3GPP TSG-RAN WG2 Meeting #109e R2-2002139

eMeeting, 24th February - 06th March 2020

Agenda Item: 5.4.1.1

Source: MediaTek Inc.

**Title: Report of [AT109e][004][NR15] Potential Easies I**

Document for: Discussion and decision

# 1 Introduction

This is report for the following e-mail discussion.

* [AT109e][004][NR15] Potential Easies I (Mediatek, vivo, Huawei, ASUS)

Scope: Treat R2-2000681, R2-2000359, R2-2001179, R2-2001178, R2-2001590. In case email discussion gets unexpectedly long, it can be split.

Intended outcome: Agreed CRs

Deadline: Feb 27 1200 CET

# 2 Discussion on RRC Connection Control CRs

## 2.1 R2-2001590 - Correction on NZP-CSI-RS-ResourceSet (ASUSTeK)

Companies are invited to provide comments on the CR in the tile.

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| --- | --- | --- |
| **Company** | **Do you agree with the intent of the CR?** | **Comments** |
| Ericsson | Yes | We are fine with the CR |
| Intel | Needs correction, otherwise the CR is not accurae | **This is only applicable if the CSI-RS is not used for tracking, if it is used for tracking then the UE assumes a single CSI-RS port for all the RS.**  **The following change is suggested**  ***repetition***  Indicates whether repetition is on/off. If the field is set to *off* or if the field is absent, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with the same downlink spatial domain transmission filter (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). If the field is absent and the NZP-CSI-RS resources within the resource set are not used for tracking where *trs-Info* is not confitgured, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with same NrofPorts in every symbol (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). Can only be configured for CSI-RS resource sets which are associated with *CSI-ReportConfig* with report of L1 RSRP or "no report". |
| ZTE | Agree with the intention, but CR needs correction | RAN1 spec TS 38.214 has following description:  All CSI-RS resources within one set are configured with same density and same nrofPorts, except for the NZP CSI-RS resources used for interference measurement.  So based on Intel’s version, we suggest following revision:  ***repetition***  Indicates whether repetition is on/off. If the field is set to *off* or if the field is absent, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with the same downlink spatial domain transmission filter (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). If the field is absent and the NZP-CSI-RS resources within the resource set are used for interference measurement, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with same NrofPorts in every symbol (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). Can only be configured for CSI-RS resource sets which are associated with *CSI-ReportConfig* with report of L1 RSRP or "no report".  Alternatively, we can also remove that sentence, because it is already clear in RAN1 spec. Such as:  ***repetition***  Indicates whether repetition is on/off. If the field is set to *off* or if the field is absent, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with the same downlink spatial domain transmission filter (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). ~~S~~ Can only be configured for CSI-RS resource sets which are associated with *CSI-ReportConfig* with report of L1 RSRP or "no report". |
| Samsung | Needs corrections | We have same understanding with ZTE and we prefer to remove the concerned text as it is clear in RAN1 spec. |
| CATT | Needs correction | Basically we can refer to ran1 spec, without giving too much details here in RRC. we’d prefer to update the CR in the following way, if agreeable to all.  ***repetition***  Indicates whether repetition is on/off. If the field is set to *off* or if the field is absent, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with the same downlink spatial domain transmission filter ~~and with same NrofPorts in every symbol~~ (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). Can only be configured for CSI-RS resource sets which are associated with *CSI-ReportConfig* with report of L1 RSRP or "no report". |
| Huawei, Hisilicon | Agree with the intention, but may need to double check the details. | After further check, we prefer the wording suggested by CATT, which should be same as the second alternative suggested by ZTE. |
| NTT DOCOMO | Need correction | We also agree to remove the duplicated sentence already described in 38.214. Maybe, we could further simply as shown below.  ***repetition***  Indicates whether repetition is on/off (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). Can only be configured for CSI-RS resource sets which are associated with *CSI-ReportConfig* with report of L1 RSRP or "no report". |
| vivo | Agree with the intention, but CR needs correction | We share the same view as ZTE. We also think RAN1 spec already capture this restriction. Thus, we can just remove this part. |
| QCOM | Agree with the intention, but… | We agree with the intention of the CR, but these type of details already provided in the 38.214 and no need to provide it in the RAN2 spec, pointing to the RAN1 spec should be enough.  We support ZTE alternative suggestion (removing the entire sentence). |
| MediaTek | Maybe | We prefer not to specify the details L1 behaviour as long as it is clear in RAN1 specification. Therefore, we prefer the simplest version provided by DCM.  ***repetition***  Indicates whether repetition is on/off (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). Can only be configured for CSI-RS resource sets which are associated with *CSI-ReportConfig* with report of L1 RSRP or "no report". |
| ASUSTeK | Yes | Comments received so far agree the need to change the spec. And the majority prefer to remove the concerned part. We are also fine with it and could prepare the revision accordingly (i.e. ZTE version). |
| Nokia, Nokia Shanghai Bell | Partially | The existing wording is already quite difficult to comprehend: Using “may not” is not correct – the opposite of “may” is “need not”. This is coming from RAN1 language and is already present in the current wording. “UE may not assume that X happens” means the same as “UE assumes that “not X” may happen”. So if anything is changed, the existing text could be reworked before adding (though fine to add reference to RAN1 specification to clarify).  We don’t fully understand the cover page: What is the exact problem that may occur if this CR is not agreed? IS this just that UE measurments may be inaccurate if network configuration is not correct? If so, why do we fix something that’s caused by network implementation, and how does the fix change this?  In other words, we would be fine to consider fix to the existing text and the proposal from DCM looks best to us. |
| Apple | Need correction | We share the ZTE view. |

Summary: Majorities seems agree the intention of the CR and think that further correction is needed. There are several alternative proposals to further change the text. Some few concerns are raised but it seems possible to have an agreeable CR. Therefore, it is suggested to have a CR and further work on the detail wording.

**Proposal 1: Agree to have a CR to clarify the field description of NZP-CSI-RS-ResourceSet and finalize the detail wording by further offline discussion.**

## 2.2 R2-2001178 - Correction to RRC reconfiguration complete for NR-DC (Huawei, HiSilicon)

Companies are invited to provide comments on the CR in the tile.

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| --- | --- | --- |
| **Company** | **Do you agree with the intent of the CR?** | **Comments** |
| Ericsson | Partially | The word “store” is not needed. And I think text becomes easier to read with (..) added:  3> include in the *nr-SCG-Response* the *RRCReconfigurationComplete* message (constructed while performing the RRC reconfiguration according to 5.3.5.3 for the *RRCReconfiguration* message included in *nr-SCG)*;  Further, since this is just a clarification and do not change NW/UE behaviour, this CR should be included in the Rapporteur’s CR. |
| Intel | May be | While we don’t see this as an essential correction, we are OK with Ericsson suggestion to include it in the rapporteur CR.  We also agree with Ericsson comment that it is not essential to model it as “stored” – that is, “stored” is not needed in the two places it is used in the CR. |
| ZTE | Partially | We also think this is kind of clarification that can be included in the Rapporteur’s CR. And the suggestion from Ericssion looks good to us. |
| Samsung | Partially | We think ‘stored’ restricts UE implementation and may not be correct. We are fine with including it in the rapporteur CR. |
| CATT | Partially | We do not see this a critical one.If changes are needed E/// suggestion seems OK. |
| Huawei, Hisilicon | yes | No strong opinion on the need of “store”, but we believe it is not necessary to put the added part into a bracket, similar to other places which refer to another subclause.  We are also fine to merge it to the rapporteur CR. |
| NTT DOCOMO | Partially | This CR is somehow related to recursion in RRC messages proposed in R2-2000856, R2-2000857 and R2-2000616. Given that they are not to be treated, it could also consider to be postponed to the next meeting. |
| vivo | Partially | We donot see too much motivation for this change. If majority companies agree, we are fine with this clarification without using the “store”. |
| QCOM | Partially | It’s just a clarification and we believe it’s not needed, nothing is broken to be fixed. But if majority decided to go with the change, we support Ericson suggestion. |
| LG | Yes | We are ok with the CR. |
| MediaTek | Yes | We are fine with the CR. |
| ASUSTeK | Partially | We also agree with Ericsson’s comments. |
| Nokia, Nokia Shanghai Bell | Partially | Agree with DCM that this is related to the recursion topic also discussed in R2-2000856, R2-2000857 and R2-2000616.  Generally, we agree with the intention on which Complete-message is embedded but were not sure if the existing specification can be misunderstood. The proposal from Ericsson looks OK to us but if adopted, should be put to rapporteur CR.  We would also prefer to have a general discussion how to ensure terminology is used properly within the whole RRC for these case. |
| Apple | Partially | We think the problem is somehow related to the recursion issue mentoned in R2-200616, R2-2000856 and R2-2000857. .  During the construction of the “scg-nr-repsponse” of a RRCReconfigureComplete message, the UE put the exact message being constructed into the "scg-nr-response", which itself is part of the RRCReconfigureComplete message being constructed. So this is actually a “recursive/iterartive’ loop which will cause a software program crash or memory depletion. Not sure any UE vendor will really have such a bad implementation. So, if this issue needs to be clarified, we slightly prefer this to be addressed in a generic way to describe the proper handling of RRC message loops. |

Summary: Majorities partially agree the intention and think that it could be included in the rapporteur CR. Some companies want to discuss this together with RRC recursion CRs. Therefore, it is suggested to postpone the CR.

**Proposal 2: Postpone the CR R2-2001178.**

## 2.3 R2-2001179 - Correction to DRB addition/modification for the LTE UE not in EN-DC (Huawei, HiSilicon)

Companies are invited to provide comments on the CR in the tile.

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| --- | --- | --- |
| **Company** | **Do you agree with the intent of the CR?** | **Comments** |
| Ericsson | Partially | The CR addresses an editorial issue and what is proposed is not critical. For this reason, we don’t see the benefit for having the CR.  However, if companies want to clarify this, then the CR can be merged in the Rapporteur’s CR. |
| Intel | Yes | While we don’t see any real risk of wrong implementation with the current spec, we think it is good to correct this. We are also OK to merge in the rapporteur CR. |
| ZTE | Yes | We are ok with the CR. And also OK to merge in the Rapporteur’s CR. |
| Samsung | Yes | We are OK to include it in the rapporteur CR. |
| CATT | Yes | Ok. agree with Ericsson way forward. |
| Huawei, Hisilicon | yes | This correction is to address a missing case in the spec. For this kind of change, we don’t suggest to merge it to the rapporteur CR. |
| NTT DOCOMO | Yes | Agree on Ericsson’s proposal. |
| vivo | Yes | We are fine with this CR, and also agree to merge into the rapporteur’s CR |
| QCOM | Yes | Agree with the CR |
| LG | Yes | We are ok with the CR. |
| MediaTek | Yes | We are ok with the CR. We slightly prefer to merge this into the rapporteur’s CR since there is very low possibility to have wrong implementation. |
| ASUSTeK | Yes | We are fine with the change. |
| Nokia, Nokia Shanghai Bell | Yes | The change seems correct even though we also don’t see big chance for error. If this is absolutely needed, better to include in rapporteur’s CR.  If agreed as a separate CR, the cover page needs changes: It is not OK to mention in inter-operability analysis that “consequences if not approved remain” as this makes the CR less readable and confuses the intention. |

Summary: Almost all companies agree the intention and majorities prefer to include this in the rapporteur CR. So, the suggestion is to agree the CR and merge it into rapporteur CR.

**Proposal 3: CR R2-2001179 is agreed to be merged into rapporteur CR.**

## 2.4 R2-2000359 - Cell re-selection during RRC connection resume (Vivo)

Companies are invited to provide comments on the CR in the tile.

|  |  |  |
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| **Company** | **Do you agree with the intent of the CR?** | **Comments** |
| Ericsson | Yes | It is an improvement, but if not treated I suggest that Håkan includes in rapporteur’s CR. The whole background for this was the fact that in NR we split establishment procedure into coming from IDLE to INACTIVE, which generated a new Resume procedure. Then, during copy paste we missed a sentence that exists in the establishment procedure in LTE and also in NR. If we do not agree with the CR, or add to Håkan’s CR, we would have something a little bit strange that could imply different behaviour while in reality the same behaviour is expected. |
| Intel | May be | We don’t see any real risk of wrong implementation with the current spec and don’t see this as essential change. We are also OK to merge in the rapporteur CR. |
| ZTE | May be | The intention is correction. However, we think there’s no room for misunderstanding, because we already have following descriptions in section 5.3.13.6.  The UE shall:  1> if cell reselection occurs while T319 or T302 is running:  2> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with release cause 'RRC Resume failure';  1> else if cell selection or reselection occurs while T390 is running:  2> stop T390 for all access categories;  2> perform the actions as specified in 5.3.14.4. |
| Samsung | Yes | The intention is correct and we are OK to include it in the rapporteur CR. |
| CATT | Yes | In current spec there is a section called Cell re-selection or cell selection while T390, T319 or T302 is running (UE in RRC\_INACTIVE), so the cell reselection in resume procedure is allowed. Furthermore a same clause exists in RRC setup procedure, so the clarification can be agreed. |
| Huawei, Hisilicon |  | We tend to agree with ZTE that there is no room for misunderstanding. |
| NTT DOCOMO | Yes | We also agree on the intention just for alignment with the other relevant part. So, we also support to merge the propose change into rapporteur’s CR. |
| vivo | Yes | We think the change is needed. For the evidence from ZTE, it only captures the case that UE performs cell reselection. There is still possibility that UE may not perform cell reselection. Anyway, it is better to avoid any misunderstanding in the specification. |
| QCOM | YES | It’s an expected behaviour from the UE and we support the completion of the description of the procedure |
| LG | Yes | We agree this CR is needed.  If this CR is agreed, RAN2 has to consider whether same change would be added in LTE spec. According to section 5.3.3.3a in 36.331-f80  5.3.3.3a Actions related to transmission of RRCConnectionResumeRequest message:  The UE shall submit the *RRCConnectionResumeRequest* message to lower layers for transmission.  The UE shall continue cell re-selection related measurements as well as cell re-selection evaluation.  If the UE is resuming the RRC connection from RRC\_INACTIVE and if lower layers indicate an integrity check failure while T300 is running, the UE shall perform actions specified in 5.3.3.16. |
| MediaTek | Yes, but | It looks like an alignment of current text to other section. Thus we also suggest to put this in rapporteur’s CR |
| ASUSTeK | Yes | We support the change to be included in the rapporteur CR. |
| Nokia, Nokia Shanghai Bell | Yes but no CR is needed | This seems like corner-case that is already covered by the existing text. It’s unclear why this would be needed as UE doing cell reselection evaluation means UE can also trigger cell re-selection. |
| Apple | May be | We are fine with merging this alignment to rapporteur CR |

Summary: A clear majorities agree the intention and prefer to include this in the rapporteur CR. So, the suggestion is to agree the CR and merge it into rapporteur CR.

**Proposal 4: CR R2-2000359 is agreed to be merged into rapporteur CR.**

## 2.5 R2-2000681 - Correction on reporting of uplink TX direct current (MediaTek)

Companies are invited to provide comments on the CR in the tile.

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| **Company** | **Do you agree with the intent of the CR?** | **Comments** |
| Ericsson | Yes | The changes look fine to us. It is obvious that the existing  procedure text is incorrect |
| Intel | Yes | The changes are correct |
| ZTE | Yes | We are Ok with this CR. |
| Samsung | Yes with some updates | The intention seems correct but we are wondering whether the changes capture it correctly for NR-DC case in 5.3.5.3 i.e. it seems still impossible to report the *uplinkTxDirectCurrentList* for each SCG serving cell to SN (and SN cannot request report either). We would suggest to update it in 5.3.5.3 as below:  2>  if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrent*:  3>  include the *uplinkTxDirectCurrentList* for each MCG serving cell with UL;  3>  include *uplinkDirectCurrentBWP-SUL* for each MCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*;  2>  if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrent*; or  2> if the *RRCReconfiguration* includes the *mrdc-SecondaryCellGroupConfig* with *mrdc-SecondaryCellGroup* set to *nr-SCG* which includes the *reportUplinkTxDirectCurrent*:  3>  include the *uplinkTxDirectCurrentList* for each SCG serving cell with UL;  3>  include *uplinkDirectCurrentBWP-SUL* for each SCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*; |
| CATT | Yes | Intention is OK.  Is it possible to simply a little bit the proposed change to 5.3.5.3, as the procedures for MCG and SCG are anyway quite similar? |
| Huawei, Hisilicon | Yes | Agree with intention, and can be revised if some case is missing. |
| NTT DOCOMO | Yes | Agree with Samsung to cover the NR-DC case. In addition, the conditions can be merged and procedure text can be shortened, as CATT suggested. |
| vivo | Yes | We agree with the intention. But the suggestion from Samsung likes more clear for us. |
| QCOM | Yes | We agree with the intention, but we need to work on a simplified version that include all cases |
| MediaTek | Yes | Regarding the proposal by Samsung to include NR-DC case, we think that original text “if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrent*” already cover the NR-DC case.  In NR-DC, the embedded SN *RRCReconfiguration* will also run though the procedure text in 5.3.5.3. For example, the following text in 5.3.5.3 should already be performed while executing embedded SN *RRCReconfiguration* message.  1> if the *RRCReconfiguration* includes the *secondaryCellGroup*:  2> perform the cell group configuration for the SCG according to 5.3.5.5;  1> if the *RRCReconfiguration* message includes the *measConfig*:  2> perform the measurement configuration procedure as specified in 5.5.2;  Therefore, I think that the original text is fine and follows current modelling of NR-DC. Hope that this clarification is clear and acceptable to companies.  For the comment to have simplified version (CATT, DCM, and QC), we are happy to change it if companies have good suggestion on this. So far, I do not find easy way to do this and further change on merging the condition may require carefully review on the correctness of the CR. Therefore, I would suggest to keep the original change as it is for bug fixing purpose. Further wording/text optimization should be 2nd priority and could be done in rapporteur’s CR if necessary. |
| ASUSTeK | Yes | We support the CR. |
| Nokia, Nokia Shanghai Bell | Yes (but see comments) | We agree with the intent: TxDC reporting should be per CG. For (NG)EN-DC or NE-DC there is not problem since the NR RRC MCG/SCG configuration only exists for the NR cells, so the existing text works just as well. Therefore, we think there is no real problem with existing specification text so the CR is not needed.  If we go with this, it could be done to rapporteur CR with Samsung proposal (which seems better than the original). |
| Apple | Yes | We are OK with CR. |

Summary: All companies agree the intention of the CR and there are some further suggestion on the wording. So, the suggestion is to agree the intention of CR and further finalize the wording.

**Proposal 5: Agree to have a CR based on the intention of R2-2000681 and finalize the detail wording by further offline discussion.**

# 3 Conclusions

Base on the discussion in section 2, we have the following summary and proposals:

For R2-2001590 - Correction on NZP-CSI-RS-ResourceSet (ASUSTeK)

Summary: Majorities seems agree the intention of the CR and think that further correction is needed. There are several alternative proposals to further change the text. Some few concerns are raised but it seems possible to have an agreeable CR. Therefore, it is suggested to have a CR and further work on the detail wording.

**Proposal 1: Agree to have a CR to clarify the field description of NZP-CSI-RS-ResourceSet and finalize the detail wording by further offline discussion.**

For R2-2001178 - Correction to RRC reconfiguration complete for NR-DC (Huawei, HiSilicon)

Summary: Majorities partially agree the intention and think that it could be include in the rapporteur CR. Some companies want to discuss this together with RRC recursion CRs. Therefore, it is suggested to postpone the CR.

**Proposal 2: Postpone the CR R2-2001178.**

For R2-2001179 - Correction to DRB addition/modification for the LTE UE not in EN-DC (Huawei, HiSilicon)

Summary: Almost all companies agree the intention and majorities prefer to include this in the rapporteur CR. So, the suggestion is to agree the CR and merge it into rapporteur CR.

**Proposal 3: CR R2-2001179 is agreed to be merged into rapporteur CR.**

For R2-2000359 - Cell re-selection during RRC connection resume (Vivo)

Summary: A clear majorities agree the intention and prefer to include this in the rapporteur CR. So, the suggestion is to agree the CR and merge it into rapporteur CR.

**Proposal 4: CR R2-2000359 is agreed to be merged into rapporteur CR.**

For R2-2000681 - Correction on reporting of uplink TX direct current (MediaTek)

Summary: All companies agree the intention of the CR and there are some further suggestion on the wording. So, the suggestion is to agree the intention of CR and further finalize the wording.

**Proposal 5: Agree to have a CR based on the intention of R2-2000681 and finalize the detail wording by further offline discussion.**

# 4 References

[1] R2-2001590, “Correction on NZP-CSI-RS-ResourceSet”, ASUSTeK

[2] R2-2001178, “Correction to RRC reconfiguration complete for NR-DC”, Huawei, HiSilicon

[3] R2-2001179, “Correction to DRB addition/modification for the LTE UE not in EN-DC”, Huawei, HiSilicon

[4] R2-2000359, “Cell re-selection during RRC connection resume”, vivo

[5] R2-2000681, “Correction on reporting of uplink TX direct current”, MediaTek Inc.