3GPP TSG-RAN WG2 #113 electronic R2-20xxxxx

e-Meeting, 25 January – 05 February 2021

Agenda Item: 5.4.3

Source: ZTE, Sanechips

Title: Summary of offline [AT113-e][010][NR15] UE Capabilities II (ZTE)

Document for: Discussion, Decision

# 1 Introduction

This contribution summarizes the following discussion:

* [AT113-e][010][NR15] UE Capabilities II (ZTE)

Scope: Treat R2-2101559, R2-2101560, R2-2100064, R2-2101561, R2-2101913, R2-2101914, R2-2100961, R2-2100962,

Phase 1, determine agreeable parts, Phase 2, for agreeable parts Work on CRs.

Intended outcome: Report and Agreed CRs.

Deadline: Schedule A

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| **Deadline:** Email discussions with Deadline ***Schedule A***:  A first round with **Deadline for comments Thursday Feb 28 1200 UTC** to settle scope what is agreeable etc  A Final round with **Final deadline Thursday Feb 4 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. |

**Contact from companies**

|  |  |
| --- | --- |
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# Discussion

## 2.1 Part 1: Intended to determine agreeable parts

Part 1 discussion is focusing on reaching conclusion whether the proposals/CRs can be agreed in principle, and Part 2 discussion would then focus on detailed changes for those agreeable contributions.

### Bandwidth

In the current spec, for the *supportedBandwidthDL/supportedBandwidthUL/channelBWs-DL/channelBWs-UL*, it was noted that when determine the channel bandwidth the network shall also validate the *supportedBandwidthCombinationSet.* Meanwhile the s*upportedBandwidthCombinationSetIntraENDC* has been added for intra-band (NG)EN-DC/NE-DC with additional inter-band CA to limit the bandwidth of the intra-band component.

In the below 2 CRs, the s*upportedBandwidthCombinationSetIntraENDC* was added to the Note part of the *supportedBandwidthDL/supportedBandwidthUL/channelBWs-DL/channelBWs-UL.*

[R2-2101559](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101559.zip) CR on the SupportedBandwidth/channelBWs-R15 ZTE Corporation, Sanechips CR Rel-15 38.306 15.12.0 0515 - F NR\_newRAT-Core

[R2-2101560](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101560.zip) CR on the SupportedBandwidth/channelBWs-R16 ZTE Corporation, Sanechips CR Rel-16 38.306 16.3.0 0516 - A NR\_newRAT-Core

You may notice that the s*upportedBandwidthCombinationSetIntraENDC* was also discussed in another offline discussion [AT113-e][009][NR15], however it will not affect the general principle of this CR, it will only affect the wording highlighted in red as below*.*

*“ supportedBandwidthCombinationSetIntraENDC* (for intra-band (NG)EN-DC/NE-DC with additional inter-band CA component(s) of LTE and/or NR)”

Note: In this CR, the wording “(for intra-band (NG)EN-DC/NE-DC with additional inter-band CA component(s) of LTE and/or NR)” was added based on the current field description of *supportedBandwidthCombinationSetIntraENDC,* which can be further revised based on the offline discussion result [AT113-e][009][NR15] if necessary.

**Q1: Do companies generally agree with the intention and modification of the CRs above?** (Maybe with some correction for the wording of “for intra-band (NG)EN-DC/NE-DC with additional inter-band CA component(s) of LTE and/or NR” based on another offline discussion result [AT113-e][009][NR15])

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **Agree Intention**  **(Yes or No)** | **Agree Modifications**  **(Yes or No)** | **Comments** |
| Qualcomm Incorporated | Yes | Yes |  |
| Huawei, HiSilicon | Yes | No | We understand the intention, but we’d like to first confirm the usage of BCS in [009] before changing more parts relevant to this.  [ZTE] As explained above, the [009] may have some impact on the field description of *supportedBandwidthCombinationSetIntraENDC”.*  *However, the supportedBandwidthCombinationSetIntraENDC itself should be taken into the consideration when determine the bandwidth.*  *To make progress, we think the CR can be generally agreed in phase 1, then determine whether some revision was needed based on [009] in the phase 2.* |
| ZTE | Yes | *Yes (maybe with some correction based on [009])* | *As explained above, we think the CR can be generally agreed in phase 1, then determine whether some revision was needed based on result of [009] in phase 2.*  *Another solution is that don’t add any clarification to the supportedBandwidthCombinationSetIntraENDC in this CR if companies have concern on it.*  *“ supportedBandwidthCombinationSetIntraENDC* |
| Ericsson | Yes | No | The intention is ok. But the note just needs to clarify what fields are used to validate the UE supported BW. In which particular context they are used is already clarified in each corresponding field description. Hence, it is sufficient to say:  NOTE: To determine whether the UE supports a channel bandwidth of 90 MHz the network may ignore this capability for and validate instead the *channelBW-90mhz* and the *supportedBandwidthCombiantionSet*. For serving cells with other channel bandwidths the network validates the *channelBWs-UL*, the *supportedBandwidthUL*, and any of the fields *supportedBandwidthCombinationSet*, *supportedBandwidthCombinationSetIntraENDC* or *asymmetricBandwidthCombinationSet* ~~and~~ *~~supportedBandwidthUL~~*. |
| MediaTek | Yes | Maybe should wait | This is also related the definition of intra-band (NG)EN-DC/NE-DC with additional inter-band CA that we have to wait RAN4 reply. |
| OPPO | NO | NO | Since the detail definition of “intra-band (NG)EN-DC/NE-DC with additional inter-band CA component(s) of LTE and/or NR” is still under discussion, we’d better not to expand the usage of this term in other place. Plus “the supportedBandwidthCombinationSet” is not purely for NR DC/CA So good to wait for the conclusion of [009] before concluding on the CR here. |
| Nokia | Yes | Yes | Agree with ZTE that maybe it's best not to overload the description with details of intra-band EN-DC BCS. |
| CATT | Yes | No | We also think it’s better to wait for related discussions in [009]. |
| Intel | Yes | FFS | We need to first discuss generally how RAN2 define “intra-band EN-DC” and also identify UE capabilities we need to clarify. Also to check with RAN1/4 before updating the RAN2 specification. |
| Apple | Yes | Generally yes | Wording could be simplified. |
| Samsung | Yes | Yes | Agree with ZTE, maybe some wording correction could be applied based on this CR. |
| LG | Yes |  | Further discussion on the changes seems beneficial |

Summary:

12 companies responded to the question and 11 companies agree with the intention of this CR. For the modification part, 5 Companies generally agree with the modification, 5 companies prefer to wait for the Ran4’s further clarification in offline [009] on the details of intra-band EN-DC BCS, and there are also 3 companies prefer not to overload the description with details of intra-band EN-DC BCS. Considering that almost all of the companies agree with the intention of this CR and the main concern is on the wording of“(for intra-band (NG)EN-DC/NE-DC with additional inter-band CA component(s) of LTE and/or NR)”, it tends to pursue these 2 CRs, and update the wording based on the comments and/or the clarification in offline [009]. The solution by not overloading the description with details of intra-band EN-DC BCS is also not precluded.

**Proposal 1: Tend to pursue CR [R2-2101559](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101559.zip)/[R2-2101560](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101560.zip), and update the CR wording in phase 2 based on the comments and/or the clarification in offline [009]. The solution by not overloading the description with details of intra-band EN-DC BCS is not precluded.**

### 2.1.2 SUO for intra-band EN-DC

On this topic, we would like to discuss some detail issues first then collect companies’ views on which CRs can be taken as baseline.

[R2-2100064](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100064.zip) LS on single UL operation (RP-202932; contact: Huawei) RAN LS in Rel-15 NR\_newRAT-Core To:RAN2, RAN4

[R2-2101561](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101561.zip) Clarification on the SingleUL-Transmission ZTE Corporation, Sanechips discussion Rel-15 NR\_newRAT-Core

[R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip) Clarfication on single uplink operation capability report (LS Contact) Huawei, HiSilicon CR Rel-15 38.306 15.12.0 0524 - F NR\_newRAT-Core

[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip) Clarfication on single uplink operation capability report (LS Contact) Huawei, HiSilicon CR Rel-16 38.306 16.3.0 0525 - A NR\_newRAT-Core

[R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip) Handling of single UL for intra-band EN-DC band combinations Nokia, Nokia Shanghai Bell CR Rel-15 38.306 15.12.0 0497 - F NR\_newRAT-Core

[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip) Handling of single UL for intra-band EN-DC band combinations Nokia, Nokia Shanghai Bell CR Rel-16 38.306 16.3.0 0498 - A NR\_newRAT-Core

According to above papers, as clarified in [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip)/[R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip),it is mandatory to report this field for BCs where only single switched UL transmission is allowed as defined in TS 38.101-3 [4]. (In [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip), it said the UE shall include this field for band combinations for which only single UL transmission is specified in TS 38.101-3 [4] if the UE supports UL on the carriers where only single UL is specified.)

**Q2: Do companies generally agree that “it is mandatory to report *singleUL-Transmission***

**field for BCs where only single switched UL transmission is allowed as defined in TS 38.101-3 [4]”**

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree?**  **(Yes or No)** | **Comments** |
| Qualcomm Incorporated | Yes |  |
| Huawei, HiSilicon | Yes | Proponent |
| ZTE | Yes |  |
| Ericsson | No | Actually singleUL-Transmission is an incapability bit. So we prefer to not mandate an incapability. Our understanding is that RAN4 is also working on some clarification in their specifications, we think this may be sufficient. |
| MediaTek | Yes, but | We are okay to follow RP guideline. However, we would like to clarify first how to differentiate case 1 and case 2. There is only single *singleUL-Transmission* parameter per BC (See also our comment in Q4).  Case 1: the UE reports *DC\_****2A****\_7A\_66A\_****n66A*** (i.e. UL allowed in 2A and n66A), *singleUL-Transmission* is not required to be reported  Case 2: the UE reports *DC\_2A\_7A\_****66A****\_****n66A*** (i.e. UL allowed in 66A and n66A), *singleUL-Transmission* is required to be reported  [Rapporteur] There was a related discussion inQuestion 5 of [AT110e][023][NR15] UE Cap Miscellaneous III **Q5: If the understanding B is preferred, do companies agree that only when the per BC parameters are consistent among the fallback BCs , the UE can put these fallback BCs (e.g. BC A+B, BC A+C and BC B+C) into a supper BC (e.g. BC A+B+C).**  And all of the companies agree with this understanding. The singleUL-Transmission *is also a per BC parameter, thus the case* 1 and case 2 would be reported separately. (They would not be put into a super BC) |
| OPPO | Yes |  |
| Nokia | Yes |  |
| CATT | Yes |  |
| Intel | Yes |  |
| Apple | Yes |  |
| Samsung | Yes |  |
| LG | Yes |  |

Summary:

12 companies responded to the question and 11 companies agree that“It is mandatory to report *singleUL-Transmission*

field for BCs where only single switched UL transmission is allowed as defined in TS 38.101-3” , 1 company say no for that RAN4 is also working on some clarification in their specifications, which may be sufficient. Meanwhile 1 company wants to clarify how to distinguish the case 1/case 2, which would be concluded in Q4. To respect the majority, the proposal 2 is as below.

**Proposal 2: It is mandatory to report *singleUL-Transmission* field for BCs where only single switched UL transmission is allowed as defined in TS 38.101-3.**

Furthermore, as noted/discussed in the [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip)/[R2-2101561](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101561.zip), for the legacy problematic UE (the UE that only supports single UL transmission for a BC, but doesn’t report *singleUL-Transmission* for that BC), the network ignore the BC or ignore the single UL transmission requirement in the BC.

**Q3: Do companies generally agree that “**For UE with earlier version, if *singleUL-Transmission* field is not included in a BC where only single switched UL transmission is allowed, the network may ignore the BC”?

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| --- | --- | --- |
| **Company** | **Agree?**  **(Yes or No)** | **Comments** |
| Qualcomm Incorporated |  | (Not sure how we can respond by Yes or No to the question above.)  It looks unsafe to just ignore the single UL transmission limitation that the UE may have. Safest approach would be to consider such band combination is invalid.  [Rapporteur] We had a littler modification to the question, hope that can avoid the confusion. |
| Huawei, HiSilicon |  | We understand Q3 is a bit confusing. The original change was to ignore the BC, or the part of the BC which requires the single UL transmission. We did not propose to ignore the single UL requirement. So basically we have same understanding as QC.  [Rapporteur] We had a littler modification to the question, hope that can avoid the confusion. |
| ZTE | Yes | Note: With rapporteur hat on, we also had a little modification to the question itself to avoid the confusion that mentioned by Qulcomm and Huawei.. |
| Ericsson |  | We think we do not need to spend much time on this case, which would be more an error case, but either of the option in Q3 could happen, i.e. “ignore the BC or consider that this UE supports dual UL, since it did not report the incapability bit”. Especially the latter option is basically how any other UE capability parameter would work i.e. the network can know what the UE supports based on what the UE reported. |
| MediaTek |  | Network to use dual UL operation in a BC that only supports single UL is not desired. Assuming that the BC is not supported could work. (But still seems not a good solution though) |
| OPPO | YES |  |
| Nokia |  | This would be a non-compliant UE as per 3GPP specification so it's up to network how to handle those.  Whether to Okay to have this captured that network can ignore such BC if UE did not report the capability when reporting independently such a BC can be discussed - what should be clear is that such UE is not specification compliant, which should also be captured if we capture some guideline for the networks. |
| CATT | Seems comments | So first of all the single ul tx requirement of that band has to be met as per R4 spec. Then our understanding is that there is room for NW implementation in this kind of band, if the capability bit for some UEs are not included.  But on the other hand we tend to agree with Ericsson that this looks more like an error case, so let’s not over optimize it. If majority agrees that in this case NW will ignore this BC for the UE, that is also fine with us. |
| Intel |  | We don’t think we need to specify network behaviour here. Network will do what it thinks is the safest without further specification. |
| Apple | Yes with the modification |  |
| Samsung | Yes | This is the safest way. |
| LG | yes | This is safer than assuming incorrect UE capabilities for the BC. |

Summary:

12 companies responded to the question and 9 companies agree or accept that“For UE with earlier version, if *singleUL-Transmission* field is not included in a BC where only single switched UL transmission is allowed, the network may ignore the BC”. 4 companies think for this error case, no need to specify network behavior here. 1 company also mentioned that use dual UL operation in a BC that only supports single UL is not desired. Based on these input, we’d like to give the following proposal.

**Proposal 3: For UE with earlier version, if *singleUL-Transmission* field is not included in a BC where only single switched UL transmission is allowed, the network may ignore the BC.**

**Q3-a: If say yes to the Q3, do companies generally agree to add a related note (e.g. Note in the** [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip)) **to the field description of *singleUL-Transmission?***

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| **Company** | **Agree?**  **(Yes or No)** | **Comments** |
| Qualcomm Incorporated | Yes |  |
| Huawei, HiSilicon | Yes | Proponent |
| ZTE | Yes |  |
| Ericsson | No | See comments in Q3, we think this is not essential to clarify. |
| MediaTek | No | Do not configure this BC is up to NW implementation. Seems no need to have this NOTE. |
| OPPO | No | In case UE is mandated to report, then network’s behaviour is also clear and spec normally doesn’t capture network’s interpretation |
| Nokia | Partly Yes | For the CR text, we prefer the wording in R2-2100961/692 as clearer alternative.  Okay to capture a note in addition but more correct wording would be to align with TS38.101-3, which defines that “Only single switched UL is supported.” |
| CATT | seem comments | As mentioned in previous question we tend to think this is error case, which, if really happened, can be handled via NW implementation. |
| Intel | No |  |
| Apple | Generally Yes |  |
| Samsung | No | No need to have this Note if UE is mandated to report this field. |
| LG | Yes |  |

Summary:

12 companies responded to the question and 6 companies agree to add a related note (e.g. Note in the [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip)) to the field description of singleUL-Transmission, 6 companies think it’s not essential to clarify.

**Proposal 4: No need to add a related note in CR for the proposal 3.**

The forth question is for the field description of *tdm-Pattern*, as clarified in the [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip), *“When RAN2 discussed the Rel-15 SUO, the support of TDM pattern was coupled to the SUO capability since it was necessary for UE to support such operation. However, there was still the option for network to not use the TDM pattern but rely on scheduling to resolve the single UL operation. Therefore, for these new cases where single UL is required, it seems not necessary to require UE to always support the TDM pattern”*, some modification was also added for the *tdm-Pattern in* [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip)*.*

**Q4: Do companies generally agree with the modification for the *tdm-Pattern* in the** [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip) **?**

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| **Company** | **Agree?**  **(Yes or No)** | **Comments** |
| Qualcomm Incorporated | No | Change to singleUL-Transmission is sufficient because the inclusion of tdm-Pattern is already conditioned on singleUL-Transmission. Also, UE “allowing” something via UE capability signalling is also a bit strange. |
| Huawei, HiSilicon | No | We agree that tdm-Pattern is not the capability which directly associates with the RAN4 defined band combinations where single UL is required.  The tdm-Pattern is conditionally mandatory when the UEs do not support dynamic power sharing, or support single UL transmission. So no further discussion is needed here, the conditions when mandating the tdm-Pattern is already captured well in the current field description. |
| ZTE | FFS | We understand the intention, but the main modification is for the “other case”, we don’t think it’s necessary to add this clarification. Anyway we can follow the majorities’ view on it. |
| Ericsson |  | As we do not see a need for a modification in the *singleUL-Transmission* field description, there would also be no need for a change in *tdm-Pattern*. |
| MediaTek | No | Change on *tdm-Pattern* is not necessary. |
| OPPO |  | no strong opinion but would like to understand why there is difference between this case and other existing case. |
| Nokia | Yes | Proponent - however, if companies think we should stick to Rel-15 capability coupling, we would like to understand how network should handle UEs which do NOT indicate the *tdm-Pattern-r15* capability: Are those UEs also not specification compliant (which means it's up to network how to handle them and like with previous question, network can just ignore those band combinations)? Also, we would like to make it clear that just like with Rel-15, it is up to network whether to apply Case 1 (i.e. LTE TDM pattern configuration) or Case 2 (i.e. no TDM pattern, network ensures by scheduling only single UL is used) behaviour is followed (i.e. UE cannot request the network to utilize TDM pattern for BCs that require single UL). |
| CATT | No | Since the conditions when mandating the tdm-Pattern is already captured in the current field description. |
| Intel | No |  |
| Apple | No | As explained by Huawei, tdm-Pattern is conditioned on singleUL-Transmission. |
| Samsung |  | No strong view on this clarification. We will follow the majority view. |
| LG | No | tdm-Pattern is already conditional mandatory for UE indicating single UL transmission. No further changes on tdm-Pattern are not needed. |

Summary:

12 companies responded to the question. 1 company thinks it’s necessary to have modification for TDM pattern for that for these new cases, there was still the option for network to not use the TDM pattern but rely on scheduling to resolve the single UL operation. But 8 companies disagree with the modification to the *tdm-Pattern* for that the conditions when mandating the *tdm-Pattern* is already captured well in the current field description., 3 companies have no strong view on it,

**Proposal 5: No Modification to the *tdm-Pattern.***

The fifth question is about the BC reporting, as clarified in the [R2-2101561](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101561.zip), the BCs that have different *singleUL-Transmission* capabilities shall be reported in different BCs.

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| --- |
| **Observation 1: The BCs that with different UL band component shall not be reported in a super BC if the corresponding super BC are not defined in RAN4.**  **Proposal 1: The BCs that have different *singleUL-Transmission* capabilities shall be reported in different BCs.** |

**Q5: Do companies generally agree that “the BCs that have different *singleUL-Transmission* capabilities shall be reported in different BCs”?**

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| --- | --- | --- |
| **Company** | **Agree?**  **(Yes or No)** | **Comments** |
| Qualcomm Incorporated | Yes | We understand this is for band combinations where single UL and simultaneous transmissions are supported. |
| Huawei, HiSilicon | Yes | We understand existing mechanism already supports so and no specification change is required? |
| ZTE | Yes | It’s just a clarification, no spec change is needed. |
| Ericsson |  | We agree the UE may report a fallback band combination for which it supports additional functionality compared to its corresponding superset band combination. But this is more a generic statement and there seems to be nothing to clarify particularly for *singleUL-Transmission*. |
| MediaTek | No | We actually would like to clarify first on the following 2 cases from RP  Case 1: the UE reports *DC\_****2A****\_7A\_66A\_****n66A*** (i.e. UL allowed in 2A and n66A), *singleUL-Transmission* is not required to be reported  Case 2: the UE reports *DC\_2A\_7A\_****66A****\_****n66A*** (i.e. UL allowed in 66A and n66A), *singleUL-Transmission* is required to be reported  Note that this is not fallback band. Case 1 and Case 2 have exact the same band entry but have different support on UL bands. Is the current procedure text request UE to report Case 1 and Case 2 in different band entry?  [Rapporteur]Same comments as in Q2.  There was a related discussion inQuestion 5 of [AT110e][023][NR15] UE Cap Miscellaneous III **Q5: If the understanding B is preferred, do companies agree that only when the per BC parameters are consistent among the fallback BCs , the UE can put these fallback BCs (e.g. BC A+B, BC A+C and BC B+C) into a supper BC (e.g. BC A+B+C).**  And all of the companies agree with this understanding. The singleUL-Transmission *is also a per BC parameter, thus the case* 1 and case 2 would be reported separately. (They would not be put into a super BC) |
| OPPO | Yes | I guess the question is “**the BCs that have different *singleUL-Transmission* capabilities shall be reported as different BCs**” |
| Nokia | Yes | This question basically asks if single UL is considered in fallback BC relation: We think so, and this is aligned to how RAN2 capabilities are already defined, so no spec change is really needed. |
| CATT | Yes | This is aligned with the current UE capability framework for multiple band combinations. |
| Intel | Yes | No specification change is needed. |
| Apple | Yes | Agree with the intention. No spec change is required. |
| Samsung | Yes | We understand this is what RAN2 signalling works. |
| LG | Yes | But no spec change is needed |

Summary:

12 companies responded to the question. 11 companies agree that“the BCs that have different singleUL-Transmission capabilities shall be reported in different BCs”and no spec change is needed. Meanwhile 1 company wants to clarify how to distinguish the case 1/case 2, as explained above, the similar issue was clarified in [AT110e][023][NR15], for the case 1 and case 2, the BCs shall be reported separately.

**Proposal 6: The BCs that have different *singleUL-Transmission* capabilities shall be reported in different BCs, no spec change is needed.**

Based on the above questions, we want to collect companies’ views on which CRs can be chosen as the baseline CR.

Option 1: [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip)

Option 2: [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip)

**Q6: Which CRs can be chosen as the baseline CR?**

**Option 1:** [**R2-2100961**](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)**/**[**R2-2100962**](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip)

**Option 2:** [**R2-2101913**](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)**/**[**R2-2101914**](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip)

|  |  |  |
| --- | --- | --- |
| **Company** | **Option?**  **(1or 2)** | **Comments** |
| Qualcomm Incorporated | 2 |  |
| Huawei, HiSilicon | 2 | As the LS contact we are volunteer to continue updating the potential agreeable CRs. Of course the further updates are dependent on the above feedback from companies. |
| ZTE | 2 |  |
| Ericsson |  | See comments to Q2 and Q3, we actually do not see a need to capture anything in RAN2 specifications. |
| MediaTek | 2 | But the NOTE could be removed. |
| Nokia | Don’t care | We are okay to work with the LS contact company to have a set of agreeable CRs but prefer the wording in our CR as the Huawei CR has typos and the text is not clear in all cases. |
| CATT | 2 |  |
| Intel | 2 | The note should be removed |
| Apple | 2 |  |
| Samsung | 2 |  |
| LG | 2 |  |

Summary:

12 companies responded to the question. 10 companies prefer to. 1 company prefer the wording in [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip)/[R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip), 1 company doesn’t not see a need to capture anything in RAN2 specifications.

**Proposal 7: Take [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip) as baseline CRs, and update the wording in phase 2 based on the comments from companies.**

## 2.2 Part 2: Intended to progress discussion on agreeable parts

- To be updated after discussion on part 1 -

# 3 Conclusion

Proposals based on the phase 1 discussion:–

**Proposal 1: Tend to pursue CR [R2-2101559](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101559.zip)/[R2-2101560](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101560.zip), and update the CR wording in phase 2 based on the comments and/or the clarification in offline [009]. The solution by not overloading the description with details of intra-band EN-DC BCS is not precluded.**

**Proposal 2: It is mandatory to report *singleUL-Transmission* field for BCs where only single switched UL transmission is allowed as defined in TS 38.101-3.**

**Proposal 3: For UE with earlier version, if *singleUL-Transmission* field is not included in a BC where only single switched UL transmission is allowed, the network may ignore the BC.**

**Proposal 4: No need to add a related note in CR for the proposal 3.**

**Proposal 5: No Modification to the *tdm-Pattern.***

**Proposal 6: The BCs that have different *singleUL-Transmission* capabilities shall be reported in different BCs, no spec change is needed.**

**Proposal 7: Take [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip)/[R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip) as baseline CRs, and update the wording in phase 2 based on the comments from companies.**

# 4 References

1. [R2-2101559](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101559.zip) CR on the SupportedBandwidth/channelBWs-R15 ZTE Corporation, Sanechips CR Rel-15 38.306 15.12.0 0515 - F NR\_newRAT-Core
2. [R2-2101560](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101560.zip) CR on the SupportedBandwidth/channelBWs-R16 ZTE Corporation, Sanechips CR Rel-16 38.306 16.3.0 0516 - A NR\_newRAT-Core
3. [R2-2100064](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100064.zip) LS on single UL operation (RP-202932; contact: Huawei) RAN LS in Rel-15 NR\_newRAT-Core To:RAN2, RAN4
4. [R2-2101561](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101561.zip) Clarification on the SingleUL-Transmission ZTE Corporation, Sanechips discussion Rel-15 NR\_newRAT-Core
5. [R2-2101913](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101913.zip) Clarfication on single uplink operation capability report (LS Contact) Huawei, HiSilicon CR Rel-15 38.306 15.12.0 0524 - F NR\_newRAT-Core
6. [R2-2101914](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101914.zip) Clarfication on single uplink operation capability report (LS Contact) Huawei, HiSilicon CR Rel-16 38.306 16.3.0 0525 - A NR\_newRAT-Core
7. [R2-2100961](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100961.zip) Handling of single UL for intra-band EN-DC band combinations Nokia, Nokia Shanghai Bell CR Rel-15 38.306 15.12.0 0497 - F NR\_newRAT-Core
8. [R2-2100962](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100962.zip) Handling of single UL for intra-band EN-DC band combinations Nokia, Nokia Shanghai Bell CR Rel-16 38.306 16.3.0 0498 - A NR\_newRAT-Core