3GPP TSG-RAN WG2 Meeting #116-e R2-210xxxx

Online, Nov 1 – 12, 2021

**Agenda item: 6.1.4.4**

**Source: CATT (Rapporteur)**

**Title: Summary of [AT116-e][014][NR16] Idle Inactive (CATT)**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

* [AT116-e][014][NR16] Idle Inactive (CATT)

Scope: Determine agreeable parts in a first phase, for agreeable parts agree on CRs. Treat [R2-2109369](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109369.zip), [R2-2109580](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109580.zip), [R2-2109581](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109581.zip), [R2-2109774](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109774.zip), [R2-2110405](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110405.zip), [R2-2110406](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110406.zip), [R2-2110407](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110407.zip)

Intended outcome: Report, Agreed CRs if applicable

Deadline: Schedule 1

**A first round with Deadline for comments Thursday W1 Nov 4 1200 UTC to settle scope what is agreeable**

**A final round with Final deadline Thursday W2 Nov 11 1200 UTC to settle details / agree CRs**

# 2 Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email Address** |
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# 3 Discussion

IAB

[R2-2109369](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109369.zip) Reply LS on power class and P-max for IAB-MT cell selection (R4-2115704; contact: CATT) RAN4 LS in Rel-16 NR\_IAB-Core To:RAN2

[R2-2109580](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109580.zip) Correction for TS 38.304 on power class for cell selection of IAB CATT,Huawei, HiSilicon CR Rel-16 38.304 16.6.0 0222 - F NR\_IAB-Core

[R2-2109581](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109581.zip) Correction for TS 36.304 on power class for cell selection of IAB CATT,Huawei,HiSilicon CR Rel-16 36.304 16.5.0 0833 - F NR\_IAB-Core

[R2-2109369](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109369.zip) is RAN4 reply LS to RAN2 LS R2-2106726. It states that:

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| RAN4 discussed the power class and P-max for IAB-MT cell selection issue and have the following understanding.  1) There are no PEMAX1, PEMAX2 and PPowerClass definition for IAB-MT in TS 38.174.  2) The maximum output power Pcmax is defined in TS 38.174 and is declared by manufacturer.  3) PEMAX is not applicable to IAB-MT.  Based on the above understanding, the RAN2 correction CRs R2-2106724 and R2-2106725 are not correct. How to further handle this issue in RAN2 is up to RAN2 decision. |

[R2-2109580](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109580.zip) and [R2-2109581](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109581.zip) are CRs to 38.304 and 36.304 respectively considering the RAN4 LS. In the CRs, Pcompensation in Cell Selection Criterion is set to 0 for IAB-MT.

**Q1: Do you agree to set Pcompensation to 0 in Cell Selection Criterion for IAB-MT?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| vivo | Yes | We agree that Pcompensation can be set to 0, but we wonder if it is possible to also clarify that ‘PEMAX is not applicable to IAB-MT’ in the definition column of PEMAX1, PEMAX2 to improve readability. |
| Qualcomm | Yes |  |
| Apple | Yes |  |
| Huawei, HiSilicon | Yes | Proponent. |
| Nokia | Yes with rewording to comply with RAN4 LS | RAN4 LS does not say that Pcompensation is set to 0 but it just says it is not applied. In order to comply better with RAN4 LS we propose to reword the change to “For IAB-MT, Pcompensation is not applied” |
| ZTE | Yes |  |
| LGE | Yes |  |
| MediaTek | Yes |  |
| Intel | Yes |  |
| Samsung | Yes |  |
| CATT | Yes |  |
| Ericsson | Yes with rewording to comply with RAN4 LS | Agree with Nokia |

**Summary 1**: TBD.

**Proposal 1**: TBD.

RRM Relaxation

1) CRs implementing RAN4 LS (per RAN2 agreement “R2 to follow the request from R4”)

[R2-2109774](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109774.zip) Correction on RRM relaxation of higher priority frequencies OPPO CR Rel-16 38.304 16.6.0 0212 - F NR\_UE\_pow\_sav-Core R2-2107088

[R2-2110406](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110406.zip) Addressing inconsistency for RRM measurement rules Ericsson, CATT CR Rel-16 38.304 16.6.0 0214 - F NR\_UE\_pow\_sav-Core R2-2108841

In the RAN4 LS R4-2108230, RAN4 indicated that 38.304 is inconsistent with RAN4's specification with regards to relaxed measurements. To cope with the inconsistency, R2-2109774 and R2-2110406 provide 2 CRs.

**Option 1** (R2-2109774, OPPO): in the sub-branch of “if *highPriorityMeasRelax* is configured with value *true*”, state that UE may choose to perform relaxed measurement according to clause 4.2.2.10.2 in TS38.133.

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| 5.2.4.9.0 Relaxed measurement rules When the UE is required to perform measurements of intra-frequency cells or NR inter-frequency cells or inter-RAT frequency cells according to the measurement rules in clause 5.2.4.2:  - if *lowMobilityEvaluation* is configured and *cellEdgeEvaluation* 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 5.2.4.9.1 is fulfilled for a period of TSearchDeltaP:  - the UE may choose to perform relaxed measurements for intra-frequency cells according to relaxation methods in clauses 4.2.2.9 in TS 38.133 [8];  - if the serving cell fulfils Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ:  - if *highPriorityMeasRelax* is configured with value *true*:  - the UE may choose to perform relaxed measurements for NR inter-frequency cells or inter-RAT frequency cells on frequencies of higher priority according to relaxation methods in clause 4.2.2.10.2 in TS 38.133 [8]; |

**Option 2** (R2-2110406, Ericsson, CATT): in two branches: 1) *lowMobilityEvaluation* is configured and c*ellEdgeEvaluation* is not configured; and 2) both *lowMobilityEvaluation* and *cellEdgeEvaluation* are configured, state that UE may choose to perform relaxed measurement according to clauses 4.2.2.10, and 4.2.2.11 in TS 38.133.

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| 5.2.4.9.0 Relaxed measurement rules When the UE is required to perform measurements of intra-frequency cells or NR inter-frequency cells or inter-RAT frequency cells according to the measurement rules in clause 5.2.4.2:  - if *lowMobilityEvaluation* is configured and *cellEdgeEvaluation* 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 5.2.4.9.1 is fulfilled for a period of TSearchDeltaP:  - the UE may choose to perform relaxed measurements for intra-frequency cells, NR inter-frequency cells or inter-RAT frequency cells according to relaxation methods in clauses 4.2.2.9, 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];  - if *cellEdgeEvaluation* is configured and *lowMobilityEvaluation* is not configured; and  - if the relaxed measurement criterion in clause 5.2.4.9.2 is fulfilled:  - the UE may choose to perform relaxed measurements for intra-frequency cells according to relaxation methods in clauses 4.2.2.9 in TS 38.133 [8];  - if the serving cell fulfils Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ:  - the UE may choose to perform relaxed measurements for NR inter-frequency cells or inter-RAT frequency cells according to relaxation methods in clauses 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];  - if both *lowMobilityEvaluation* and *cellEdgeEvaluation* are configured:  - 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 5.2.4.9.1 is fulfilled for a period of TSearchDeltaP; and  - if the relaxed measurement criterion in clause 5.2.4.9.2 is fulfilled:  - the UE may choose to perform relaxed measurements for NR inter-frequency cells or inter-RAT frequency cells according to relaxation methods in clauses 4.2.2.10, and 4.2.2.11 in TS 38.133 [8]; |

**Q2: Which option do you prefer?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option 1/ option 2** | **Comments** |
| vivo | None | This was discussed in RAN2#115. It is true that inconsistent specification between RAN2 and RAN4 exists.  After the discussion in RAN2#115e, an LS in R2-2108877 has been sent to RAN4. Based on our information from RAN4, this issue is being discussed in RAN4 in this meeting. Thus, we think we should wait for feedback from RAN4. After that, we could consider whether to change RAN2 specification. If something change is really needed, UE behaivours for both cases when one criterion (low mobility) is fulfilled and when both criterion (low mobility and not-at-cell-edge) are fulfilled should be modified accordingly.  If we just made change on the case fulfilling one criterion (low mobility), as we discussed in RAN2#115e, it would result in a less relaxed measurement requirement (1 hour measurement interval) compared with the case when only the *lowMobilityEvalutation* criterion is fulfilled (1 hour \* Nlayers measurement interval), which is not a reasonable relaxation method.  Thus, we think we should postpone this issue to wait for further feedback from RAN4. |
| Qualcomm | None | Agree with Vivo that it is better to wait for RAN4 response and not repeat the same discussion from the last meeting. |
| Apple | See comment | we think RAN2 need to align to RAN4 spec in both one criterion (low mobility) case and ”low mobility and not-at-cell-edge” case. But we are fine to wait for reply LS from RAN4 first before agreeing any CRs. |
| Huawei, HiSilicon | None | Agree with vivo, wait for RAN4 response. |
| OPPO | Option 1 | Proponent company. In RAN2#115e, RAN2 has agreed to follow the request from R4. Therefore, we should make the requested spec change. |
| Xiaomi | See comment | We admit that there is indeed a misalignment between RAN2 and RAN4 specifications. Also we are OK to modify our RAN2 specifications like OPPO did (but also should modify the case when both criteria are fulfilled). However, like vivo said RAN4 is discussing this issue right now, maybe we can wait RAN4 conclusion then fix it. Anyway in our understanding, we prefer to not capture relaxed methods in our RAN2 specifications (but keep *highPriorityMeasRelax* ). |
| Nokia | None | Wait RAN4 |
| Ericsson | Option 2 | Proponent company.  RAN2 should implement the RAN2 agreement:   * [030] Send an LS to RAN4 with the following points:   RAN2 will follow the request from RAN4 for the change to 38.304 on RRM relaxation  Ask RAN4 whether this change (from 1 hour to referring to clause 4.2.2.10.2 in 38.133) should also be made when low mobility and non-at-cell-edge criterion is fulfilled and that otherwise there might be inconsistency in the UE behavior.  There is unfortunately a lot of overlap between 38.304 and 38.133, and therefore we have a preference for option 2, because it removes more of the overlap (which can be a cause for confusion). |
| ZTE | Wait RAN4 |  |
| LGE | None | Agree with Vivo. Wait for RAN4 response. |
| MediaTek | Wait for RAN4 | The criteria and UE RRM measurement relaxation behaviour should be discussed in RAN4. Current RAN4 design results in different UE behaviours in the cases that one criterion and both criteria are fulfilled, as mentioned in our LS. We should wait for RAN4 conclusion. |
| Intel |  | We share the same view as VIVO, we should wait for RAN4 input. |
| Samsung | None | Agree with vivo. We expect RAN4 to give a clear solution in next meeting. |
| CATT | Option 2 | Proponent  We agreed to take RAN4 request into account. This CR addresses this request as well as the uncertainty raised in RAN2 LS on the relaxation for ”low mobility and not-at-cell-edge” case, by simply referring to RAN4 spec. In other words, whatever RAN4 concludes, this CR would work. |

**Summary 2**: TBD.

**Proposal 2**: TBD.

2) Applicability of highPriorityMeasRelax

[R2-2110405](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110405.zip) RRM relaxation Ericsson discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2110407](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110407.zip) DRAFT LS on highPriorityMeasRelax parameter Ericsson LS out Rel-16 NR\_UE\_pow\_sav-Core To:RAN4

R2-2110405 further discusses the use of *highPriorityMeasRelax* parameter as a follow-up of the RAN4 LS on mis-alignment between RAN2 and RAN4 specifications. Two proposals are provided.

**Proposal 1: 38.304 refers to 38.133 when *lowMobilityEvalutation* is fulfilled/configured only and when both *lowMobilityEvalutation* and *highPriorityMeasRelax* are configured/fulfilled.**

The Proposal 1 is reflected in the CR R2-2110406 and can be discussed in Q2.

The proposal 2 goes one step further consisting in reviving the initial RAN2 agreement that the *highPriorityMeasRelax* configuration parameter enables the NW to control whether the UE is allowed to relaxed RRM measurements for higher priority frequency **for all use cases** and inform RAN4 accordingly**.**

**Proposal 2: Ask RAN4 to use *highPriorityMeasRelax* configuration parameter also for the case when both *lowMobilityEvalutation* and *cellEdgeEvaluation* are configured/fulfilled.**

R2-2110407 is the corresponding LS to the Proposal 2.

**Q3: Do you agree to extend the applicability of *highPriorityMeasRelax* parameter also for the case when both *lowMobilityEvalutation* and *highPriorityMeasRelax* are configured and ask RAN4 to take it into account?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| vivo | None | In RAN#111-e meeting, we had a contribution with similar proposals, but I remembered that the above proponent companies didn’t agree with this issue, see below:  [R2-2006686](file:///C:\Users\panidx\Documents\RAN2_111-e\Docs\R2-2006686.zip) RRM relaxation for high priority frequency vivo, Samsung, ZTE, Intel, Panasonic discussion Rel-16 NR\_UE\_pow\_sav-Core  => Noted  We would like to check with the proponent what have been changed since RAN2#111e meeting. Otherwise, we are quite confusion on the motivation for this paper. |
| Qualcomm | None | Same as Q2; wait for RAN4. |
| Apple | None | No need to send another LS to RAN4. We just need wait for RAN4 reply LS and then align with RAN4 agreements. |
| Huawei, HiSilicon | No | We understand the restricted case was the intention of RAN4, another LS to RAN4 is not needed. |
| OPPO | No | We are not sure what the question is. Is it a typo? “**both *lowMobilityEvalutation* and *highPriorityMeasRelax* are configured**” should be **“both *lowMobilityEvalutation* and *cellEdgeEvaluation* are configured”?** |
| Xiaomi | See comment | Currently we configure ***highPriorityMeasRelax*** based on RAN4 LS, which means only used for the case when low mobility is fulfilled and the serving cell fulfils Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ. However we see no reason that ***highPriorityMeasRelax*** can not be applied for the case when both criteria are fulfilled actually. So we are open for this question.  (BTW, we share same view as OPPO, is this question a typo?) |
| Nokia | None | Wait RAN4 |
| Ericsson | Yes | Proponent company:  @vivo: there is one proponent company, Ericsson, and in our recollection we have always been proponent of having the *highPriorityMeasRelax* parameter to apply to all use cases in RAN2. We do not recollect the discussion around R2-2006686, and nothing specific was captured in the chairman notes about the discussion/feedback. Perhaps some of the discussions was related to the outgoing LS to RAN4 and alignment between 38.304 and 38.133, we are not sure. Anyways, if we caused any confusion, we apologize.  But this means that the proponent companies of R2-2006686 (vivo, Samsung, ZTE, Intel, Panasonic) would still be in favour of sending an LS?  @OPPO: thanks for spotting the error, there was a mistake. I corrected it above. It was correctly captured in the draft LS. |
| ZTE | No | No need to send another LS to RAN4. We need to wait for RAN4 reply LS. |
| LGE | No | No need to send another LS. Wait for RAN4 response. |
| MediaTek | No | We should not have parallel discussions in RAN2 and RAN4. we’d suggest the proponent companies trigger discussion in RAN4. |
| Intel | No | No need to ask RAN4 again. |
| Samsung | No | RAN2 and RAN4 already discussed applicability of highPriorityMeasRelax enough and concluded it as shown CRs, so no need to come back to the same issue. |
| CATT | No | We prefer to let RAN4 conclude on this, rather than duplicating the discussion across the two groups. |

**Summary 3**: TBD.

**Proposal 3**: TBD.

# 4 Conclusion

TBD.