3GPP TSG-RAN WG2 #116-e R2-21xxxxx

Electronic, 1st – 12th Nov, 2021

Agenda Item: 5.4.1

Source: ZTE Corporation

Title: [AT116-e][001][NR15] Connection Control (ZTE)

Document for: Discussion, Decision

# 1 Introduction

This document is to kick off the following email discussion:

* [AT116-e][001][NR15] Connection Control (ZTE)

Scope: Determine agreeable parts in a first phase, for agreeable parts agree on CRs. Treat [R2-2110454](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110454.zip), [R2-2110455](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110455.zip), [R2-2110458](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110458.zip), [R2-2110459](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110459.zip), [R2-2109791](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109791.zip), R2-2110456, R2-2110457, [R2-2110783](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110783.zip), [R2-2110784](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110784.zip), [R2-2110785](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110785.zip), [R2-2110786](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110786.zip), [R2-2109404](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109404.zip), [R2-2109405](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109405.zip), [R2-2109406](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109406.zip)

Intended outcome: Report, agreed CRs if applicable

Deadline: Schedule 1

Discussions with Deadline **Schedule 1**:

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

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

# Contact Information

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# 2 Discussion

Companies are requested to add their comments on each of the CRs of this email discussion in the questionnaires below.

## 2.1 L1 Parameters

[R2-2110454](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110454.zip) Correction on BWP switch for TDD ZTE Corporation, Sanechips, Ericsson CR Rel-15 38.300 15.13.0 0393 - F NR\_newRAT-Core

[R2-2110455](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110455.zip) Correction on BWP switch for TDD(R16) ZTE Corporation, Sanechips, Ericsson CR Rel-16 38.300 16.7.0 0394 - A NR\_newRAT-Core

The reason for changes is:

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| In the last e-meeting, We discussed the papers [R2-2108369](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_115-e\Docs\R2-2108369.zip)/[R2-210837](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_115-e\Docs\R2-2108369.zip)0, and the following conclusions were captured in chairman notes.  ----------------------  => [012] For TDD, when NW wants to switch the DL BWP and/or UL BWP by RRC, NW shall include the fields firstActiveDownlinkBWP-Id and firstActiveUplinkBWP-Id simultaneously (with the same BWP-Id) in same RRC message.  => [012] not clear whether TS need to updated. Both postponed  ------------------------  In order to clearly constrain the network configurations and avoid IOT issues, we suggest to add the following description in spec 38300 section 7.8.  ------------------------  In paired spectrum, DL and UL can switch BWP independently. In unpaired spectrum, DL and UL switch BWP simultaneously. Switching between configured BWPs happens by means of RRC signalling, DCI, inactivity timer or upon initiation of random access. When RRC is used to switch DL and UL BWP simultaneously, the network performs the switch using the same RRC message. When an inactivity timer is configured for a serving cell, the expiry of the inactivity timer associated to that cell switches the active BWP to a default BWP configured by the network. There can be at most one active BWP per cell, except when the serving cell is configured with SUL, in which case there can be at most one on each UL carrier. |

**Q1: Do companies agree with the two CRs R2-2110454 and** **R2-2110455?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Nokia | No | This is stage-3 configuration detail and was not agreed to be added to RRC. It basically just means that for TDD, network has to ensure both UL and DL BWPs switch at the same time. This is more network clarification than anything else, so chairman's notes would be just fine.  The behavior is already clear from RAN1 perspective of how the UE should behave. |
| Huawei, HiSilicon | No | Not sure the added text fits into the stage-2 specification. It is more suitable in RRC spec as it is about RRC message, if needed. |
| Ericsson | Yes | We don’t have a strong view on whether to have this change in stage 2 or stage 3 as far as this aspect is clear. However, since this is a network action/configuration, we think that stage 2 is a bit more suitable than stage 3. |
| Samsung | No | We already captured this common/well-known understanding in the minutes in the previous meeting. Hence, we do not see a real need to agree both CRs. |
| QCOM | Neutral | Doesn’t look it’s needed ... will go with majorities |
| vivo | No | We think UE’s lower layer behavior is already clear. The common understanding in the Chair’s note is enough for the RRC layer. |
| NEC | Neutral | We do not have strong view, but can accept a clarification. If new text is to be added, probably it is better to add „in unpaired spectrum“ to clarify the concerned case. |
| LG | No strong view | Fine to have clarification, but would follow majority view. |
| ZTE | Yes | We think it’s better to clarify this in spec. |
| Intel | Yes | We don’t have a view on whether to capture in stage 2 or 3. |

[R2-2110458](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110458.zip) Correction on vrb-ToPRB-Interleaver ZTE Corporation, Sanechips CR Rel-15 38.331 15.15.0 2832 - F NR\_newRAT-Core

[R2-2110459](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110459.zip) Correction on vrb-ToPRB-Interleaver(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.6.0 2833 - A NR\_newRAT-Core

For Rel-15, the reason for changes is:

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| --- | --- |
| In the field description of *vrb-ToPRB-Interleaver*, it says ‘When the field is absent, the UE performs non-interleaved VRB-to-PRB mapping’, but for PDSCH transmissions scheduled with DCI format 1\_0 in common search space the bundle size is 2, not using the parameter *vrb-ToPRB-Interleaver*. In this case the UE performs interleaved or non-interleaved VRB-to-PRB mapping not depending on whether the parameter *vrb-ToPRB-Interleaver* is configured or not.  So we suggest to add the field description of *vrb-ToPRB-Interleaver* as below:   |  | | --- | | ***vrb-ToPRB-Interleaver***  Interleaving unit configurable between 2 and 4 PRBs (see TS 38.211 [16], clause 7.3.1.6). When the field is absent, the UE performs non-interleaved VRB-to-PRB mapping. The field only applies to DCI format 1\_1 and DCI format 1\_0 in UE specific search space (see TS 38.211 [16], clause 7.3.1.6). | |

For Rel-16, the reason for changes is:

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| In the field description of *vrb-ToPRB-Interleaver*, it says ‘The field *vrb-ToPRB-Interleaver* applies to DCI format 1\_1’, but in fact the field *vrb-ToPRB-Interleaver* also applies to DCI format 1\_0 in UE specific search space.  So we suggest to modify the field description of *vrb-ToPRB-Interleaver* as below:   |  | | --- | | ***vrb-ToPRB-Interleaver, vrb-ToPRB-InterleaverDCI-1-2***  Interleaving unit configurable between 2 and 4 PRBs (see TS 38.211 [16], clause 7.3.1.6). When the field is absent, the UE performs non-interleaved VRB-to-PRB mapping. The field *vrb-ToPRB-Interleaver* applies to DCI format 1\_1 and DCI format 1\_0 in UE specific search space, and the field *vrb-ToPRB-InterleaverDCI-1-2* applies to DCI format 1\_2 (see TS 38.211 [16], clause 7.3.1.6). | |

**Q2: Do companies agree with the problem identified and the changes in R2-2110458,** **R2-2110459?**

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| Company | Agree?  (Yes or No) | Comments |
| Nokia | Not yet | We see the changes as somewhat editorial, not really changing or enabling anything. From our RAN1 delegate, the RAN1 specs define the exact conditions where the parameter applies unambiguously already.  Then, this is incorrect on the R-16 CR: In addition, the field description says ‘the field *vrb-ToPRB-InterleaverDCI-1-2* applies to DCI format 1\_2 (see TS 38.211 [16], clause 7.3.1.6)’, but there are no statements related to the field *vrb-ToPRB-InterleaverDCI-1-2*in spec 38211clause 7.3.1.6. Here a RAN1 CR is required.  The parameter is referred in 212 at least:  VRB-to-PRB mapping – 0 or 1 bit:  -     0 bit if the higher layer parameter *vrb-ToPRB-InterleaverDCI-1-2* is not configured;  -     1 bit according to Table 7.3.1.2.2-5 otherwise, only applicable to resource allocation type 1, as defined in Clause 7.3.1.6 of [4, TS 38.211].  So before proceeding in RAN2, we would first check this with RAN1 and ask them to make the alignment and then RAN2 can make the corresponding changes.  The interop statements are also quite confusing in the CR. For an editorial CR the changes should not impact either UE or network. |
| Huawei, HiSilicon | No for Rel-15 CR,  FFS Rel-16 CR | For the Rel-15 CR, we believe the application of the field should be specified in RAN1 specs. Therefore we don’t see the Rel-15 CR essential.  For the R16 CR, as RRC spec already mentions the application for some DCIs, we are ok to further clarify to make clarification complete. Given Nokia has doubt on the change, we are ok to see views from others. |
| Ericsson | No | We don’t see the point to have this change. The section on which the proposed change point out is already present in the field description. We guess that people can simply check the RAN1 spec. |
| Samsung | No for Rel-15 CR,  No strong view on Rel-16 CR | For Rel-15 CR, "interleaving unit configuration between 2 and 4 PRBs (see TR 38.211 [16], clause 7.3.16)" seems sufficient i.e. no real see to overspecify.  For Rel-16 CR, it may be good to clarify as current field description does not mention DCI format 1\_0 but good to see other companies' views whether the proposed text is aligned with RAN1 specification. |
| QCOM | No strong view | It’s just a clarification ... will go with majority |
| vivo | R15:No  R16:FFS | For R15, there isn’t any problem. Referring to clause 7.3.1.6 in 38.321, we have the following interpretation.  (1) For non-interleaved VRB-to-PRB mapping  “ The UE shall assume the virtual resource blocks are mapped to physical resource blocks according to the indicated mapping scheme, non-interleaved or interleaved mapping. If no mapping scheme is indicated, the UE shall assume non-interleaved mapping.”  According to the spec above, UE behavior for VRB-to-PRB mapping is absolutely controlled by network. “If no mapping scheme is indicated” (it is equal to “When vrb-ToPRB-Interleaver is absent, the UE performs non-interleaved VRB-to-PRB mapping” in 38.331), UE shall assume non-interleaved mapping and perform the corresponding behavior for VRB-to-PRB mapping.  (2) For interleaved VRB-to-PRB mapping  According to the spec,  -“ for PDSCH transmissions scheduled with DCI format 1\_0 with the CRC scrambled by SI-RNTI in Type0-PDCCH common search space in CORESET 0”: configured vrb-ToPRB-Interleaver is just be ignored.  - “for PDSCH transmissions scheduled with DCI format 1\_0 in any common search space”: configured vrb-ToPRB-Interleaver is just be ignored.  -“ for all other PDSCH transmissions”: configured vrb-ToPRB-Interleaver is used.  Based on the analysis, there is not any problem with the current spec.  For R16, if only from the text of the current 38.211 spec, “for all other PDSCH transmissions” will indeed include more cases. But, confirming with RAN2 before making decisions is better. |
| NEC | No strong view | We are wondering if this can be solved by just referring to RAN1 spec? |
| ZTE | Yes(both R15 and R16 CRs) | * R15 CR:   The wording ‘When the field is absent, the UE performs non-interleaved VRB-to-PRB mapping’ is not applicable to PDSCH transmissions scheduled with DCI format 1\_0 in common search space (i.e. NW can perform interleaved VRB-to-PRB mapping for PDSCH transmissions scheduled with DCI1\_0 in common search space even though the field ***vrb-ToPRB-Interleaver*** is absent ), so we suggest to add the application scope of the filed to avoid ambiguities.  @vivo:  “If no mapping scheme is indicated, the UE shall assume non-interleaved mapping” is **not** equal to “When vrb-ToPRB-Interleaver is absent, the UE performs non-interleaved VRB-to-PRB mapping”, and this refers to that “if *VRB-to-PRB mapping* field in DCI1 is absent, the UE shall assume non-interleaved mapping”.   * R16 CR:   The current application scope of the filed is not complete, so we think it is necessary to correct it. |
| Intel | No | We also believe that RAN1 spec is sufficient. |

[R2-2109791](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109791.zip) Delta signalling of dedicated channel bandwidth Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core

The following proposals are proposed in the paper:

**Proposal 1**: RAN2 to clarify the common understanding of UE behaviour with regards to dedicated channel bandwidth when 1) dedicated channel bandwidth has been configured and 2) UE receives *ServingCellConfig* where either the extension group or the field itself is not configured. The following options are considered:

- **Option 1:** UE releases the dedicated CBW field if either the extension group or the field itself is not configured (i.e. Need R-like behaviour), and falls back to the SIB1 CBW configuration (based on the Need S-behaviour of the field)

- **Option 2:** UE maintains the currently configured dedicated CBW field even if either the extension group or the field itself is not configured (i.e. Need M-like behaviour).

**Proposal 2**: If dedicated CBW configuration is the same as previously configured value, the reconfiguration shall not cause UP interruption (i.e. 16ms as defined in TS38.133).

**Q3: For proposal1, do companies agree with option 1 or option 2?**

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| --- | --- | --- |
| Company | Agree with option 1 or option 2? | Comments |
| Nokia | Option 1 | Proponent: We try to list additional points to the proposals we made in our paper.  **On P1:** This related to a field issue, and when resolving that we spotted one ambiguity in specification regarding the handling of the dedicated channel bandwidth in *ServingCellConfig*: **It’s not clear if the UE treats the dedicated channel BW configuration (a Need S-field) as “Need R” or “Need M” for delta signalling purposes.**   Based on our reading, it seems like (unfortunately) RRC implies “Need R”-interpretation for the field, but we want to check if this is the common understanding.  Then whether we need to make that clear via CR is something we can discuss once the common understanding is reached. |
| Huawei, HiSilicon | Option 1 | Option 1 is what the spec text says. |
| Ericsson | Option 1 | The field description says “If absent, UE uses the configuration indicated in scs-SpecificCarrierList in UplinkConfigCommon / UplinkConfigCommonSIB” |
| Samsung | Option 1 | We think the UE anyway applies SIB1 CBW configuration if dedicated BWP in ServingCellConfig is absent, there seems no need for UE to maintain currently configured CBW field. |
| ZTE(LiuJing) | Option 1 | We think Option 1 is aligned with current field description. |
| QCOM | Option-1 |  |
| vivo | Option-1 | Agree with Samsung. |
| NEC | Option 1 | Firstly, we agree the issue that the spec is not very clear. We assume that if the network intends to use the dedicated CBW, there is no point to make it „absent“. So, if the case happen, it is straightforward to understand (by the UE) the dedicated CBW is released. |
| LG | Option 1 | According to the current spec, if the concerned field is absent, UE applies the value in SIB. This seems to suggest that UE reelase the dedicated CBW field in that case. |
| Intel | Option 1 | The current behaviour of Need code S is clear – if not signalled, UE behaves as specified for absence and the previously signalled value is “released”. It is unfortunate that we use Need S extensively (often based on RAN1 input of “default”). Need S is not optimal encoding when the signalled value is not default. We have discussed this before (e.g., R2-1811674) and even notified RAN1 to avoid defining defaults. |

**Q4: Do companies agree with proposal 2?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Nokia | Yes | Proponent: We try to list additional points to the proposals we made in our paper.  **On P2:** Regarding RAN4 aspect on UP interruption, our interpretation is that re-signalling the same value in RRC (even for Need M, network can always signal the same value for the field) and this does not classify as “Parameter change” in RAN4 spec (delta configuration and ability to avoid signalling the same value is a RAN2 concept and should not impact RAN4 spec) and hence would not result in the interruption. We welcome companies to share their interpretation. |
| Huawei, HiSilicon | Not sure | The proposal seems to be suggesting that the reconfiguration would cause UP interruption if the network reconfigures a different value for CBW.  We are not sure about this, but we would like to suggest to not discuss this if there is no real problem identified. |
| Ericsson | Yes | Agree. But even if the channel BW is not the same, this would not be considered as a BWP switch.  The tdoc says “*Once UE is in RRC\_CONNECTED, network can* ***override*** *the SIB1 CBW configuration via the ServingCellConfig fields downlinkChannelBW-PerSCS-List*”. This is not entirely correct: The UE still uses the value of the common field to determine the PRB grid, i.e., to determine frequency domain positions of reference signals and BWPs. The dedicated field only “overrides” how the UE shall configure its band filter. |
| Samsung | Yes |  |
| ZTE(LiuJing) | Yes | RAN4 specifies that changes in parameters: *SCS*, *locationAndBandwidth*, *nrofSRS-Ports* and/or *maxMIMO-Layers-r16* will cause interruption. But it is unclear whether configuring a different UE CBW will cause data interruption or not.  But if the configuration remains the same, we think there should be no interruption. |
| vivo | Yes |  |
| NEC |  | RAN4 issue.. |
| LG | Yes | P2 seems logical. |
| Intel | Yes | re-signalling the same value in RRC or using Need M (even for Need M, network can always signal the same value for the field) does not classify as “Parameter change” in RAN4 spec (delta configuration and ability to avoid signalling the same value using Need M is a RAN2 concept and should not impact RAN4 spec) and hence would not result in the interruption. |

**Q5: For this paper, do companies have other comments?**

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| Company | Comments |
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## 2.2 Full Configuration

[R2-2110456](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110456.zip) Correction on srb-ToAddModList ZTE Corporation, Sanechips CR Rel-15 38.331 15.15.0 2830 - F NR\_newRAT-Core

[R2-2110457](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110457.zip) Correction on srb-ToAddModList(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.6.0 2831 - A NR\_newRAT-Core

The reason for changes is:

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| According to the current spec 38331, the field *srb-ToAddModList* is mandatory present when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured.  But in the RAN2#114-e meeting, we added the following NOTE in spec 38331 section 5.3.5.11:  ------------------  NOTE 1a: To establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-Identity* within *srb-ToAddModList* (i.e. the UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly.  --------------------  That is, for the *RRCReconfiguration* message with *fullConfig*, the field *srb-ToAddModList* is optionally present, and the network can only include the field *rlc-BearerToAddModList* in this *RRCReconfiguration* message to establish an RLC entity.  So we suggest to delete the mandatory presence condition ‘or when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured’ for the field *srb-ToAddModList*. |

**Q6: Do companies agree with the problem identified and the changes in R2-2110456,** **R2-2110457?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Nokia | Yes | OK, this is a valid catch but instead of deleting we would propose to modify that statement to take into account the note. The normative behavior removal seems too drastic when the other part is just a NOTE which can be easily forgotten by implementation to read. |
| Huawei, HiSilicon | No | In our understanding, the NOTE1a added in the last meeting was to clarify/highlight how “To establish the RLC bearer of SRB(s) after release due to fullConfig“ , i.e. *rlc-BearerToAddModList* may or may not be signalled. It doesn’t mean that *srb-ToAddModList* is not needed for full configuration.  NOTE 1a: To establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-Identity* within *srb-ToAddModList* (i.e. the UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly.  Instead of “and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly” in the NOTE, actually we think the better wording should be “with or without *rlc-BearerToAddModList* of concerned SRB(s) explicitly”. |
| Ericsson | No | We think this is rather editorial and probably not really needed. If some clarification is needed we can work it out in the Rapporteur CR email discussion after this meeting. |
| Samsung | Maybe | It may be correct but we wonder whether srb-ToAddModList itself can be absent in the sense that the agreement in R2#114-e meeting is related with how to add back RLC bearer. |
| QCOM | No | Huawei and Samsung have a good point ... in addition, the change itself seems NBC as UE will always expect this IE to be included in case of Full config. |
| vivo | No | There are no problems. We think the issue in R2-2110456/R2-2110457 is irrelevant to NOTE 1a.  The issue in R2-2110456/R2-2110457 refers to the field srb-ToAddModList, but NOTE1a just refers to the srb-Identity within srb-ToAddModList. Apparently, srb-ToAddModList isn’t equal to the srb-Identity.  For the case the fullConfig is included in the RRCReconfiguration message and NE-DC/NR-DC is not configured, there are two solutions which depend on network’s implementation. The first option is, the field srb-ToAddModList is mandatory present with the present srb-Identity establishing the RLC bearer. The second option is, the field srb-ToAddModList is mandatory present with present corresponding value in rlc-BearerToAddModList. |
| NEC | Maybe | We understand that unintentionally (unfortunately) this mismatch happened. We can consider the approach from Nokia for possible changes. |
| LG | No | Same view as Huawei. |
| ZTE | Yes | Maybe the first thing is to confirm whether the field *srb-ToAddModList* is mandatory present when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured. If the answer is yes, we suggest to modify Note 1b as below:  To establish the RLC bearer of SRB(s) after release due to  *fullConfig*, the network shall include the *srb-Identity* within  *srb-ToAddModList* (i.e. the UE applies RLC default configuration)  and optionally provide *rlc-BearerToAddModList* of concerned  SRB(s) explicitly.  If companies want to go this way, we are ok and open on how to modify NOTE 1b. |
| Intel | No | Previous meeting agreement was on RLC Bearer configuration being present or not. That NOTE was not meant to cover whether *srb-ToAddModList* is included or not.  This proposal is about *srb-ToAddModList* and its use in Full configuration.  Full configuration section 5.3.5.11 says that:  1> for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):  2> apply the default SRB configuration defined in 9.2.1 for the corresponding  NOTE 2: This is to get the SRBs (SRB1 and SRB2 for reconfiguration with sync and SRB2 for resume and reconfiguration after re-establishment) to a known state from which the reconfiguration message can do further configuration. SRB;  So *srb-ToAddModList* has to be included with full configuration to configure the RB config part as per the NOTE. |

## 2.3 UE Assistance Indication

[R2-2110785](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110785.zip) UAI retransmission upon RRC reconfiguration (38.331) Ericsson CR Rel-16 38.331 16.6.0 2847 - A NR\_newRAT-Core

[R2-2110786](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110786.zip) UAI retransmission upon RRC reconfiguration (38.331) Ericsson CR Rel-15 38.331 15.15.0 2848 - F NR\_newRAT-Core

[R2-2110783](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110783.zip) UAI retransmission upon RRC reconfiguration (36.331) Ericsson CR Rel-16 36.331 16.6.0 4738 - A NR\_newRAT-Core

[R2-2110784](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2110784.zip) UAI retransmission upon RRC reconfiguration (36.331) Ericsson CR Rel-15 36.331 15.15.0 4739 - F NR\_newRAT-Core

The reason for changes is:

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| In RAN2#112-e, it was agreed to clarify TS 36.331 (R2-2011258) with the following sentence:  “NOTE: **In case overheating assistance for NR SCG is released** while the regular overheating assistance remains configured, a UE that included SCG overheating parameters in the last reported overheating assistance considers overheating assistance information to be different regardless whether or not its preferences for the regular overheating assistance changed.”  While the note covers NR SCG release case, there are other scenarios where the UE may need to consider its last report reported overheating assistance to be different regardless of the preferences previously sent. Some examples are provided below:   * When the UE is configured only with MCG, the UE first sends an overheating report containing *reducedCCsDL* set to 4, such information concerns only the MCG SCells. If the network configures the SCG, the UE last report may be interpreted as *reducedCCsDL* set to 4 to concern both MCG SCells and SCG PSCell/SCells, but this may not always be the UE intention when sending the first report. The UE can always send a new report with *reducedCCsDL* set to a value different than 4 (if the prohibit timer is not running). But if the UE would like to indicate that also with SCG configuration, reducedCCsDL should be 4, it could not repeat such report. * Particularly for NR configuration, the UE may send *reducedMaxBW-FR2* set to mhz40 (either for NR-DC or embedded within overheatingAssistanceForSCG for EN-DC) considering the current UE configuration. But after reconfiguration, (e.g. adding/releasing SCells or reconfiguring SCells), it is unclear whether the UE report still reflects the current UE configuration.   Overall, the procedural text of TS 38.331 limit the cases for UEAssistanceInformation reporting to be always different than previous UEAssistanceInformation with overheatingAssistance or power saving. This limitation ignores the cases of UE configuration changes for other reasons than UEAssistanceInformation. For these cases, it is ambiguous to decide which UE preferences to apply for this new configuration.  Therefore, it seems safer to adopt a general sentence applicable to both Rel-16 power saving and overheating to cover all cases where the UE may need to consider the last UAI sent as a different report, i.e. upon UE reconfiguration. |

**Q7: For 38331, do companies agree with the problem identified and the changes in R2-2110786, R2-2110785?**

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| Company | Agree?  (Yes or No) | Comments |
| Nokia | Not essential | It is not essential change. The procedural text (not a NOTE) says: 2> if the current overheating assistance information is different from the one indicated, which implies the change should be detectable by the UE. The NOTE seems to suggest there is different meaning of the "change" detection. |
| Huawei, HiSilicon | No | In our understanding, if the configuration is changed, the previous reported UAI should be applied to the new configuration. If the UE finds that the previous UAI is not suitable for the current configuration, UE can report a new one (the content of UAI is changed) and this is allowed by the current spec. For our understanding, no further clarification is needed. |
| Ericsson | Yes | We think that since we captured an exception for SCG release as depicted above for 36.331, it would be good to also cover other cases in general where the report could be resent. |
| Samsung | Need to clarify for power saving UAI | The CRs have concerned both overheating UAI and power saving UAI.  Regarding overheating UAI, the concern seems reasonable, e.g. upon SCG addition, two cases are obviously different:  1) reducedCCsDL set to 4 for MCG only and  2) reducedCCsDL set to 4 for both MCG and SCG  Depending on the cases, UE would experience different overheating situation (e.g. SCG in FR2), even though the reducedCCsDL is same in all two cases. Thus, UE may consider different UAI upon SCG addition, as well as SCG release.  On the other hand, we are not sure if there is any ambiguous point for power saving UAI, because UE reports separately power saving UAI corresponding to each cell group, e.g. even upon SCG addition or release, the power saving UAI for MCG only is not misled. |
| QCOM | No | • Sending blindly the report, regardless if UE preference changed or not, seems inefficient (resources/power consumption).  • This behavior will also caused some performance degradation, as UE may send the report upon reception of a Reconfig message (trivial Reconfig message that didn’t change UE preference), but shortly after that network may reconfigure the UE (e.g. adding SCG with multiple CCs), where UE preference now is changed, but since prohibit timer is still running, UE can’t send another report, till timer expiry, which may force our UE to take some extreme measures (e.g. dropping the SCG in its entirety). |
| vivo | No | The current spec is ok. Only If UE thinks its preference changes, UE can send the new UAI, and the network should always keep the same interpretation as UE according to the newest UAI that the network receives.  For example, upon SCG addition, if UE still wants to keep reducedCCsDL set to 4 for MCG only, UE doesn’t need to send the new UAI, and the network will also follow the previous UAI report which is only intended for MCG. If UE wants to set the reducedCCsDL value for SCG, it can send the new UAI, and the network will also keep the same intention as UE by using the new UAI. |
| NEC | Maybe | No strong view. We assume the smart UE can take a proper action. If a Note is to be added, „In case of RRC reconfiguration“ seems ambiguous, so more clear wording is preferable (i.e. for the othre case, the situation is clear by the wording „In case overheating assistance for NR SCG is released“). |
| LG | Yes, but | Same view as Samsung that the CR is only necessary for the overheating situation. |
| ZTE | No | Agree with Huawei and QCOM’s comments. |
| Intel | Yes | The current specifications is not so clear to us on whether UE is allowed to send UAI or not. So it could be useful to be more specific. |

**Q8: For 36331, do companies agree with the problem identified and the changes in R2-2110784, R2-2110783?**

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| Company | Agree?  (Yes or No) | Comments |
| Nokia | Not essential | The CR is not essential. This may be an interesting case to analyse, but proposed resolution may be not helpful. In general RRC Reconfiguraton is expected after overheating assistance information sent by the UE, thus the UE is expected to send an updated overheating information. Also the procedural text (not a NOTE) says: 2> if the current overheating assistance information is different from the one indicated, which implies the change should be detectable by the UE. The NOTE seems to suggest there is different meaning of the "change" detection.  Furthermore, it maybe very rare or treted as inefficient network reconfiguration (i.e. wrong network reaction) if the UE wishes to repeat the same IEs after reconfiguration (it should get released from the overheating with proper NW Reconfiguration).  The proposed NOTE update is also removing SCG, which makes the "regular" overheating assistance unclear. |
| Huawei, HiSilicon | No | In our understanding, if the configuration is changed, the previous reported UAI should be applied to the new configuration. If the UE finds that the previous UAI is not suitable for the current configuration, UE can report a new one (the content of UAI is changed) and this is allowed by the current spec. For our understanding, no further clarification is needed. |
| Ericsson | Yes | Same comment as for Q7. |
| Samsung | Yes | Please see Q7 for overheating UAI. UE may consider different UAI upon SCG addition, as well as SCG release. |
| vivo | No | Same comment as for Q7. |
| NEC | Maybe | same as Q7 |
| LG | Yes | Same view as Samsung. |
| ZTE | No | Same comment as for Q7. |
| Intel | Yes | See comments in Q7 |

## 2.4 RRC Inactive

[R2-2109404](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109404.zip) Discussion on T302 OPPO discussion NR\_newRAT-Core

[R2-2109405](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109405.zip) Corrections on T302 OPPO CR Rel-15 38.331 15.15.0 2812 - A NR\_newRAT-Core

[R2-2109406](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109406.zip) Corrections on T302(R16) OPPO CR Rel-16 38.331 16.6.0 2813 - F NR\_newRAT-Core

The reason for changes is:

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| Based on current RRC spec, the UE will always stop T302 upon entering RRC\_IDLE, which is not correct when entering RRC\_IDLE is triggered by receiving CN paging for UE in RRC\_INACTIVE. |

**Q9: Do companies agree with the problem identified and the changes in R2-2109405,** **R2-2109406?**

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| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes | Before giving our conclusion, we’d like to give some background info for this change, In the RAN2 Ad hoc #1807 meeting, some details of the wait timer T302 have been discussed and agreements reached as follows:  *3 The UE shall respond to RAN paging and CN paging when T302 is running.*  *4 The UE is allowed to access for emergency when T302 is running.*  *5 At T302 expiry or T302 stopped, if NAS was informed that access was barred (due to T302 running) , then AS informs upper layers about barring alleviation (due to T302)*  *FFS Whether T302 is stopped on reception of RAN paging, CN paging, emergency call or reception of e.g. Resume or Setup or Release, etc messages.*  And in RAN2#113bis meeting, R2-1814187 was treated online, two options were listed in the paper:   1. Option 1: T302 is stopped upon reception of RAN paging, CN paging, emergency call. 2. Option 2: T302 is stopped upon reception of MSG4 (e.g. RRC Resume or Setup or Release, etc messages.)   After hot discussion online, option2 was agreed finally:  Agreement  1 The wait timer T302 (if running) is stopped when UE receives RRC Resume or RRC Setup message to enter RRC CONNECTED.  but the above agreement was not correctly captured into RRC spec, according to current RRC spec, the UE will always stop T302 upon entering RRC\_IDLE, which is not correct when entering RRC\_IDLE is triggered by receiving CN paging for UE in RRC\_INACTIVE. More details are given in discussion paper [R2-2109404](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_116-e\Docs\R2-2109404.zip). |
| Nokia | Yes, but | We think this is not so essential to correct as this is corner scenario.  In case where the UE goes to IDLE T302 is stopped. In case the INACTIVE UE paged with CN id the goes to IDLE. But in case the IDLE UE is paged with CN id the UE is not able to respond because T302 is still running. So it seems that there is confusion in the spec, but maybe not very critical to correct, becaus CN paging is used only in error scenario when the UE is INACTIVE. |
| Huawei, HiSilicon | No | We don’t see the problem. Accorging to the procedure, the UE in RRC\_INACTIVE stops T302 upon receiving CN paging. After that，upon receiving RRCSetup, the condition of “if T302 is running" would not be met, and thus T302 will not be stopped again. |
| Ericsson | No | We understand that according the existing spec the T302 is stopped twice for the identified use case. We also assume this in purely UE internal and gives no inter-op problems, or consequences if CR is not agreed. Hence CR is not critical. We think no CR is needed (but we are also open to other oppiniions). |
| Samsung | No | Nothing is broken i.e. paging is AC '0' so access attempt is always allowed. Upon reception of RRCSetup/Resume the current procedure text says 'if timer T320 is running', so there seems no room for misunderstanding. |
| QCOM | No | It’s a corner case, and it imposes an NBC behavior. No need to address it, as implication is minimal. |
| vivo | No | There are no problems.  Referring to the R2-1814187of RAN2#113bis meeting, it doesn’t explain the details of “ Option 1: T302 is stopped upon reception of RAN paging, CN paging, emergency call ". So we think the RAN paging and CN paging just refer to the normal case rather than the corner case (RRC INACTIVE UE receiving CN paging).  Besides, according to the RRC spec below, upon entering RRC\_IDLE, T302 should indeed be stoped. For RRC INACTIVE UE receiving CN paging case, RRC INACTIVE UE also goes to IDLE, so it should follow the T302’s rule.    In addition, agree with Samsung, paging is AC '0' so access attempt is always allowed. If there is another RRC connection establishment procedure initiated by the NAS layer due to barring alleviation, there are also no problems based on the agreement in RAN2#114 meeting “ The UE should not start the 2nd RRC connection establishment procedure when there is a RRC connection establishment procedure ongoing. "  Finally, agree with QC, it will raise the NBC issue. |
| NEC | No | We agree with the understanding of current spec (i.e. always stop T302 upon entering RRC\_IDLE), while we do not see a strong need of changes. CN paging reception in INACTIVE is corner case for fail-safe. |
| LG | No | We think there is no real problem to fix; a) We think T320 handling during connection setup/resume is not an issue as Huawei indicated. b) For barring alleviation upon reception of CN paging, this does not cause any problem since MT call is anyway allowed. |
| ZTE | No | As referred by vivo, according to the table in clause 7.1.1 of RRC spec, the UE should stop T302 if running in case reception of CN paging when UE is in RRC\_INACTIVE. So we think the CRs are not needed. |
| Intel | No | Though the behaviour mentioned in the CR may be desirable, we don’t see the current specifications as a big problem to require an essential Rel-15 correction. From the consequences if not approved in the cover page, the system impact from not having this CR is not clear. |

# 3 Conclusion

TBD

# 4 References

[1]