation for UAC enhancement for RedCap UEs** * **Ask SA1 whether they see any issue** |

According to above summary, most companies generally agree to send a LS to SA1.

**Companies who do not agree to send the LS in proposal 7 are invited to provide their concerns.**

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| ***Company name*** | ***Concerns if any*** |
| vivo | We are OK to send an LS to SA/CT, but not sure about the time point. We assume there may be no response from SA before SI completion, as we have only one meeting rest. Maybe, we could have more discussion in RAN2 in SI phase. |
| Nokia | We don’t see there is enough details to be provided for SA1 that they would benefit of receiving this LS. |
| Intel | Ok to send the LS, but before that RAN2 should discuss “**RAN2 motivation for UAC enhancement for RedCap UEs**  ” |
| Ericsson | Fine to send an LS later but we should first discuss what the actual options would be and whether there is a preference from RAN2 point of view. It would be fine to capture the various alternatives discussed e.g. in tdocs in the TR and then discuss what we should actually ask from SA1/CT1. |
| Xiaomi | It is a little bit early to send LS currently. UAC is not discussed in RAN2 in detail yet.  We would rather to send LS to SA1 until RAN2 has identified the motivation to enhance the UAC, e.g., introducing new access identifies/access categories for RedCap UE from RAN2 perspective. |
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**Summary:**

Four companies are fine to send the LS but thinks further discussion on UAC enhancement in RAN2 is needed before sending the LS.

One company think the LS is not helpful

Rapporteur’s suggestion:

**Proposal 7: Postpone the LS to SA1 on UAC enhancement for RedCap UEs.**

### Indication in system information

For the details of indication about whether the RedCap UEs are allowed to camp on the cell and intraFreqReselection for RedCap UEs, the following summary was made in [1]:

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| Summary for the indication about whether the RedCap UEs are allowed to camp on the cell:  21 companies provided inputs. 19 companies think it is too early to decide. 2 companies prefer an explicit indication.  Rapporteur’s suggestion:  **Proposal 8: Postpone the discussion on the camping indicator for RedCap UEs to the WI phase.**  Summary for intraFreqReselection for RedCap UEs:  21 companies provided inputs. 19 companies agree to postpone this issue to the WI phase.  Rapporteur’s suggestion:  **Proposal 9: Postpone the discussion on *intraFreqReselection* indicator for RedCap UEs to the WI phase.** |

According to above summary, most companies think it is too early to decide the details of the indications in system information. Thus it was proposed to postpone corresponding discussion to the WI phase.

**Companies who do not agree with proposal 8 and/or proposal 9 are invited to provide their concerns.**

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| ***Company name*** | ***Proposal*** | ***Concerns if any*** |
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**Summary:**

No company provides concern on proposal 8 and proposal 9.

**Proposal 8: Postpone the discussion on the camping indicator for RedCap UEs to the WI phase.**

**Proposal 9: Postpone the discussion on *intraFreqReselection* indicator for RedCap UEs to the WI phase.**

# Conclusion

This offline discussion focused on the rest proposals about UE identification and access restrictions for RedCap UEs in email discussion [1].

*Propose to agree:*

**Proposal 3: It is not needed from RAN2 perspective to identify RedCap UEs during Msg5.**

**Proposal 4: From RAN2 perspective, whether it is needed to identify RedCap UEs in MsgA or not depends on the following two aspects:**

* **Whether MsgB/5 special handing for RedCap UE is needed, pending RAN1**
* **Whether there is a need to reject part of RedCap UEs in addition to cell barring and UAC mechanism**

**Proposal 6: Do not send a LS on RedCap UE identification to RAN1 and wait for more RAN1 process.**

**Proposal 8: Postpone the discussion on the camping indicator for RedCap UEs to the WI phase.**

**Proposal 9: Postpone the discussion on *intraFreqReselection* indicator for RedCap UEs to the WI phase.**

*Proposals that maybe agreeable:*

**Proposal 5: Capture options Msg1, Msg3, Msg5 and MsgA in the TR with the following clarification:**

* **From RAN2 perspective, it is not needed to identify RedCap UEs in Msg1.**
* **From RAN2 perspective, it is not needed to identify RedCap UEs in Msg5.**
* **The final decision of solution selection will be discussed later pending on RAN1 output.**

**Proposal 7: Postpone the LS to SA1 on UAC enhancement for RedCap UEs.**

# References

1. R2-2009936, “Summary of email discussion 914 on UE identification and access restrictions”, Huawei, RAN2#112-e, Online, 2nd - 13th November 2020

# Contact delegates

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