**3GPP TSG-RAN WG4 Meeting # 98-e R4-2103694**

**Electronic Meeting, 25 Jan. – 05 Feb., 2021**

**Agenda item: 7**.6.1

**Source:** Moderator (CATT)

**Title:** Email discussion summary for [98e][212]NR\_UE\_pow\_sav\_RRM

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this email discussion and provide some guidelines for email discussion if necessary.*

This document is the summary of the email discussion for Rel-16 NR UE Power saving RRM requirements in agenda items 7.6.1, with the email thread "[98e][212] NR\_UE\_pow\_sav\_RRM".

It contains the following topics:

Topic #1: RRM core requirements maintenance

Topic #2: RRM performance requirements maintenance

The targets of email discussion for 1st round and 2nd round are listed as below:

* 1st round
  + Discuss the open issues
  + Review CRs in the first round
* 2nd round
  + Agree the CRs.

# Topic #1: RRM core requirements maintenance

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2101383**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101383.zip) | vivo | CR for removing K2 for R16 UE power saving |
| R4-2101384 | vivo | CR for removing K2 for R16 UE power saving  Cat-A CR of R4-2101383 |
| [**R4-2101624**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101624.zip) | Huawei, HiSilicon | Correction to relexed cell reselection requirements R16 |
| R4-2101625 | Huawei, HiSilicon | Correction to relexed cell reselection requirements R17  Cat-A CR of R4-2101624 |
| [**R4-2101834**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101834.zip) | Huawei, HiSilicon | Correction on inter-RAT E-UTRAN cells for UE configured with relaxed measurement criterion |
| R4-2101881 | Huawei, HiSilicon | Correction on inter-RAT E-UTRAN cells for UE configured with relaxed measurement criterion  Cat-A CR of R4-2101834 |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1

*Sub-topic description:*

*Open issues and candidate options before e-meeting:*

**Issue 1-1: When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers (E-UTRA inter-RAT frequency layers) of higher priority at least every K2\*Thigher\_priority\_search seconds where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60. Whether to change “K2\* Thigher\_priority\_search” to “1 hour” directly?**

* Proposals
  + Option 1: Yes. Accept the proposal in R4-2101383. Change it to “1 hour”
  + Option 2: No. still use current K2\* Thigher\_priority\_search , Thigher\_priority\_search = 60 \* Nlayers, The difference from option 1 is 1 hour \* Nlayers
* Recommended WF
  + TBA

### Sub-topic 1-2

*Sub-topic description*

*Open issues and candidate options before e-meeting:*

**Issue 1-2: Whether to remove the EMR related description for intra-frequency measurement?**

* Proposals
  + Option 1: Yes. Accept the proposal in R4-2101624. Remove EMR related description in 38.133 for intra-frequency measurement.
  + Option 2: No
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei | Sub topic 1-1:  Issue 1-1: Support option 1.  If using the current wording of “every K2\*Thigher\_priority\_search seconds”, then the time interval is 1hour\*Nlayer. However it is defined in TS 38.304:  - if the serving cell fulfils Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ:  - for any NR inter-frequency or inter-RAT frequency of higher priority, if less than 1 hour has passed since measurements of corresponding frequency cell(s) for cell reselection were last performed;”  To avoid the conflict between RAN4 and RAN2 and avoid too long measurement interval, option 1 is preferred.Sub topic 1-2:  Issue 1-2: support option1. Note: only EMR description for “intra-frequency” measurement is removed.  There are several reasons:   1. The intention of EMR is for establishing CA/DC, thus EMR carrier can’t be configured on intra-frequency layer. 2. It was already agreed in WF [R4-2009265] in RAN4#95e,   C:\Users\h00388629\AppData\Roaming\eSpace_Desktop\UserData\h00388629\imagefiles\E8B684D2-5C09-4E63-938B-F4D35E87573B.png  The agreement means that no relaxation for the EMR carriers if T331 is running. For the carrier which is not configured as EMR carrier, T331 has no impact on it.  ….  Others: |
| vivo | Sub topic 1-1:  Support option 1. The current expression is unnecessary complicated, may lead unnecessary ambiguity.  Sub topic 1-2:  Support option 1. Based on our understanding, we also don’t find the case where EMR is for intra-frequency and agree with Huawei’s observation. |
| Ericsson | This issue was discussed also at last meeting (R4-2017282, see issue 1-3) and few earlier meetings without any progress. In last meeting many companies agreed to not make the changes on the higher priority carrier requirements. In fact, the proposed change will lead to the measurement delay of higher priority carriers’ is specified as a single value and not scaled with number of layers which is not consistent with the how the higher priority carrier requirements are defined in legacy requirements. According to the legacy requirements, the delay is scaled with number of layers. Another consequence of the proposed change would be that the higher priority carriers are treated the same as equal and low priority carriers which is not intended. It is also recalled that only when both relaxation criteria are met, the UE is allowed to not measure on the neighbor cells for 1 hour, and that did not include the higher priority carriers. That was the reason K2 was introduced. In summary, we do not agree to the proposed change in option 1. |
| Xiaomi | Sub topic 1-1:  Support option 2. We agree with Ericsson’s view.  The relaxed measurement requirement for higher priority should be scaled with the total number of higher priority NR and E-UTRA carrier frequencies. We do not prefer to make any change.  Sub topic 1-2:  Support option 1. |
| CATT | Sub topic 1-1:  The difference is whether there is scaled Nlayers for the relaxation.  In RAN4#95 meeting, :  **Issue 2.5.1-5: When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and only criteria of low mobility is configured, if the low mobility criteria is fulfilled, what’s UE measurement behaviour?**   * Option 1: UE can stop equal/low priority measurements and the UE measures higher priority inter-frequency/inter-RAT layers at least every Thigher\_priority\_search. (vivo, CATT, ZTE, CMCC, Nokia, NEC, OPPO) * Option 2: UE enters the scenario 3 RRM measurement relaxation (1 hour) for higher priority inter-freq measurement; while UE is not required to do any lower and equal priority inter-freq measurement. (Apple, Qualcomm, Huawei, LGE, MTK, Intel)   Discussion  LGE/MTK: support Option 2.  HW: RAN2 has sent LS with high priority flag indication.  Intel: support Option 2  Agreement  When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and only criteria of low mobility is configured, if the low mobility criteria is fulfilled  UE is not required to do any lower and equal priority inter-frequency/inter-RAT measurement  When NW indicates that higher priority carrier measurements can be relaxed (highPriorityMeasRelax), UE measures higher priority inter-frequency/inter-RAT layers at least every 1 hour  When NW does not indicate that higher priority carrier measurements can be relaxed, UE measures higher priority inter-frequency/inter-RAT layers at least every Thigher\_priority\_search (60 sec)  In our understanding, there is no ambiguity for lower and equal priority measurement. For higher priority carrier measurement can be relaxed or cannot be relaxed, there is no clear description for whether it is related to number of layers. We are fine with the relaxation with multiply Nlayers. But if so, there is conflict with RAN2. Need to send LS to RAN2.  Sub topic 1-2: Support option 1. |
| Qualcomm | **Issue 1-1:** Agree with Option 1 and CATT’s comment, our understanding is that the spec should be aligned to the behaviour as explained in 38.304, which implies ‘1hour’ and not ‘1hour\*Nlayers’.  **Issue 1-2:** Support Option 1 |
| MTK | Sub topic 1-1:  Agree with CATT  Sub topic 1-2:  Support option 1. |

### CRs/TPs comments collection

*Major close-to-finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2101383**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101383.zip)  vivo | Huawei: OK |
| Ericsson: This issue was discussed also at last meeting (R4-2017282, see issue 1-3) and few earlier meetings without any progress. In last meeting many companies agreed to not make the changes on the higher priority carrier requirements. In fact, the proposed change will lead to the measurement delay of higher priority carriers’ is specified as a single value and not scaled with number of layers which is not consistent with the how the higher priority carrier requirements are defined in legacy requirements. According to the legacy requirements, the delay is scaled with number of layers. Another consequence of the proposed change would be that the higher priority carriers are treated the same as equal and low priority carriers which is not intended. It is also recalled that only when both relaxation criteria are met, the UE is allowed to not measure on the neighbor cells for 1 hour, and that did not include the higher priority carriers. That was the reason K2 was introduced. In summary, we do not agree to the proposed change in option 1. |
| CATT: depends on the outcome of Issue 1-1 |
| QC: Pending Issue 1-1 |
| [**R4-2101624**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101624.zip)  Huawei, HiSilicon | vivo: ok |
| Ericsson: condition related to T311 timer is not running for EMR measurements on intra-frequency NR carrier is removed section in intra-frequency sections 4.2.2.9.3, 4.2.2.9.4, but not in 4.2.2.9.2. Is this a mistake? |
| CATT: depends on the outcome of Issue 1-2. For 4.2.2.9.2, missing non-EMR carrier removal. |
| QC: Pending Issue 1-2 |
| [**R4-2101834**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101834.zip)  Huawei, HiSilicon | Ericsson: R4-2101834 should be merged with R4-2101624 since both are cat-F CRs for rel-16 core part. |
| CATT: ok with the correction from technique view. |
| Qualcomm: ok with the correction |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary** |
| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |
| **Issue 1-1: When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers (E-UTRA inter-RAT frequency layers) of higher priority at least every K2\*Thigher\_priority\_search seconds where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60. Whether to change “K2\* Thigher\_priority\_search” to “1 hour” directly?** | The following options were discussed.   * Option 1: Yes. Accept the proposal in R4-2101383. Change it to “1 hour” * Option 2: No. still use current K2\* Thigher\_priority\_search , Thigher\_priority\_search = 60 \* Nlayers, The difference from option 1 is 1 hour \* Nlayers   7 companies showed their views on the issue:   * 3 companies support option 1 (Huawei, vivo, QC) * 2 companies support option 2 (Ericsson, Xiaomi) * 2 companies can slightly accept option 2 but need to send LS to RAN2 (CATT, MTK)   *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:*  Continue to discuss in 2nd round. |
| **Issue 1-2: Whether to remove the EMR related description for intra-frequency measurement?** | The following options were discussed.   * Option 1: Yes. Accept the proposal in R4-2101624. Remove EMR related description in 38.133 for intra-frequency measurement. * Option 2: No   6 companies showed their views on the issue:   * 6 companies support option 1.   *Tentative agreements:*   * Option 1. Yes. Accept the proposal in R4-2101624. Remove EMR related description in 38.133 for intra-frequency measurement.   *Candidate options:*  *Recommendations for 2nd round:* |

*Recommendations on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 | LS on RRM relaxation in power saving | CATT |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| [**R4-2101383**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101383.zip)  (vivo) | Depends on the conclusion of Issue 1-1 |
| R4-2101384  (vivo) | Cat-A |
| [**R4-2101624**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101624.zip)  (Huawei, HiSilicon) | To be noted. The changes will be covered by R4-2101834 |
| R4-2101625  (Huawei, HiSilicon) | Cat-A |
| [**R4-2101834**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101834.zip)  (Huawei, HiSilicon) | To be revised to also cover changes of R4-2101624 and comments of R4-2101624. |
| R4-2101881  (Huawei, HiSilicon) | Cat-A |

## Discussion on 2nd round (if applicable)

Since no further comment was received after 1st round summary, it is supposed the tentative agreement of Issue 1-2 is agreed.

* Yes. Accept the proposal in R4-2101624. Remove EMR related description in 38.133 for intra-frequency measurement.

It is proposed to have further discussion on the following open issue:

**Issue 1-1: When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers (E-UTRA inter-RAT frequency layers) of higher priority at least every K2\*Thigher\_priority\_search seconds where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60. Whether to change “K2\* Thigher\_priority\_search” to “1 hour” directly?**

* Proposals
  + Option 1: Yes. Accept the proposal in R4-2101383. Change it to “1 hour”
  + Option 2: No. still use current K2\* Thigher\_priority\_search , Thigher\_priority\_search = 60 \* Nlayers, The difference from option 1 is 1 hour \* Nlayers

[Moderator Note]:

It is not just editorial modification. Please pay attention to the difference between the two options is whether the relaxation is “1 hour” or “60 \* (60 \* Nlayers) seconds”. If company supports option 2, please also comment whether you think there is misalignment between 38.304 and 38.133 or not.

In 38.133, it is in the condition of **inter-frequency NR/inter-RAT** cells for UE configured with only **low mobility** relaxed measurement criterion.

When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers of higher priority at least every K2\*Thigher\_priority\_search seconds where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60.

In 38.304:

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:

- for any NR inter-frequency or inter-RAT frequency of higher priority, if less than 1 hour has passed since measurements of corresponding frequency cell(s) for cell (re-)selection were last performed; and,

- if *highPriorityMeasRelax* is configured with value *true*:

- the UE may choose not to perform measurement on this frequency cell(s);

- else (i.e. the serving cell fulfils Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ):

- the UE may choose to perform relaxed measurements for NR inter-frequency 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];

### Companies views’ collection for 2nd round

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | Issue1-1: support option 2.  As commented in 1st round, we can support option 2. But we think there is misalignment with 38.133 and 38.304. need to send an LS to RAN2 |
| Company B |  |
|  |  |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| [**R4-2101383**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101383.zip)  (vivo) | Depends on the conclusion of Issue 1-1 |
| R4-2101384  (vivo) | Cat-A |
| R4-2103572  Huawei, HiSilicon  (Revised from R4-2101834) |  |
| R4-2101881  Huawei, HiSilicon | Cat-A |

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #2: RRM Performance requirements maintenance

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2100473**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100473.zip) | CATT | Discussion on remaining issues for UE power saving test case  **Proposal 1: The UE gain should be considered for FR2 inter-frequency NR case.**  **Proposal 2: Considered UE gain G, take FR2 inter-frequency NR case as an example, and calculate the corresponding parameters accordingly.** |
| [**R4-2100482**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100482.zip) | CATT | Correction to cell reselection test case for UE Power saving |
| R4-2100483 | CATT | Correction to cell reselection test case for UE Power saving  Cat-A CR of R4-2100482 |
| [**R4-2100727**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100727.zip) | Xiaomi | CR on RRM test cases for NR UE power saving |
| [**R4-2101385**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101385.zip) | vivo | CR for modifications on FR1 intra-frequency UE power saving test cases |
| R4-2101386 | vivo | CR for modifications on FR1 intra-frequency UE power saving test cases  Cat-A CR of R4-2101385 |
| [**R4-2101835**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101835.zip) | Huawei, HiSilicon | Test case for cell reselection to FR2 intra-frequency NR case for UE configured with relaxed measurement |
| R4-2101836 | Huawei, HiSilicon | Test case for cell reselection to FR2 intra-frequency NR case for UE configured with relaxed measurement  Cat-A CR of R4-2101835 |
| R4-2102245 | Ericsson | Changes to cell reselection tests under power saving  Cat-A CR of R4-2102245 |
| [**R4-2102246**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2102246.zip) | Ericsson | Changes to cell reselection tests under power saving |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 2-1

*Sub-topic description:*

*Open issues and candidate options before e-meeting:*

**Issue 2-1: Whether to consider UE gain G for two test cases of inter-frequency measurement?**

* Proposals
  + Option 1: Yes. Calculate the corresponding parameters of power and thresholds accordingly
  + Option 2: No
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | Support option 1. It affects the R4-2102246. To Ericssion: Any comment? |
| Ericsson | In our view, there is no issue with the test case. Therefore we would like to better understand the issue that is brought up by CATT. Could CATT explain what the problem is with current test case and why things need to be done differently using UE gain factor G compared to corresponding test case in legacy without relaxation. |
| MTK | Support option 1. The UE gain G shall be considered. And we have one question to the CATT’s Tdoc (R4-2100473). In our understanding, the total margin between the threshold and the Cell quality (SS\_RSRP) shall be UE gain G + 7.5 dB (the original margin for cell reselection in FR2 shown as follows).   |  | | --- | | Clause 4.2.2.4  The UE shall be able to evaluate whether a newly detectable inter-frequency cell meets the reselection criteria defined in TS38.304 [1] within Kcarrier \* Tdetect,NR\_Inter if at least carrier frequency information is provided for inter-frequency neighbour cells by the serving cells when Treselection = 0 provided that the reselection criteria is met by a margin of at least 5 dB in FR1 or 6.5dB in FR2 for reselections based on ranking or 6dB in FR1 or 7.5dB in FR2 for SS-RSRP reselections based on absolute priorities or 4dB in FR1 and 4dB in FR2 for SS-RSRQ reselections based on absolute priorities. |   But in the CATT’s Tdoc (R4-2100473), only UE gain G is consider as follows   |  | | --- | | Srxlev (Cell2) + 20 < Threshserving, lowP and Srxlev (Cell1) - 10 > ThreshX, LowP |   What is the reason that we only need to consider the UE gain G? |

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2100482**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100482.zip)  CATT | Huawei: For A.7.1.1.3; A.7.1.1.4, R4-2101835 provided more complete corrections.   1. the initial cell is cell1 and reselect to cell2 during T1 and finally reselect back to cell1; 2. corresponding Es/Iot, Io, RSRP are corrected 3. SsearchDeltaP and SSearchThresholdP are added; 4. T1, T2 length are extended |
| vivo: we are ok with these updates however it may need combine modifications from other CRs. |
| Qualcomm: Changes 6 and 7 modify RSRP but not Es/Noc or Es/Iot, should this be checked by CATT before approval? |
| MediaTek: We just curious that how do you calculate the Noc level? In our understanding, the Noc level for rough beam and beam peak is –104.7 dBm/kHz. |
| [**R4-2100727**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100727.zip)  Xiaomi | Ericsson: Since there is already a reference to the core requirements which are tested, it is not necessary to explicitly mention them. This approach was not used in all other test cases, it is good to have all test cases following same approach. Also there is one more change where SsearchDeltaP is deleted. Why? |
| Xiaomi: As this CR is about the test case for UE fulfilling not-at-cell edge criterion, where the SsearchDeltaP is not sent during the whole process. We delete it for reason of avoiding redundancy. It is fine to us that the parameter “SsearchDeltaP” remains the same. |
| CATT: no need to add the description. Delete SsearchDeltaP is fine. |
| Qualcomm: To Ericsson: the approach was used at least in some of the Cell Reselection test, ie A.6.1.1.5 and A.6.1.1.6.  The core requirements as listed in 4.2.2.10 can fulfilled in different conditions (ie, both low mobility and not-at-cell-edge being configure, but only one of those being satisfied) so in our opinion explicating how these parameters should be configured to ensure that the UE applies only the relaxation typology to be tested is not redundant but rather explanatory, and all the tests should be aligned to this understanding. |
| [**R4-2101385**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101385.zip)  Vivo | Ericsson: what is the motivation for increasing the test periods? Of course the measurements are relaxed, but why increased by 3? |
| CATT: For change 1, ok. For change 2, why update? |
| Qualcomm: Ok on both changes if 20s is to take some margin in the test phase duration compared to the requirement duration as done for other test cases; |
| [**R4-2101835**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101835.zip)  Huawei, HiSilicon | CATT: in existing 16.6.0 version, the condition of the cell reselection cannot be met. The power settings are changed for both two cells in T1 and T2 to avoid it. In R4-2100482, also modify the two test cases. |
| MediaTek: We just curious that how do you calculate the Noc level? In our understanding, the Noc level for rough beam and beam peak is –104.7 dBm/kHz. |
|  |
| [**R4-2102246**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2102246.zip)  Ericsson | Huawei: Generally ok. Minor comment: some brackets are still remained, eg. T2 85. |
| Ericsson: Remaining brackets can be moved in revision. |
| CATT: It is related to Issue 2-1. If option 1 is accepted, all the thresholds in the CR need to be update accordingly. |
| MediaTek: suggest to wait the conclusion in Issue 2-1 |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary** |
| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |
| **Issue 2-1: Whether to consider UE gain G for two test cases of inter-frequency measurement?** | The following options were discussed.   * Option 1: Yes. Calculate the corresponding parameters of power and thresholds accordingly * Option 2: No   3 companies showed their views on the issue:   * 2 companies support option 1 (CATT, MTK) * 1 companies support option 2 and requires further discussion (Ericsson)   *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:*  Continue to discuss in 2nd round. |

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 | WF on remaining issue for power saving | CATT |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| [**R4-2100482**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100482.zip)  CATT | To be revised to cover changes of all other test cases other than FR2 test cases. |
| R4-2100483  CATT | Cat-A |
| [**R4-2100727**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2100727.zip)  Xiaomi | To be noted. Change of explicitly mention of high layer configuration is not so necessary. Deletion of SSearchDeltaP can be merged into R4-2100482. |
| [**R4-2101385**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101385.zip)  vivo | To be endorsed. Will cover the change in revised of R4-2100482 |
| R4-2101386  vivo | Cat-A |
| [**R4-2101835**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2101835.zip)  Huawei, HiSilicon | To be revised. Cover all the changes for two test cases for FR2 intra-frequency including same part inside R4-2100482 |
| R4-2101836  Huawei, HiSilicon | Cat-A |
| [**R4-2102246**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98_e/Docs/R4-2102246.zip)  Ericsson | To be revised. .Depends on the outcome of Issue 2-1. Just cover all the changes for two test cases for FR2 inter-frequency |
| R4-2102245  Ericsson | Cat-A |

## Discussion on 2nd round (if applicable)

It is proposed to have further discussion on the following open issue:

**Issue 2-1: Whether to consider UE gain G for two test cases of inter-frequency measurement?**

* Proposals
  + Option 1: Yes. Calculate the corresponding parameters of power and thresholds accordingly
  + Option 2: No

[Moderator Note]: It will affect two test cases of FR2 inter-frequency in R4-2103576.

### Companies views’ collection for 2nd round

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | Issue 2-1: We support option 1. This issue is raised up by MTK in RAN4#97-e meeting (R4-2014370). In the conclusion of RAN4#97-e meeting, most companies agree to do further study for FR2 to consider UE gain G. In this meeting, we list our view of this issue in R4-2100473.  To the question from MTK in 1st round: In our understanding, the 7.5dB margin is for the two cells SS-RSRP but not for the reselection thresholds. |
| Company B |  |
|  |  |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| R4-2103574  CATT  (Revised from R4-2100482) |  |
| R4-2100483  CATT | Cat-A |
| R4-2103575  Huawei, HiSilicon (Revised from R4-2101835) |  |
| R4-2101836  Huawei, HiSilicon | Cat-A |
| R4-2103576  Ericsson  (Revised from R4-2102246) |  |
| R4-2102245  Ericsson | Cat-A |

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |