**3GPP TSG-RAN WG2 Meeting #115 electronic R2-21xxxxx**

**Online, Aug. 16th – Aug. 27th, 2021**

**Agenda Item: 5.4.1.1**

**Source: OPPO**

**Title: Report of [AT115-e][012][NR15] Connection Control I (OPPO)**

**Document for: Discussion and decision**

# Introduction

This document is to kick off the following email discussion:

* [AT115-e][012][NR15] Connection Control I (OPPO)

Scope: Determine agreeable parts in a first phase, for agreeable parts agree on CRs. For R2-2108415 await online, treat remaining parts if applicable. Treat R2-2108368, R2-2108369, R2-2108370, R2-2108636, R2-2108637, R2-2108371, R2-2108372, R2-2107373, R2-2107374, R2-2107418, R2-2107419, R2-2108187, R2-2108188,

Intended outcome: Report, agreed CRs if applicable

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.*

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# Discussion

Companies are requested to add their comments for each of the treated CRs of this email discussion in the boxes below.

## L1 Parameters

[1] [R2-2108368](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108368.zip) Discussion on BWP switch for TDD ZTE Corporation, Sanechips discussion Rel-15 38.331 NR\_newRAT-Core

[2] [R2-2108369](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108369.zip) Correction on firstActiveBWP-Id for TDD ZTE Corporation, Sanechips CR Rel-15 38.331 15.14.0 2768 - F NR\_newRAT-Core

[3] [R2-2108370](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108370.zip) Correction on firstActiveBWP-Id for TDD(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.5.0 2769 - A NR\_newRAT-Core

In [1][2][3], the company thinks that DL BWP switching and UL BWP switching are simultaneous for TDD. But for TDD RRC-based BWP switching, it is not clear that how to achieve the simultaneous DL and UL BWP switching. So the company suggests to add a note in TS38.331 like “*For TDD, when NW wants to switch the DLBWP and/or UL BWP by RRC, NW should include the fields firstActiveDownlinkBWP-Id and firstActiveUplinkBWP-Id simultaneously in a same RRC message.*”

**Q1: Do companies agree the changes of the CR in [2][3]?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes |  |
| Nokia | Yes, but… | We agree with the intent, but since this is a requirement on TDD which is well known already this is just enabled by sensible network behaviour. Is there any real problem in the field which seems to cause a different understanding now? |
| Ericsson | Maybe no | We somehow agree with Nokia. Probably this can be counted as an over-clarifation for a well-known behaviour. However, we don’t have a strong option on this and we can go with majority. |
| Huawei, HiSilicon | Maybe no | Agree with the intention, but not sure the NOTE is needed. As Nokia mentioned, it is TDD and this should be already known.  On the other hand, if we want to clarify this, we may need to consider other cases like the configuration of TDD+SUL. |
| MediaTek | Yes | We also agree the intention. We assume this is already common understanding and no strong view on whether to have additional clarification. |
| ZTE | Yes | As we mentioned in the paper, now we have the following two different understandings for handling of RRC based BWP switch in TDD:   * Comprehension 1: UE ensures the simultaneous DL and UL BWP switching for TDD. That is when a UE receives a RRC message only including the field *firstActiveDownlinkBWP-Id* that indicates a DL BWP switching, the UE shall switch the current DLBWP and ULBWP simultaneously to the target DLBWP and ULBWP with the same BWP-ID indicated by *firstActiveDownlinkBWP-Id*. * Comprehension 2: NW ensures the simultaneous DL and UL BWP switching for TDD.   Considering the comprehension 1 is similar as the BWP switch triggered by DCI (e.g. when BWP switch is indicated in DCI for one direction, the UE will switch the corresponding BWP in the other direction automatically), we think it is necessary to clarify whether such UE autonomous BWP switch is also applicable in RRC based BWP switch, or the NW has to ensure the simultaneous configuration of DL and UL BWP switching in RRC for TDD. |
| Samsung | Yes, but | We also share the intention of this CRs. No strong view on the additional clarification.  BTW, if the CR clarifies this aspect below change is more clear.  NOTE 2: For TDD, when NW wants to switch the DLBWP and/or UL BWP by RRC, NW should include the fields *firstActiveDownlinkBWP-Id* and *firstActiveUplinkBWP-Id* simultaneously (with same *BWP-Id*) in a same RRC message. |
| vivo | Maybe no | Given that the clarification “For unpaired spectrum, a DL BWP is paired with a UL BWP, and BWP switching is common for both UL and DL.” in MAC spec has already instructed the UE behaviour. That is, even if only first active UL/DL BWP is configured, the UE will switch the DL/UL BWP accordingly for TDD. So, maybe the note is not needed. |
| Apple | No strong view | We also agree with the intention and also feel it’s already known. |
| CATT | Maybe No | Agree with Nokia, the intention is right, but it is a requirement on TDD to perform the DL/UL BWP at the same time.  For TDD the BWP is to be paired using same BWP ID for DL and UL, so if only first active DL BWP ID or first active UL BWP ID is included in the RRC reconfiguration message, the UE will perform DL/UL BWP switch simultaneously, so there is no need to specify to include the first active UL BWP ID and the first active DL BWP ID at the same time in the RRC message. |
| QCOM | Yes | the current wording is not firm enough to mandate the intention of the CR, hence we suggested: *NOTE 2: For TDD, when NW wants to switch the DLBWP and/or UL BWP by RRC, NW ~~should~~ shall include the fields firstActiveDownlinkBWP-Id and firstActiveUplinkBWP-Id*  *simultaneously in a same RRC message*.  Wondering if we also need to mention that the UL and DL BWP ID should be pointing to the same BWP? |
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[4] [R2-2108636](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_115-e\Docs\R2-2108636.zip) Corrections on the absent condition of csi-ReportingBand Samsung CR Rel-15 38.331 15.14.0 2787 - F NR\_newRAT-Core

[5] [R2-2108637](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108637.zip) Corrections on the absent condition of csi-ReportingBand Samsung CR Rel-16 38.331 16.5.0 2788 - A NR\_newRAT-Core

In [4][5], company thinks the field description of *csi-ReportingBand* is not aligned with 38.214, so the absent condition of this field is corrected based on TS 38.214, clause 5.2.1.4.

**Q2: Do companies agree the changes of the CR in [4][5]?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes if no NCB issue | We agree the intention of the CR, but we wonder whether there is NCB issue. The cases of absent of the field are extended with the change. |
| Nokia | No | We think Samsung’s understanding is incorrect and this CR should be rejected. In fact, 38.214 Sec 5.2.1.4 does not say that csi-ReportingBand should be absent when the Reporting Setting has wideband frequency-granularity. Hence, what is proposed is not consistent with 38.214.  The current 38.331 specs is correct because csi-ReportingBand should be absent only when the sub-band size is not defined (for BWP<24 PRBs), in which case the report can only be of wideband frequency-granularity measured on the whole BWP. For BWP>=24 PRBs, according to 38.214, csi-ReportingBand should be present both in the case of sub-band and wideband frequency-granularity. For wideband reporting, csi-ReportingBand indicates on which sub-bands the wideband report should be calculated. Samsung’s CR changes this behaviour and would force a configuration where a wideband report can only be measured on the whole BWP.  Regarding the number of sub bands can be from 3 (24 PRBs, sub band size 8) to 18 (72 PRBs, sub band size 4). maybe it is a good thing to remove it, although not critical. We were a bit puzzled by this sentence in the past because in our understanding the maximum number of sub-bands is, in fact 19. In the 72 PRBs case, if the BWP starts at a PRB that is not multiple of 4 then we can have 19 sub-bands, which is also reflected in the maximum bit width of csi-ReportingBand.  The yellow highlighted sentence may be corrected in the rapporteurs CR since it is purely editorial change.  Lastly, the consequence if not approved is none. Rather our understanding is that consequence if approved is that currently spec-compliant networks could become non-compliant i.e. the proposed behavior is actually NBC to network implementation. |
| Ericsson | No | We agree with Nokia. Current specification is correct and we should avoid NBC changes at this stage. |
| Huawei, HiSilicon | No | We also didn’t find in 38.214 “for csi-ReportingBand, the absent condition of this field is that CSI Reporting Setting is set as ''wideband frequency-granularity''”, and the change is like NBC.  Further, we are also fine to remove “the number of sub bands can be from 3 (24 PRBs, sub band size 8) to 18”, given that we already introduced size subbands19-v1530, and the range is clear from the configuration itself. This is editorial and can be merged to rapporteur CR. |
| ZTE | No | We share the view with Nokia and Ericsson. And we also think NBC change shall be avoided. |
| Samsung |  | We understood the absent condition of csi-ReportingBand is that CSI Reporting Setting is set as ''wideband frequency-granularity'' but if some NW vendors implemented as Nokia mentioned (i.e. configuration of wideband report can be measured on the sub-band by UE), then we are fine to reject this change.  However, we wonder if that would be intended operation, is it better to be checked by RAN1?  In addition, we are fine that the second change (i.e. removing the “the number of sub bands can be from 3 (24 PRBs, sub band size 8) to 18”) could be merged in Rap CR. |
| Vivo | No | Disagree with the 1st change, it is incorrect and has NBC issue.  Agree with the 2nd change, which can be merged to rapporteur CR. |
| Apple | No | After checking 38.214, we tend to agree with Nokia’s comment. |
| CATT | No | Agree with Nokia, 38.214 Sec 5.2.1.4 does not say that csi-ReportingBand should be absent when the Reporting Setting has wideband frequency-granularity |
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## L2 Parameters

[6] [R2-2108371](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108371.zip) Correction on rach-ConfigBFR ZTE Corporation, Sanechips CR Rel-15 38.331 15.14.0 2770 - F NR\_newRAT-Core

[7] [R2-2108372](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108372.zip) Correction on rach-ConfigBFR(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.5.0 2771 - A NR\_newRAT-Core

In [6][7], company thinks the parameters *powerRampingStep*, *preambleReceivedTargetPower* and *preambleTransMax* in the field *rach-ConfigBFR* are used for CF-BFR and CB-BFR. So the field description of *rach-ConfigBFR* is not correct.

**Q3: Do companies agree the changes of the CR in [6][7]?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes |  |
| Nokia | No | ***rach-ConfigBFR***  Configuration of contention free random access occasions for BFR. The parameters *powerRampingStep*, *preambleReceivedTargetPower* and *preambleTransMax* in the field *rach-ConfigBFR* are used for CF-BFR and CB-BFR.  The proposed change in **BLUE** already contradicts with the first sentence? |
| Ericsson | No | We think the changes are not necessary. There are no issues with the current text. It doesn't say in RRC the parameters are \*only\* used for contention-free. |
| Huawei, HiSilicon | No | This kind of clarification is not needed, as 38.312 already clarified how to use the parameters.  If we do this kind of clarification, there would be other similar clarifications needed. |
| MediaTek | Maybe not | We agree that the concerned parameters are used both for CF-BFR and CB-BFR. However, it seems that it is already clear in 321 and almost no chance to have wrong implementation. So, maybe change is not needed. |
| ZTE | Yes | The main intention of the CR is to avoid the mismatch between RRC and MAC. If majority companies think a separate CR is not needed, we propose to merge this into Rapporteur’s CR (e.g. [R2-2108291](file://D://__会议\2021\202108_RAN2\TSGR2_115-e\Docs\R2-2108290.zip)).  The comment from NOKIA seems reasonable, and the change can be revised as follow:  ***rach-ConfigBFR***  Configuration of ~~contention free~~ random access ~~occasions~~ parameters for BFR |
| Samsung | No | Changes are not necessary. Usage of parameters is clear in MAC spec. |
| vivo | No strong view | These parameters are used both for CF-BFR and CB-BFR. The current clarification in 38.331 seems to cause some confusion, so we are ok to clarify. |
| Apple | No | Though technically the intention is correct, we also feel it’s not necessary to capture this. Otherwise should we also capture similar text into other CFRA configuration? |
| CATT |  | We agree with the intention, and we can accept the change, but if majority disagree, we follow the majority. |
| QCOM | No strong view | It’s already cleared in the spec |
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## Radio Bearer Config

[8] [R2-2107373](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2107373.zip) 38331 Clarifications on securityConfig in RadioBearerConfig-R15 OPPO CR Rel-15 38.331 15.14.0 2717 - F LTE\_NR\_DC\_CA\_enh-Core

[9] [R2-2107374](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2107374.zip) 38331 Clarifications on securityConfig in RadioBearerConfig-R16 OPPO CR Rel-16 38.331 16.5.0 2718 - A NR\_newRAT-Core

In [8][9], company thinks that the *securityConfig* in *RadioBearerConfig* is not clear for both field descriptipn and present condition. So the following changes are proposed:

1. For the first change, no need of the text in case of *securityConfig* IE is not present because the corresponding text is provided in the field description of *securityAlgorithmConfig* IE and *keyToUse* IE.
2. For the second change, the security algorithm will be configured in SMC for SA and NE-DC/NR-DC scenrioes. So the security algorithm in SMC can be reused in SA and NE-DC/NR-DC scenrioes for MN terminated beaerer.
3. For the third change, the security algorithm is not mandatory configured in RadioBearerConfig and security algorithm in SMC can be reused in SA and NE-DC/NR-DC scenrioes for MN terminated beaerer.
4. For the fourth change, if the bearer’s temination point is changed and if the target key to use is already associated security algorithm, the security algorithm can be not present in this case.

**Q4: Do companies agree the changes of the CR in [8][9]?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes |  |
| Intel | No | The current text is based on what was discussed and agreed at that time and we should not change this Rel-15 behaviour. First change: The original text cannot be deleted. The original text describes the UE behaviour when this field is not present. The referenced text describes the UE behaviour when this field is present and the sub-fields are not present. The description for the subfields cannot be used for the top field. Second change is not aligned with the expected behaviour in our understanding. The current text is based on the concept of uniform bearers. We do not do this optimisation to use the configuration from SMC for MN terminated bearers - the algorithm and key to use is based on what is in the RB config as specified in the current spec. Third change is related to second change and assuming that there is no need to provide the security algorithm for MN terminated bearers. Hence it is also not aligned with the expected behaviour in our understanding.  Forth change is not needed - the current behaviour is based on what was discussed then. We don’t think this should be changed at this time. Regarding "cannot be present" – we think it can be present and as long as the network provides the same algorithm, nothing is wrong. This was the expectation when the original text was written in our understanding. |
| Nokia | No | Agree with Intel |
| Ericsson | No | Agree with Intel. The CR is NBC and goes against established principles. According to field conditions RBTermChange and RBTermChange1, keyToUse and securityAlgorithmConfig are both mandatory at SRB or DRB setup, regardless of termination point, which means that network will always provide this at setup, and in subsequent reconfigurations if not included, the value configured before in radioBearerConfig is kept.  The proposed changes also does not work since there is no fixed relation between RadioBearerConfig1/2 and network termination point. So RadioBearerConfig2 could well be generated by MN. It is keyToUse which is decisive. |
| Huawei, HiSilicon | No | Agree with Intel |
| MediaTek | No | Similar view as Intel. We think current behavior does work (i.e. no real issue). And we should not change R15 behavior unless there is real bug. |
| ZTE | No | Agree with Intel |
| Samsung | No | We have assumed that it’s a NBC for signalling optimization.  Hence, the suggested change is not required. |
| vivo | No but | For the 1st change, the correction aligns with the usage of a parent IE with Need M code. If we object the correction, maybe the need code of ***securityConfig*** should be Need S?  For the 2nd change, the original text “currently configured security algorithm” does not preclude the case that configured in SMC. So, the correction is not needed.  For the 3rd change, MN can use RadioBearerConfig2 to configure MN terminated bearer and SN can use RadioBearerConfig to setup SN terminated bearer. So, the change seems incorrect. And it has NBC issue, which should be avoided.  For the 4th change, it seems an optimization, which is not needed for Rel-15 behaviour. |
| Apple | No | Agree with Intel. For the second change, our understanding is 3GPP intentionally introduced per bearer security configuration in the beginning. Though it’s true the SecurityAlgorithmConfig and KeyToUse for MN terminated bearer should be the same as the config in SMC, it is not needed to do the change as suggested. |
| CATT | No | Agree with Intel and Ericsson. |
| QCOM | No | no fixed relation between RadioBearerConfig1/2 and network termination point, i.e. spec doesn’t dedicated one notation to a specific CG. |
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[10] [R2-2107418](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2107418.zip) 38331 Clarifications on RadioBearerConfig-R15 OPPO CR Rel-15 38.331 15.14.0 2724 - F LTE\_NR\_DC\_CA\_enh-Core

[11] [R2-2107419](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2107419.zip) 38331 Clarifications on RadioBearerConfig-R16 OPPO CR Rel-16 38.331 16.5.0 2725 - A NR\_newRAT-Core

Based on the RAN2#99 agreement, both SRB and DRB can be configured with NR PDCP for EN-DC capable UE without EN-DC operation. Agreed CR [R2-2001179] is for DRB case.

In [10][11], company thinks the SRB case should be same as DRB cased.

1a EN-DC capable UE without EN-DC operation configured can be configured with NR PDCP version for SRBs and DRBs.

**Q5: Do companies agree the changes of the CR in [10][11]?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes |  |
| Nokia | Yes | Propose to move to rapporteur CR since the changes are rather editorial. |
| Ericsson | Yes | This editorial change should go in Rapporteur’s CR. |
| Huawei, HiSilicon | Yes |  |
| MediaTek | Yes | Suggest to put this in Rapporteur’s CR |
| ZTE | Yes |  |
| Samsung | Yes | It applicable also for SRB, as same in DRB |
| vivo | Yes |  |
| Apple | Yes | Also suggest to put this into Rapporteur’s CR. |
| CATT | Yes |  |
| QCOM | Yes |  |
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[12] [R2-2108187](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108187.zip) Release of RadioBearerConfig during MR-DC release Ericsson CR Rel-15 38.331 15.14.0 2756 - F NR\_newRAT-Core

[13] [R2-2108188](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2108_R2_115-e/Docs/R2-2108188.zip) Release of RadioBearerConfig during MR-DC release Ericsson CR Rel-16 38.331 16.5.0 2757 - A NR\_newRAT-Core

In [12][13], company thinks that when the MR-DC release is triggered, the UE should not release the RadioBearerConfig, unless the network instruct the UE. So the below note in TS 38.331 should be changed.

NOTE: Release of cell group means only release of the lower layer configuration of the cell group but the *RadioBearerConfig* may not be released.

**Q6: Do companies agree the changes of the CR in [10][11]?**

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| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| OPPO | Yes |  |
| Intel | No (see comments) | We agree with the intention. But we don’t think this change is needed as it is clear from the current specification text. We also think the proposed text is actually more confusing than the current text. |
| Nokia | No | The statement just discriminates lower layer configuration and leaves the RB config release to high layer. So this cannot be deleted and in fact if done so would break the specifications. |
| Ericsson | Yes | The main issue in the note is the term “may not” that is rather confusing. Our understanding is that the UE should never release the RadioBearerConfig unless instructed by the network.  However, the “may not” could also mean that the UE, autonomously, may decide to release the RadioBearerConfig by itself and this may create a misalignment with the UE context stored at the network.  Further, The term "may not" should not be used according to 21.801 as it can be confusing, and in this case we think it really is. |
| Huawei, HiSilicon | No | Agree with Nokia. We may not need to read the NOTE too much. |
| MediaTek | Yes (No strong view) | Looks correct but no critical. Suggest to put this in Rapporteur’s CR. |
| ZTE | Yes (No strong view) | Agree the intention. We are fine to merge this into Rapporteur’s CR. |
| Samsung | No | Share with Nokia’s view. |
| vivo | Yes | Agree with Ericsson. |
| Apple | No strong view | Not essential change. |
| CATT | No | Share with Nokia’s view. |
| QCOM | May be | Agree with the intention of the CR, but this change might cause more confusion … it would be better if the note was left as is and instead, an agreement was captured in the chair’s note. |
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# Conclusions

Based on the discussion above, we propose:

# Reference