**3GPP TSG RAN#90e RP-20xxxx**

**e-Meeting, 7th – 11th December, 2020**

**Agenda item:** 9.1.1

**Source:** Nokia

**Title:** Moderator's summary for email discussion [90E][07][RedCap\_WI\_scoping] Initial round

**Document for:** Discussion/Decision

# Introduction

The documents considered as background to this discussion are listed in the references section at the end of this document. The deadline for comments in the initial round is 12:29 UTC on Tuesday 8th December.

# Initial Discussion

For the initial discussion round, we will focus on selected topics where there is the greatest need for convergence.

## Minimum number of supported Rx branches in FR1 TDD bands that currently support 4RX

There is currently strong support as well as strong opposition to allowing 1 Rx branch for this case. Form factor is the primary motivation cited by those in favour of 1 Rx branch, and there is clearly a strong feeling that there is a real market for such devices. On the other hand, strong concerns have been raised, citing the high coverage impact leading to a potentially unfeasible amount of specification work to be done as well as non-negligible network impact.

If devices with 1 Rx branch are to be supported, consensus would need to emerge on how this can be done in a way that addresses the concerns. Some possible compromises have already been mooted, including an upper frequency limit for 1 Rx, or higher antenna efficiency assumption for 1 Rx, for example.

In this section, companies are invited to propose ways forward. Please do not simply restate your preference for 1 Rx vs 2 Rx!

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| **Company** | **Proposed way forward** |
| T-Mobile USA | T-Mobile USA supports the proposed wording in RP-202701. As a way forward we would propose that TDD Bands that currently require 4Rx should require 2 Rx for RedCcap, and RedCap devices that can only support 1 Rx chain due to size or other constraints can use FDD bands. Operators deploying NR standalone need to be able to offer 5G enabled wearables. Without this change these devices are limited to LTE.  We share others’ concern that handheld devices should be required to meet the current RX antenna requirements. Enabling the ability to deny access to REDCAP devices adequately addresses this concern. |
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## Relaxed UE processing times (N1/N2)

On relaxed UE processing times, there seem to be a range of opinions and no evidence of consensus. Here, compromise proposals are invited, in case these could lead to an agreeable way forward.

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| **Company** | **Proposed way forward** |
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## Reduced PDCCH monitoring

There appears to be strong support for reduced PDCCH monitoring, with the main support being for “Scheme #1” (reduced maximum number of Blind Decoding (BD) per slot in connected mode).

It seems reasonable, therefore, to focus the discussion here on Scheme #1.

What is not clear, however, is what needs to be specified specifically in the RedCap WI, compared to what has already been specified in R16 power saving and what is being addressed in the R17 power saving WI. If RedCap-specific aspects are seen useful, companies are invited to explain here the details of what should be included in the RedCap WID and why it needs to be specific to RedCap.

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| **Company** | **RedCap-specific aspects of reduced PDCCH monitoring Scheme #1** |
| T-Mobile USA | Best place to address this issue is in the power saving WID. |
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## Early identification of RedCap UEs

Early identification of RedCap UEs is clearly seen as being strongly necessary. If there are specific proposals that could be agreeable to refine the scope of the WI objective for this, companies are invited to propose them here:

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| **Company** | **Potentially agreeable proposals to refine the scope of the WI objective for identification of RedCap UEs** |
| T-Mobile USA | The use of UE categories or any horse of a different colour would not be supported by T-Mobile USA in achieving this objective. |
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## Other points

There seems to be strong support for HD-FDD type A.

**Moderator’s proposal: HD-FDD type A is supported**

Coverage compensation will be further discussed after the conclusion of the number of UE Rx branches in section 2.1. Work on coverage recovery aspects could be deferred until after RAN#91e in order to be able to assess the reusability of the work done in the Coverage Enhancement WI.

For the supported bandwidth after initial access, very heavy discussion has already taken place in RAN1, and, from the RAN plenary tdocs, there seems no evidence of a different consensus now emerging compared to what is in the current draft WID [18].

In other topics, there does not seem to be evidence of majority support going in a different direction from what is in the current draft WID [18].

If there are important comments on the above or other points, companies may state them here.

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| **Company** | **Other important comments** |
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# Company contact details

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# References

1. RP 202180 Scoping for R17 RedCap WI Futurewei
2. RP 202268 Scope of Rel-17 WI on support of reduced capability NR devices Huawei, HiSilicon
3. RP 202303 Discussion on WI scope of RedCap device OPPO
4. RP 202323 Views on the scope of RedCap WID CMCC
5. RP 202346 Motivation for Reduced Capability NR devices WID Sierra Wireless, S.A.
6. RP 202353 Views on Reduced Capability NR device WI Intel Corporation
7. RP 202355 On overlapping objectives across Rel-17 WIs Intel Corporation
8. RP 202525 Views on RedCap WID scope NTT DOCOMO, INC.
9. RP 202531 On the scope of Rel-17 reduced capability NR devices Samsung
10. RP 202550 Views on Reduced Capability NR devices Xiaomi Technology
11. RP 202560 On the open issues for support of Redcap NR devices Apple Inc.
12. RP 202637 Views on WID scope for Rel-17 RedCap vivo
13. RP 202642 Performance issues with supporting 2Rx for wearables in FR1 vivo
14. RP 202667 On WI scope of support of reduced capability NR devices ZTE, Sanechips
15. RP 202693 Discussion on WI scope for RedCap NR devices MediaTek Inc.
16. RP 202712 Views on support of reduced capability NR devices in Rel-17 CATT
17. RP 202696 Scope of RedCap WI Nokia, Nokia Shanghai Bell
18. RP 202701 New WID on support of reduced capability NR devices Ericsson
19. RP 202702 Motivation for New WI on support of reduced capability NR devices Ericsson
20. RP 202746 Views on scope of NR RedCap WI Qualcomm Incorporated