3GPP TSG-RAN WG2#115-e R2-21xxxxx

Electronic meeting, 16th August – 27th August 2021

Agenda Item: 6.1.4.1.2

Source: Ericsson

Title: Report of [AT115-e][025][NR16] RRM & Measurements (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

This contribution provides the summary of the following offline discussion.

* [AT115-e][025][NR16] RRM & Measurements (Ericsson)

 Scope: Determine agreeable parts and agree CRs, Treat R2-2108104, R2-2108105, R2-2108288, R2-2108289, R2-2108652, R2-2107~~5~~462, R2-2107504

 Intended outcome: Report, Agreed CRs.

 Deadline: Schedule 1

Discussions with Deadline **Schedule 1**:

A **first round** with **Deadline for comments Thursday Aug 19 1200 UTC** to settle scope what is agreeable etc

A Final round with **Final deadline Thursday Aug 26 1200 UTC.** to settle details / agree CRs etc. Additional check points etc if needed are defined by the Rapporteur. In case some parts of an email discussion need more time, doesn’t converge, need on-line treatment etc Rapporteur please contact chair.

# 2 Contact Information

To make it easier to find the correct contact delegate in each company for potential follow-up questions, the rapporteur encourages the delegates who provide input to provide their contact information in this table:

|  |  |
| --- | --- |
| Company | Contact: Name (E-mail) |
| Ericsson | Pradeepa Ramachandra (pradeepa.ramachandra@ericsson.com) |
| ZTE | LiuJing (liu.jing30@zte.com.cn) |
| Lenovo | Hyung-Nam Choi (hchoi5@lenovo.com) |
| Samsung | Sangyeob Jung (sy0123.jung@samsung.com) |
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| Huawei, HiSilicon | Lili Zheng (zhenglili4@huawei.com) |
| MediaTek | Felix Tsai (chun-fan.tsai@mediatek.com) |
| Xiaomi | Yi Xiong (xiongyi3@xiaomi.com) |
| Nokia | Jarkko Koskela (Jarkko.t.koskela@nokia.com) |
| Apple | Yuqin Chen (yuqin\_chen@apple.com) |
| CATT | Jing Liang (liangjing@catt.cn) |
| NEC | Hisashi Futaki (hisashi.futaki@nec.com) |
| Intel | Youn Heo(Youn.hyoung.heo@intel.com) |
| LG | SungHoon Jung(sunghoon.jung@lge.com) |

# 3 Discussion

## 3.1 Conditional handover related

1. [R2-2108104](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108104.zip) Modification of measId for conditional reconfiguration Ericsson CR Rel-16 38.331 16.5.0 2752 - F NR\_Mob\_enh-Core

1. [R2-2108105](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108105.zip) Modification of measId for conditional reconfiguration Ericsson CR Rel-16 36.331 16.5.0 4706 - F LTE\_feMob-Core

In legacy handover, when a measId is reconfigured, the UE removes the measurement reporting entries for this measId from the VarMeasReportList, if included. For conditional handover there is nothing stored in the variable, but the changed measId may be one out of two of a CHO execution condition, so a reconfigured measId should lead to a reset of the fulfillment state i.e. to non-fulfilled.

Therefore, in the procedure for measId modification, the CRs propose the fulfilment of a condition for a certain measId is reset when the measId is reconfigured.

**Question-1: Do you agree with the CR in [1] and [2]?**

|  |  |  |
| --- | --- | --- |
| **Company name** | **Agree?****(Yes/No)** | **Comments**  |
| ZTE | Yes | The change makes sense to us.  |
| Samsung | Yes |  |
| QCOM | Yes |  |
| Huawei, HiSilicon | Yes | The changes are reasonable. In the cover page, the following text seems incorrect, i.e. there should be no inter-operability issue if the UE implements the CR.2. If the UE is implemented according to the CR and the network is not the UE will consider conditions for conditional reconfiguration to be fulfilled at a different occasion than intended by the network. |
| MediaTek | Yes |  |
| Xiaomi | Yes, but we think the changes of 5.3.5.13.4 may be enough. No need for the changes of 5.5.2.3. | We agree with the motivation of the CR and the changes are reasonable.But it maybe redundant to change two clauses: 5.5.2.3 and 5.3.5.13.4. We think we only need to change 5.3.5.13.4, which is enough for the issue. According to the changes of 5.3.5.13.4, UE can reset the state of the event to non-fulfilled when UE detectes the corresponding *measId* associated with the *condReconfigId* has been modified. We don’t need to add the extra description in the procedure of Measurement identity addition/modification (5.5.2.3), and we not need to trigger UE to perform Conditional reconfiguration evaluation(5.3.5.13.4) again because it has been triggered by *ConditionalReconfiguration* IE. |
| Nokia | No | Isn't it that when the measurement identifiers are removed, the conditions which are related to them become invalid? Do we need to write everything explicitly in the specs? So it seems hardly needed to have this CR. |
| OPPO | No | We understand the issue is not about measId modification, but instead should be about reportingConfig modification for the associated measId. So we think the current change may not be correct.  |
| Apple | Yes | Change is reasonable. |
| CATT | Yes |  |
| NEC | Yes | agree with the intention. Regarding the first change, it’s a bit confusing.. As this part is in the loop of “for each measId”, it is clear which measId is referring to. So, can’we simply say “3> if the configuration of that measId has been modified; or” ?? Although it’s not strong opinon, we would like to understand what the proposed text wants to say.2> for each *measId* included in the *measIdList* within *VarMeasConfig* indicated in the *condExecutionCond* associated to *condReconfigId:*3> if the entry condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*:4> consider the event associated to that *measId* to be fulfilled;3>  if the *measId* for this event associated with the *condReconfigId* has been modified; or |
| Ericsson | Yes(proponent) | Agree with the cover page update proposed by Huawei |
| Intel | No | Same view as OPPO. For execution condition of particular cell, the only thing the network could modify is ReportConfigNR. And then it is unrelated to measId add/mod.  |
| LG | No | We agree with the intention of the CR. However, we think the CR is not essential because the added UE behaviour is what we can obvisously expect in the concerned case, i.e., no other UE behaviour can be assumed, meaning that the CR does not really clarify anything unpredicble.  |

**Rapporteur Summary:**

There is significant number of companies supporting (10/14) the CRs. Based on this the CRs can be progressed in the phase-2.

There are some issues captured by companies in the comments. So, it is proposed to handle the comments during phase-2.

1. R2-2108104 and R2-2108105 are pursued in phase-2.

## 3.2 NeedForGap

1. [R2-2108288](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108288.zip) Measurement and gap configuration for Need for Gaps Ericsson discussion Rel-16 TEI16

In [3], Ericsson proposes the following:

Proposal 1 RAN2 to confirm that configuration of measurement objects without setup of corresponding measurement gap configuration (if needed by UE) will be accepted by UE (i.e. not consider inability to comply with the RRCReconfiguration and trigger re-establishment), but measurements may not be performed.

**Question-2: Do you agree with the following?**

**RAN2 to confirm that configuration of measurement objects without setup of corresponding measurement gap configuration (if needed by UE) will be accepted by UE (i.e. not consider inability to comply with the RRCReconfiguration and trigger re-establishment), but measurements may not be performed.**

|  |  |  |
| --- | --- | --- |
| **Company name** | **Agree?****(Yes/No)** | **Comments**  |
| ZTE | Yes | Our understanding is aligned with P1.For measurements that need gap assistance, UE only need to perform the measurements when gap is configured. But no RRC reestablishment will happen when gap is not provided.  |
| Samsung | Yes | We have same understanding with P1. |
| QCOM | Yes |  |
| Huawei, HiSilicon | Yes | That should be the correct understanding. |
| MediaTek | Yes | We understand this is eneral principle on measurement gap configuraitn. |
| Xiaomi | Yes |  |
| Nokia | Yes |  |
| OPPO | Yes |  |
| Apple | Yes | We share the understanding. |
| CATT | Yes |  |
| NEC | Yes | same understanding |
| Ericsson | Yes(proponent) |  |
| Intel | Yes |  |
| LG | Yes |  |

**Rapporteur Summary:**

All the companies (14/14) agree with confirming the RAN2 understanding. Based on this it is proposed to capture the following in the chair notes.

1. RAN2 confirms that configuration of measurement objects without setup of corresponding measurement gap configuration (if needed by UE) will be accepted by UE (i.e. not consider inability to comply with the RRCReconfiguration and trigger re-establishment), but measurements may not be performed.

1. [R2-2108289](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108289.zip) Clarification on measurement and measurement gap configuration Ericsson CR Rel-16 38.331 16.5.0 2761 - F TEI16

**Question-3: If the proposal in Question-2 is agreebale, do you agree with the CR in [4]?**

|  |  |  |
| --- | --- | --- |
| **Company name** | **Agree?****(Yes/No)** | **Comments**  |
| ZTE | No | We understand Proposal 1 is valid also for LTE system. But in LTE, we don’t explicitly mention it in SPEC. So we are fine to not have clarification in spec, otherwise, we may need to update both LTE and NR specs (if P1 is confirmed).  |
| Samsung | No | In general, we don’t specify this kind of UE action i.e. do not measure MO. |
| QCOM | No | No need for this type of details to be included in the spec.  |
| Huawei, HiSilicon | No | The CR is not aimed at the NeedForGap feature, rather, the related text has been existing since Rel-15.We think according to the current spec, UE will not regard itself “inable to comply with the RRCReconfiguration”, because it is capured in 38.133 that UE only needs to perform measurements on SSBs within the measurement gaps if gaps are needed (and within SMTC, which is speficied by RAN2):*When measurement gaps are needed, the UE is not expected to detect SSB which start earlier than the gap starting time + switching time, nor detect SSB which end later than the gap end – switching time. Switching time is 0.5ms for frequency range FR1 and 0.25ms for frequency range FR2.*Therefore the change does not look necessary to us. If other companies consider it as essential, the changes should be applied to Rel-15 UEs as well. |
| MediaTek | Maybe not | The same principle also apply to LTE and it seems working fine without this kind of clarification. So, we prefer to just confirm P1 in R2-2108288.  |
| Xiaomi | No | Share the same view with HW. There is no need for the changes in spec. |
| Nokia | No | Same view as MTK |
| OPPO | No | No need fo the change. |
| Apple | No | Probably no need to capture it in spec. |
| CATT | No | No need to specify the behavior in 38.331. |
| NEC |  | no strong view, but think it’s good to clarify the consensus in the Chairman notes to avoid same discussion in future. |
| Ericsson | Yes (proponent)  | We (as we explained in the discussion paper) would prefer this case is captured in the spec, since not crystal clear. We can of course argue this was not specifed in LTE, still this should be used as motivation for not making NR spec complete.. With „dynamic“ needForGap feature, this clarification/CR gets more essential, and if need for gap is based in (static) UE capabilities. There is similar feature in LTE (per cc meas gaps), but to our knowledge not used in practice. |
| Intel | No | We can live as it is. Given that it is general assumption, don’t see it is essential correction.  |
| LG | No |  |

**Rapporteur Summary:**

Majority of the companies (12/14) think that capturing the changes of R2-2108289 in the specification is not necessary. Therefore, this CR is not discussed in phase-2.

1. R2-2108289 is not pursued.

1. [R2-2108652](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108652.zip) NeedForGap Clarification Qualcomm Incorporated CR Rel-16 38.331 16.5.0 2794 - F TEI16

In [5], Qualcomm mentions that clarifying the description of *gapIndicationIntra* field as the current text is not clear enough of the expected network behavior. For instance if UE indicates that *gapIndicationIntra* = “Gap”, network may still not configure gap, if SSB (associated with Initial DL BWP) is contained in all configured BWPs.

Therefore, [5] proposes to larifying the field description of the “gapIndicationIntra” by adding the text that describes the expected network behavior when UE indicates “gap” and all configured BWPs contain the SSB associated with Initial DL BWP.

**Question-4: Do you agree with the CR in [5]?**

|  |  |  |
| --- | --- | --- |
| **Company name** | **Agree?****(Yes/No)** | **Comments**  |
| ZTE | No | We think the motivation of CR is correct. However, we think it is already clear based on the “if any of” (shown below). The newly added sentence seems a bit redundant. So we prefer no change unless companies have different understandings of current field description. ***GapIndicationIntra***Indicates whether measurement gap is required for the UE to perform intra-frequency SSB based measurements on the concerned serving cell. Value *gap* indicates that a measurement gap is needed if any of the UE configured BWPs do not contain the frequency domain resources of the SSB associated to the initial DL BWP |
| Samsung | No | Same understanding with ZTE. |
| QCOM | Yes (Proponent) | It’s a clarification CR, given the value of this IE is named “gap” / “no-gap”, it can be understood that when UE sets it to “gap”, gap is **always** configured.An alternative suggestion is to rename the value of this IE to “legacy” / “no-gap” to indicate that either the legacy behavior is followed or no-gap is required for intra-freq measurement.  |
| Huawei, HiSilicon | No | We think the current spec is clear enough without the changes. |
| MediaTek | No | We understand the intention and also agree that the NW may not configure gap even if *gapIndicationIntra* = “Gap”. However, the proposed wording actually make the sentence much more complicate and very difficult to read. The original text is already clearly indicate when the gap is needed. So, we tend to think no change is needed. |
| Xiaomi | No | It is clear in current spec, so the changes are not needed for the spec. |
| Nokia | No | Same view as MTK |
| OPPO | No | We think the spec is clear and no need for the change. |
| Apple | No | Motivation is correct but we have the same understanding as ZTE that the spec is already clear.  |
| CATT | No | The original text, which just captures the case when a measurement gap is needed, is clear. |
| NEC | No | clarification by ZTE looks valid |
| Ericsson | Yes | We have some sympaty with the CR and the first comment by QCOM. We think the description would be clearer if a bit shorter addition, i.e.:„Value *gap* indicates that a measurement gap is needed if any of the UE configured BWPs do not contain the frequency domain resources of the SSB associated to the initial DL BWP, otherwise gap is not needed“. |
| Intel | No | We are not sure what the CR intend to ensure. Is it NW behavior (i.e. not to configure gap) or UE behavior (i.e. to indicate *no*-*gap)*.In any case, it is already assumed that even if the UE report the need for gap, it is up to NW to configure the gap. And it is already assumed that gap is not required for the case where all the configured BWPs do contain the frequency domain resources of the SSB associated to the initial DL BWP.  |
| LGE | No | We also think the value name ‘gap’ is not appropriate, but the field description already clearly indicates when to use ‘gap’. |

**Rapporteur Summary:**

Majority of the companies (12/14) think that capturing the changes of R2-2108652 in the specification is not necessary. Therefore, this CR is not discussed in phase-2.

1. R2-2108652 is not pursued.

## 3.3 SNPN+DCCA

1. [R2-2107462](file:///D%3A%5C%5CDocuments%5C%5C3GPP%5C%5Ctsg_ran%5C%5CWG2%5C%5CTSGR2_115-e%5C%5CDocs%5C%5CR2-2107462.zip%22%20%5Co%20%22D%3ADocuments3GPPtsg_ranWG2TSGR2_115-eDocsR2-2107462.zip) Impact of SNPN Access Mode to Idle/inactive measurement FGI, Asia Pacific Telecom discussion
	* 1. Moved from 6.1.4.1

In [6], FGI, Asia Pacific Telecom propose the following.

**Proposal 1:** To avoid UE power consumption caused by the unnecessary E-UTRA idle/inactive measurement, the UE should not perform idle/inactive measurement based on the stored measIdleCarrierListEUTRA when the UE is operating in SNPN access mode.
**Proposal 2:** To avoid signalling overhead caused by unnecessary E-UTRA idle/inactive measurement, the UE should not report measResultIdleEUTRA to the serving cell when the UE is operating in SNPN access mode.
**Proposal 3:** Running T331 should be stopped when PLMN selection or SNPN selection is performed on request by NAS.
**Proposal 4:** The UE operating in SNPN access should not perform E-UTRA idle/inactive measurement after T331 has expired or stopped.

**Question-5: Do you agree with the proposal 1-4 in [6]?**

|  |  |  |
| --- | --- | --- |
| **Company name** | **Agree?****(Yes/No)****(None, P1, P2, P3, P4, All)** | **Comments**  |
| Lenovo | No, none of the proposals | Per definition a UE in SNPN Access Mode will access only SNPNs. Furthermore, SNPN is supported in NR only. Therefore, it looks odd that such a UE may indicate the support of E-UTRA idle/inactive measurements in connected state. Likewise it looks odd that the serving SNPN would configure the UE in SNPN Access Mode with idle/inactive LTE measurements. We consider this as a NW misconfiguration. |
| Samsung | None | In 5.7.8.2a, it is clearly secified that if UE supports NE-DC ~~, and NE-DC is not supported for SNPN. Hence, we belive that its related changes are not needed/essential. In our understanding, RAN2 already agreed to not stop T331 when PLMN/SNPN selection is performed because UE anyway will perform RA procedure. |
| QCOM | None  | T331 is already stopped upon transition to NR  |
| Huawei, HiSilicon | P1 & P2 | We have some concerns on the proposals related to T331.The motivation of the document is to avoid unnecessary measurements when the UE is in SNPN AM, so why “PLMN selection” is added to the stop condition of T331? It has impact on legacy PLMN UEs. |
| MediaTek | See comments | We agree that E-UTRAN early measurement is not needed in SNPN but as mentioned by Lenovo. NW should not configure this UE to do E-UTRAN early measurement.We also agree that continue T331 after PLMN selection is not necessary. However, T331 is already stopped while entering CONNECTED mode. So, we think it is not necessary to change the SPEC.  |
| Nokia | None | Same view as MTK |
| OPPO | None | For idle UEs, DC is not applicable to idle UEs, so even if NE-DC is not supported by UEs in SNPN mode, we see no reason to let idle UEs stop E-UTRAN measurements. For inactive UEs with NE-DC configured, UE must operate in non-SNPN mode, in this case, we also see no reason to let inactive UEs stop E-UTRAN measurements. More addition, SNPN mode is visible to network side when UE enters connected mode(SNPN ID), network implementation can guarantee no EN-DC is configured when UE is in SNPN mode. UE can locally trigger transition from SNPN mode to non-SNPN mode once UE wants to report E-UTRAN related measurements if NE-DC is also desirable for this UE, which can anyway avoid the contradiction.In short, nothing is broken based on current spec. |
| Apple | None | Also share the similar view as Lenovo and MTK. |
| CATT | See comments | We think proposal 1 and proposal 2 can be achieved with carefully network implementation. For example: If RAN sharing among one and more PLMN, SNPN, or PNI-NPN, the network needs to avoid configuring T331 only in *RRCRelease* message. |
| ZTE | None | We share the similar view as Lenovo and MTK |
| Ericsson | None | As highlighted above, since only NR-NR DC is supported by SNPNs the solutions proposed in the document are not needed as such. Indeed, as indicated by Lenovo, a NW configuration of this nature would represent a “misconfiguration”. |
| Intel | None | Same view as Lenovo and MediaTek |
| LG | None | On P1 and P2, we understand the intention of the CR. If network know the access mode of the UE (i.e., whether the UE is in SNPN AM mode or not), network can avoid the concerned case via a proper dedicated configuration. Even without proper network implementation, we think UE can avoid such unnecessary early measurements by UE implementation; if R16 UE itself is in SNPN AM, it know that it cannot be configured with NE-DC, and hence the UE can exclude target LTE frequencies included in SIB11 from early measurement candidates. On P3, we the current text of stopping T331upon entering RRC\_CONNECTED is sufficient. On P4, we think the proposal is over-specification. For the reasoning above, we think the CR is not essential.  |

**Rapporteur Summary:**

Based on the comments from the companies, no company is supportive of the proposals and therefore none of the proposals are pursued.

1. Proposals in R2-2107462 are not pursued.

1. [R2-2107504](file:///D%3A/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2107504.zip) Corrections of Idle/inactive measurement under SNPN Access Mode FGI, Asia Pacific Telecom CR Rel-16 38.331 16.5.0 2729 - A NG\_RAN\_PRN-Core
	* 1. Moved from 6.1.4.1

**Question-6: If the proposal in Question-5 is agreebale, do you agree with the CR in [7]?**

|  |  |  |
| --- | --- | --- |
| **Company name** | **Agree?****(Yes/No)** | **Comments**  |
| Lenovo | No | See comments to Q5. |
| Samsung | No | See our comments in Q5. |
| MediaTek | No | We think CR is not necessary as commeted in Q5 |
| Nokia | No |  |
| OPPO | No | See comments in Q5 |
| Apple | No |  |
| ZTE | No |  |
| Ericsson | No | See comments to Q5 above. |

**Rapporteur Summary:**

Based on the comments from the companies in this question and the previous question, no company is supportive of the CR and therefore the CR is not pursued.

1. R2-2107504 is not pursued.

# 3 Conclusion

The following proposals are captured in the section 2.

[Proposal 1 R2-2108104 and R2-2108105 are pursued in phase-2.](#_Toc80269494)

[Proposal 2 RAN2 confirms that configuration of measurement objects without setup of corresponding measurement gap configuration (if needed by UE) will be accepted by UE (i.e. not consider inability to comply with the RRCReconfiguration and trigger re-establishment), but measurements may not be performed.](#_Toc80269495)

[Proposal 3 R2-2108289 is not pursued.](#_Toc80269496)

[Proposal 4 R2-2108652 is not pursued.](#_Toc80269497)

[Proposal 5 Proposals in R2-2107462 are not pursued.](#_Toc80269498)

[Proposal 6 R2-2107504 is not pursued.](#_Toc80269499)