3GPP TSG-RAN WG2 Meeting #114 Electronic R2-210xxxx

Elbonia, 19 – 27 May 2021

**Agenda item: 6.1.3.1**

**Source: Nokia (Rapporteur)**

**Title: [AT114-e][018][NR16] MAC III (Nokia)**

**WID/SID: NR\_unlic-Core, NR\_IIOT-Core,** **NR\_IAB-Core, NR\_2step\_RACH-Core, TEI16 - Release 16**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

* [AT114-e][018][NR16] MAC III (Nokia)

 Scope: Treat R2-2104724, R2-2105231, R2-2105865, R2-2105232, R2-2105749, R2-2106031, R2-2106321, R2-2105851

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

 Intended outcome: Report and Agreed CRs.

 Deadline: Schedule A

# 2 Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
| Nokia (Rapporteur) | Chunli Wu | Chunli.wu@nokia-sbell.com |
| Qualcomm  | Linhai He | linhaihe@qti.qualcomm.com |
| LG | SunYoung LEE | ssunyoung.lee@lge.com |
| Xiaomi | Yumin Wu | wuyumin@xiaomi.com |
| Lenovo | Joachim LÖhr | jlohr@lenovo.com |
| Ericsson2 | Martin van der ZeeZhenhua Zou | martin.van.der.zee@ericsson.comzhenhua.zou@ericsson.com |
| vivo | Yitao Mo (Stephen) |  Yitao.mo@vivo.com |
| ZTE | Fei Dong | dong.fei@zte.com.cn |
| CATT | Pierre Bertrand | pierrebertrand@catt.cn |
| Huawei, HiSilicon |  Chong Lou | louchong@huawei.com |
| Samsung | Donggun Kim | s\_dg.kim@samsung.com |
| OPPO | ShiCong | shicong@oppo.com |
| Intel | Yujian Zhang | yujian.zhang@intel.com |
| MediaTek | Pradeep Jose | pradeep[dot]jose[at]mediatek[dot]com |
| Apple | Ralf Rossbach | rrossbach@apple.com |
|  |  |  |

# 3 Discussion

Phase 1 discussions

NR-U

[R2-2104724](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2104724.zip) LS on SCell activation requirements for NR-U (R4-2105699; contact: Nokia) RAN4 LS in Rel-16 NR\_unlic-Core To:RAN2

Moved here

[R2-2105231](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2105231.zip) Analysis on SCell activation/deactivation requirements for NR-U Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

No action is required from the RAN4 LS R2-2104724, which also stated in the contribution R2-2105231 “Proposal 1: The RAN4 LS on SCell activation requirements for NR-U has no explicit impacts to RAN2 specs.” Rapporteur propose to note the LS.

**Question 1**: Do companies agree there is no impact to RAN2 from the RAN4 LS and the LS can be noted?

|  |
| --- |
| Answers to Question 1 |
| Company | Yes/No | Technical Arguments |
| Qualcomm | Yes |  |
| LG | Yes |  |
| Xiaomi | Yes |  |
| Lenovo | Yes |  |
| Nokia | Yes |  |
| vivo | Yes |  |
| ZTE | Yes |  |
| Ericsson | Yes |  |
| CATT | Yes |  |
| Huawei, HiSilicon | Yes |  |
| Samsung | Yes |  |
| OPPO | Yes |  |
| Intel | Yes |  |
| MediaTek | Yes |  |
| Apple | Yes |  |
|  |  |  |

**Summary 1**: All the companies agree there is no impact to RAN2 from the RAN4 LS and the LS can be noted.

**Proposal 1**: LS R2-2104724 is noted. No impact to RAN2.

The following proposal is proposed in R2-2105231 for *sCellDeactivationTimer* handling in MAC:

**“Proposal 2: If an SCell Activation/Deactivation MAC CE is received deactivating the SCell configured with shared spectrum channel access, UE may stop the *sCellDeactivationTimer* associated with the SCell after the HARQ feedback for the SCell deactivation MAC CE is successfully transmitted. ”**

**Question 2**: Do companies think the change proposed in proposal 2 in R2-2105231 is needed?

|  |
| --- |
| Answers to Question 2 |
| Company | Yes/No | Technical Arguments |
| Qualcomm | No | The problem described in the paper could happen in theory but it should be a rare event. Even if LBT failure persists for a very long time, it is likely that RLF will be triggered. Lastly, the proposed solution itself is not completely fault proof either, e.g. in the case where there is persistent HARQ feedback failure.  |
| LG | No | Although HARQ feedback is not transmitted due to LBT failure, *sCellDeactivationTimer* will be finally expired and the SCell will be in deactivated state. The statement in TS38.321 should not prevent expiring *sCellDeactivationTimer*. ‘The MAC does not stop *sCellDeactivationTimer*’ is not equal to ‘The MAC prevents *sCellDeactivationTimer* expired’.1> else if an SCell Activation/Deactivation MAC CE is received deactivating the SCell; or1> if the *sCellDeactivationTimer* associated with the activated SCell expires:2> deactivate the SCell according to the timing defined in TS 38.213 [6];2> stop the *sCellDeactivationTimer* associated with the SCell; |
| Xiaomi | No | If the HARQ feedback for the SCell deactivation command is not transmitted due to LBT failure, the UE will trigger “5.21.2 LBT failure detection and recovery procedure”. It seems there is no issue to resolve. |
| Lenovo | No  | Agree with others that in the rare case that LBT failure occurs for very long time, other mechanism will kick in like e.g. LBT failure recovery mechanism |
| Nokia | No | Agree with others. |
| vivo | No with comments | In our understanding, RAN4 specs generally specify the minimum requirement for in the worst case and the current UE behavior in NR-U can satisfy those requirements. In this sense, the CR might be no needed. To say the least, if a change is needed, we think not only the stopping of the *sCellDeactivationTimer*, but also the other operations (e.g. stopping of the *bwp-InactivityTimer*) belonging to Scell deactivation should be also considered. This is because RAN4 specifies the minimum requirement for whole Scell deactivation actions, not just the operation for *sCellDeactivationTimer*. Moreover, considering LBT failure detection is optional and the UE might suffer from consistent LBT failures, then, according to CR, the UE might never a chance to stop the *sCellDeactivationTimer* if LBT always fails. In another word, the proposed solution may lead to a dead-lock issue, which is not preferred. |
| ZTE | No | This is an optimization. The same issue can also occur in the licensed spectrum, such as the poor channel condition (where the MAC CE is lost). In anycase, the LBT failure detection/recovery can resolve this issue.  |
| Ericsson | No | The UE should deactivate the SCell independent of whether it was able to transmit the ACK/NACK or not:TS 38.213 V16.5.0, clause 4.3 (Timing for secondary cell activation / deactivation)With reference to slots for PUCCH transmissions, if a UE receives a deactivation command [11, TS 38.321] for a secondary cell ending in slot , the UE applies the corresponding actions in [11, TS 38.321] no later than the minimum requirement defined in [10, TS 38.133], except for the actions related to CSI reporting on an activated serving cell which the UE applies in slot *.*  |
| CATT | No | We agree with above comments and, in addition, it is specified that the UE will accomplish the deactivation actions for the SCell being deactivated no later than in slot *n+(THARQ+3ms)*/*NR\_slot\_length*. This means this is the maximum time duration and so MAC spec is not inconsistent with RAN4. |
| Huawei, HiSilicon | Yes | Regarding the comments from LG, according to 321, sCellDeactivationTimer will be stopped so later there will be no such condition as sCellDeactivationTimer expiry.For normal scheduling cases, we agree the HARQ-ACK LBT issue can be resolved by existing mechanism or sensible NW implementation. However, HARQ-ACK LBT issue in SCell deactivation case would cause unnecessary burden of “keeping SCell alive” as the UE can have no choice but to only rely on LBT recovery and RLF. |
| Samsung | No | We share the view with Qualcomm. |
| OPPO | No | We share majority views |
| Intel | No | There is no need for tracking this using *sCellDeactivationTimer* as UL LBT detection and recovery mechanism will kick in if the HARQ feedback failure persists. |
| MediaTek | No | Agree with Intel |
| Apple | No | In our understanding, the UE stops the timer only after deactivating the SCell according to the timing defined in TS 38.213 in the procedure below. 1> else if an SCell Activation/Deactivation MAC CE is received deactivating the SCell; or1> if the *sCellDeactivationTimer* associated with the activated SCell expires:2> deactivate the SCell according to the timing defined in TS 38.213 [6];2> stop the *sCellDeactivationTimer* associated with the SCell;If an LBT failure happens during SCell deactivation then the deactivation procedure drags on until either the LBT failure detection and recovery procedure kicks in or the *sCellDeactivationTimer* expires. In the latter case, sensible implementation can detect a timer expiration during deactivation and handle it gracefully.  |
|  |  |  |

**Summary 2**: no company other than the proponent company supports the proposal 2 from R2-2105231.

**Proposal 2**: Proposal 2 on sCellDeactivationTimer handling for NR-U in R2-2105231 is not agreed.

[R2-2105865](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2105865.zip) Clarification on prioritization of retransmission over initial transmission for HARQ PID selection in NR-U Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.4.0 1115 - F NR\_unlic-Core

R2-2105865 proposed to clarify that the UE shall prioritize retransmissions before initial transmissions is only applicable to HARQ PID selection but not for intra-UE prioritization for multiple UL grants, since there has been some different understandings in the context of I-IoT discussions:

|  |
| --- |
| For configured uplink grants configured with *cg-RetransmissionTimer*, the UE implementation selects an HARQ Process ID among the HARQ process IDs available for the configured grant configuration. For HARQ Process ID selection, the UE shall prioritize retransmissions before initial transmissions. The UE shall toggle the NDI in the CG-UCI for new transmissions and not toggle the NDI in the CG-UCI in retransmissions. |

**Question 3**: Do companies agree with the issue and if yes, are the suggested changes fine or does the text need to be improved / corrected ?

|  |
| --- |
| Answers to Question 3 |
| Company | Yes/No | Technical Arguments |
| Qualcomm | No | We do not think the reasons for change is correct. The agreement was for grant selection. Moreover, we do not think there is HARQ PID selection for retransmission. |
| LG | Yes | Indeed, it is a necessary clarification. The intention is to prioritize retx over initial when selecting HARQ PID. Regarding QC’s comment, we don’t think there is an intention to select HARQ PID even for retransmission. |
| Xiaomi | No | We understand that the current specification text is to avoid new data flushing the old data in the HARQ process when the cg-RetransmissionTimer expires. However the whole paragraph is under the condition “configured uplink grants configured with *cg-RetransmissionTimer*”. This is definitely not for I-IOT CG. And RAN2 already agreed that the gNB implementation will ensure that no functional collision for the CG handling between NR-U and IIOT, and no CR is needed.* R2 Confirm the assumption that network implementation is to handle the potential ambiguities for R16 UEs, e.g. by not configuring both features at the same time (*cg-RetransmissionTimer* and *autonomousTransmission*). R2 will not further work on this for R16 UEs. No R16 CRs are expected.
 |
| Lenovo | Yes/No | We agree that the prioritization is for the HARQ process selection, i.e. UE shall prioritize the HARQ process with pending retransmission over a different HARQ process used for initial transmission. However we are not sure whether the clarification is really needed. We would be OK to go with the clarification is majority prefers to have it.  |
| Nokia  | Yes | We disagree with Qualcomm. The text is for NR-U process selection other than for IIoT UL grant selection. That is exactly why we should clarify due to such misunderstanding, because apparently there is a huge discrepancy in understanding among companies about what this sentence really means. For Xiaomi’s comments, we would like to point out that this is independent to whether IIOT features are configured or not. Even when IIoT features are not configured, the sentence “the UE shall prioritize retransmissions before initial transmissions” should not be applicable to grant selection in any case. Prioritizing retransmission for grant selection is not what we have agreed in Rel-16. |
| vivo | No | For the HARQ process selection for NR-U CG, it was agreed that it is totally up to UE implementation. With the addition part proposed in the CR, it seems the HARQ selection is not fully up to UE implementation, which may revert the achieved agreement?In our understanding, the sentence that “*The UE shall prioritize retransmissions before initial transmissions*” generally means retransmission for the pending TB due to LBT failure on a given HARQ process should be prioritized if the same HARQ process is selected for another CG PUSCH occasion. For the HARQ process selection, the UE is free to select the same HARQ process with pending TB or a new HARQ process for another initial transmission (p.s. the smart UE implementation may choose the same process but it is not mandatory). In this sense, we don’t think any clarification is needed in Rel-16. |
| ZTE | Yes | The suggested changes look okay to us.  |
| Ericsson | Yes | We disagree with Qualcomm and vivo. At RAN2#107bis the NR-U agreement was:1. HARQ process id selection is based on UE implementation. Ongoing retransmissions on HARQ processes should be prioritized.

Then at RAN2#108 when multiple CG are active:**Agreements of CG:**1. The processes with TB pending for retransmission shall be prioritized over the processes for new transmissions as already agreed for single CG case.

The spec text from these agreements wrere thoroughly discussed in the running MAC CR review.Thus, the NR-U agreements were clearly for HARQ process id selection. Further, the selection is for which HP ID for a certain grant (not for selecting the grant), and a CG can have many HP IDs associated with it and each one of them may result in a retransmission or a new transmission depending on what occurred previously.We are fine with the CR. |
| CATT | No | We agree with Xiaomi that, in R16, per the last sentence of last meeting agreement (quoted by Xiaomi) we should no longer try to fix anything to get both *cg-RetransmissionTimer* and *lch-basedPrioritization* get to work together.Now for the case when *lch-basedPrioritization* is not configured, we are not sure if there is any ambiguity. It would maybe good that proponents clarify which usecase is ambiguous and needs to be solved when *lch-basedPrioritization* is not configured.  |
| Huawei, HiSilicon | Yes but | We share the intention. But not sure if a CR is needed. If no new agreement is made, we understand of course the inherited text is only applied to HARQ process selection that has been confirmed in LTE. |
| Samsung | Yes | We indeed agree with Nokia that the current text is to capture the HARQ PID selection only, so the proposed changes removes the misinterpretation, and thus we support the change. |
| OPPO | Yes | For NR-U the HARQ PID is selected based on UE implementation, so prioritization of retransmission over initial transmission means UE should prioritize the HARQ process used for retransmission over the HARQ process used for intiital transmission. We don’t see the need to clarification, but with the clarification, it helps to better understand. |
| Intel | See comments | We agree with the intention. But there seems to be no ambiguity in Rel-16 given that NR-U and IIoT (*lch-BasedPrioritization* in particular) cannot be configured together and the paragraph is about NR-U operation. |
| MediaTek | Yes | Our agreement in Rel-16 was clearly on prioritising selection of HARQ processes for retransmission over HARQ processes for new transmission, when HARQ process selection was left to UE implementation, as highlighted by Ericsson. Therefore we agree with Nokia that this should be clarified in the spec to avoid misinterpretations.  |
| Apple | Yes | We also think there is an ambiguity. Ok with the clarification proposed in the CR. |
|  |  |  |

**Summary 3**: 11 out of 15 companies agree with the intention of the change, 8 of which support the proposed change and other companies no strong opinion or think no clarification needed. 4 companies have different understandings. Considering the confusing discussion in Rel-17, it is proposed to agree the CR since it reflects the agreement from Rel-16 NR-U discussions.

**Proposal 3**: R2-2105865 is agreed.

Secondary DRX

[R2-2105232](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2105232.zip) Clarification on secondary DRX group Samsung CR Rel-16 38.321 16.4.0 1104 - F TEI16

R2-2105232 proposed to remove “associated” drx-onDurationTimer and specify in MAC “secondary DRX group is not configured, when DCP monitoring is configured”. Note that the restriction has already captured in RRC:

|  |
| --- |
| ***drx-ConfigSecondaryGroup***Used to configure DRX related parameters for the second DRX group as specified in TS 38.321 [3]. The network does not configure secondary DRX group with DCP simultaneously nor secondary DRX group with a dormant BWP simultaneously. |

**Question 4**: Do companies agree with the issue and if yes, are the suggested changes fine or does the text need to be improved / corrected ?

|  |
| --- |
| Answers to Question 4 |
| Company | Yes/No | Technical Arguments |
| Qualcomm | No | We do not think #1 change is correct. Each DCP occasion has an associated on duration timer, which is the first instance of on duration timer after a DCP. That's why "associated" is used in the current text.We do not think #2 change is not necessary. This restriction is already captured in the field description of drx-ConfigSecondaryGroup in 331. |
| LG |  | 1st change (to remove 'associated') – not necessary because *drx-onDurationTimer* is associated with the DRX group.2nd change (to specify secondary DRX in presence of DCP monitoring) – no strong view, but no need to redundantly capture that across TSs. |
| Xiaomi | No | The configuration restriction captured in 38.331 seems sufficient. |
| Lenovo | No |  |
| Ericsson | No | We agree with the comments from QC. |
| Nokia | No | Agree with Qualcomm. |
| vivo | No | Agree with Qualcomm. |
| ZTE | No | Agree with Qualcomm |
| CATT | No | “associated” was there before the DRX groups were introduced and, to our understanding, refers to the *drx-onDurationTimer* time instance associated with the DCP instance. For the 2nd change, no strong view but we tend to agree with rapporteur that it is already captured in RRC. |
| Huawei, HiSilicon | No | Agree with above |
| Samsung | Yes | We think for #1 "associated drx-onDurationTimer" term seemed ambiguous and we can notice correct description for the same in below instances"drx-onDurationTimer for the next long DRX cycle" [38.213 sec 10.3] or"drx-onDurationTimer for associated DRX cycle" [38.321 sec 7]For clarity, it is better to replace "associated drx-onDurationTimer" by "drx-onDurationTimer for the next long DRX cycle"We agree #2 is not needed as it is clear from 331 and change can be skipped. |
| OPPO | No | No change is needed |
| Intel | No | Agree with Qualcomm’s analysis regarding the change on “associated”. For adding restriction in MAC spec, we don’t think it is necessary given that it is already captured in field description in TS 38.331. |
| MediaTek | No | Agree with Qualcomm’s analysis |
| Apple | No | Agree that the DCP indication is associated with one DRX cycle, in our view the spec is already clear. For the 2nd change, the restriction in the RRC spec seems sufficient.  |
|  |  |  |

**Summary 4**: no company other than the proponent company supports the CR.

**Proposal 4**: R2-2105232 is not pursued.

eLCID

[R2-2105749](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2105749.zip) Clarification on MAC PDU assembly with eLCID Huawei, HiSilicon discussion Rel-16 NR\_IAB-Core

[R2-2106031](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2106031.zip) Clarification to transmission of padding and padding BSR with eLCID in IAB Ericsson, Apple CR Rel-16 38.321 16.4.0 1116 - F NR\_IAB-Core

[R2-2106321](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2106321.zip) CR for not transmitting only padding and padding BSR with eLCID Samsung, Nokia, Nokia Shanghai Bell, Qualcomm, LG, ZTE, MediaTek, Intel CR Rel-16 38.321 16.4.0 1118 - F NR\_IAB-Core

It has been agreed in the previous meeting to clarify this in MAC. Different styles are proposed in the above 3 contribution/CRs.

**Question 5**: Which of the changes proposed in the above TDocs do companies support?

|  |
| --- |
| Answers to Question 5 |
| Company | R2-2105749/R2-2106031/R2-2106321 | Technical Arguments |
| Qualcomm | R2-2106321 | We are fine with the TP in R2-2105749 too. |
| LG | 6321 | We think it is possible that MAC includes zero RLC SDU segment but only the RLC header. Therefore, 5749 is not the way to go.As a proponent of 6321, the change in 6321 is simple and sufficient. |
| Xiaomi | R2-2106321 |  |
| Lenovo | R2-2106321 |  |
| Ericsson | [R2-2106031](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2106031.zip)  | Regarding R2-2106321, we have concerns on the terminology used. In particular, the term “is used” is not clear whether it refers to the IAB node being configured with eLCID or using it for this transmission. In our understanding the “is used” should refer to the LCID associated to “data available and allowed” that are going to be transmitted. However, that is not clear from R2-2106321. In any case if R2-2106321 is agreed, we believe that the inter-operability analysis should be changed since it seems that also UEs are involved, which is not correct. Additionally, we do not foresee any inter-operability issues, since in any case the NW will always decode the MAC PDU, and if data are detected, those will not be discarded.For this reason, we believe that R2-2106031 is technically more correct, because it solves the issue related to the “is used” above. It also increases readability, since it clearly separates the scenarios of 8 and 10 bytes, and clarifies that the 10 bytes scenario is only applicable to the case two-octet LCID. Regarding R2-2105749, we agree with the intention to find a general statement that applies to all cases, however that modifies a legacy text (since the 8 bytes handling is removed), which is better to avoid at this stage.  |
| Nokia | R2-2106321 | It is also the outcome of the lengthy offline from previous meeting email discussion. |
| vivo | R2-2106321 | It should have been considered as IPA CR since the last meeting. |
| CATT | R2-2106321 | R2-2106321 is clear. |
| Huawei, HiSilicon | R2-2105749 | We don't prefer to over-specify this rare case, and the clarification should be clear without any ambiguous terminology added. Thus 5749 is the only way to go. But we are also fine if nothing is captured. |
| Samsung | R2-2106321 | R2-2106321 and [R2-2106031](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2106031.zip) are technically the same thing. R2-2105749 is not acceptable to us because it removes the concrete legacy text. |
| OPPO | R2-2106321 | Slightly prefer 6321 |
| Intel | R2-2106321 |  |
| ZTE | R2-2106321 | Both R2-2106321 and [R2-2106031](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2106031.zip) are fine to us. Although we agree with Ericsson that R2-2106031 is technically more correct, we slightly prefer R2-2106321 since it is more simple.  |
| MediaTek | R2-2106321 |  |
| Apple | R2-2106031 | The change in R2-2106321 is the same version that already caused a lot of confusion and discussion during last meeting. The CR does not address our concern to limit the applicability to IAB-MT as it is not restricted to two-octet eLCID only. Thus, the change in R2-2106321 allows the interpretation that “eLCID” could include the case when a one-octet eLCID is received by a normal UE, which is not the intention of the update to be made. We think the version in R2-2106031 reflects the intention of this change more correctly. Further, we share Ericsson concerns on R2-2106321. Alternatively, R2-2105749 is acceptable to us as a compromise. It is a possible way around and we are OK with a general statement. |
|  |  |  |

**Summary 5**: 12 out of 15 companies support the changes in R2-2106321, 1 company supports R2-2105749 and 2 companies support R2-2106031.

**Proposal 5**: R2-2106321 is agreed.

2-Step RACH

[R2-2105851](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_114-e%5CDocs%5CR2-2105851.zip) Correction to 38.321 on msga-TransMax selection for 2-step RACH ZTE, Sanechips CR Rel-16 38.321 16.4.0 1112 - F NR\_2step\_RACH-Core

R2-2105851 proposed to change the rach-ConfigDedicated to cfra-TwoStep-r16 for the application of the msgA-TransMax in subclause 5.1.1a to correct the behaviour for HO:

|  |
| --- |
| 1> if *RA\_TYPE* is set to *2-stepRA*:2> set *PREAMBLE\_POWER\_RAMPING\_STEP* to *msgA-PreamblePowerRampingStep*;2> set *SCALING\_FACTOR\_BI* to 1;2> apply *preambleTransMax* included in the *RACH-ConfigGenericTwoStepRA*;2> if the Random Access procedure was initiated for handover; and2> if *cfra-TwoStep* is configured for the selected carrier:3> if *msgA-TransMax* is configured in the *cfra-TwoStep;*4> apply *msgA-TransMax* configured in the *cfra-TwoStep*.2> else if *msgA-TransMax* is included in the *RACH-ConfigCommonTwoStepRA*:3> apply *msgA-TransMax* included in the *RACH-ConfigCommonTwoStepRA*. |

**Question 6**: Do companies agree with the issue and if yes, are the suggested changes fine or does the text need to be improved / corrected ?

|  |
| --- |
| Answers to Question 6 |
| Company | Yes/No | Technical Arguments |
| Qualcomm | Yes | We think the reasons for change are correct, and we are fine with the TP. |
| LG | No | In our understanding, the original intention is not to allow switching from 2-step RA to 4-step RA if msaA-TransMax is not present in rach-ConfigDedicated. Please see the parameter description copied from 38.331:**msgA-TransMax**Max number of MsgA preamble transmissions performed before switching to 4-step type random access (see TS 38.321 [3], clauses 5.1.1). This field is only applicable when 2-step and 4-step RA type are configured and switching to 4-step type RA is supported. If the field is absent in RACH-ConfigDedidated, switching from 2-step RA type to 4-step RA type is not allowed. |
| Xiaomi | Yes | It seems that the two bullets 2> and 3> can be combined as one, which may make the specification more readable.2> if *msgA-TransMax* is configured in the *cfra-TwoStep* for the selected carrier:3> apply *msgA-TransMax* configured in the *cfra-TwoStep*.We think that the 38.331 sentence quoted by LG should be removed as it does not cover the case when “*msgA-TransMax* is only included in the *RACH-ConfigCommonTwoStepRA*”. |
| Nokia | Yes | Agree with the proposed text in R2-2105851. The proposal from Xiaomi would not work since it is possible that *msgA-TransMax* is not configured in *cfra-TwoStep*, but *cfra-TwoStep* is configured, then the UE still should not apply the *msgA-TransMax* in *RACH-ConfigCommonTwoStepRA*. |
| vivo | Comments | We share a similar view with LG. It looks like the current spec perfectly matches the following achieved agreement highlighted. **RAN2#109bis-e agreement:*** msgA-TransMax is configured for 2 step CFRA in rachConfigDedicated and that the UE is not allowed to switch to 4-step RACH if this is not configured in rachConfigDedicated.

If we misunderstood this agreement, we are fine with the CR. Meanwhile, a corresponding 38.331 CR is also needed for correction. For example (i.e. revision is red), **msgA-TransMax**Max number of MsgA preamble transmissions performed before switching to 4-step type random access (see TS 38.321 [3], clauses 5.1.1). This field is only applicable when 2-step and 4-step RA type are configured and switching to 4-step type RA is supported. If the field is absent in *cfra-TwoStep*, if present*~~RACH-ConfigDedidated~~*, switching from 2-step RA type to 4-step RA type is not allowed. |
| ZTE (Proponents) | Yes(Proponents) | In the current RRC spec, the msgA-TransMax is included in two places, one is in cfra-TwoStep of rach-ConfigDedicated and cfra-TwoStep represents the existing of 2-step CFRA resources, the other one is in RACH-ConfigCommonTwoStepRA. By following the current spec as shown below:2> if the Random Access procedure was initiated for handover; and2> if *rach-ConfigDedicated* is configured for the selected carrier:3> if *msgA-TransMax* is configured in the *rach-ConfigDedicated*:4> apply *msgA-TransMax* configured in the *rach-ConfigDedicated*.2> else if *msgA-TransMax* is included in the *RACH-ConfigCommonTwoStepRA*:3> apply *msgA-TransMax* included in the *RACH-ConfigCommonTwoStepRA*.If UE receive the HO command, only include the RACH-ConfigDedicated which only includes prioritization parameter (i.e ra-PrioritizationTwoStep-r16,ra-Prioritization), in this case, the msgA-TransMax is certainly absent in rach-ConfigDedicated and cfra resources in not provided (i.e only CBRA is available for this HO).If following the current spec for this case, even though the msgA-TransMAX is included in RACH-ConfigCommonTwoStepRA, UE cannot apply the msgA-TransMax included in RACH-ConfigCommonTwoStepRA, which is not the original intention for msgA-TransMax configured in RACH-ConfigCommonTwoStepRA. Regarding the comments from LG, if companies first agree with the intention of this change, then the field description of msgA-Transmax included in RACH-ConfigDedicated can also be corrected as below (instead of removing it since this IE is optional with need-s):**msgA-TransMax**Max number of MsgA preamble transmissions performed before switching to 4-step type random access (see TS 38.321 [3], clauses 5.1.1). This field is only applicable when 2-step and 4-step RA type are configured and switching to 4-step type RA is supported. If the field is absent in cfra-TwoStep, switching from 2-step RA type to 4-step RA type is not allowed. |
| CATT | Yes | We agree with the changes. |
| Huawei, HiSilicon | Yes | Agree with the text proposal as in 5851. We believe it is sufficient to reflect the intention in MAC procedure so we see no need for a RRC CR.  |
| Samsung | Yes | The CR is addressing a scenario (i.e. rach config dedicated with only RA prioritization parameter) which is not typical. So change seems not essential. However, we are ok to support if it’s the majority view. |
| OPPO | Yes | Maybe the RRC field description for msgA-TransMax should also need to be improved |
| Intel | Yes | Maybe the changes can be updated as follow to make it more readable:2> if *cfra-TwoStep* in the *rach-ConfigDedicated* is configured for the selected carrier:3> if *msgA-TransMax* is configured in the *cfra-TwoStep;*4> apply *msgA-TransMax* configured in the *cfra-TwoStep*. |
| MediaTek | Yes | Agree with the proposal |
| Apple | Yes | Agree with ZTE’s analysis of the problem. We’d prefer Intel’s version for a change. |
|  |  |  |

**Summary 6**: 11 of 13 companies support the change in R2-2105851, 3 of which proposed some editorial rewording proposals. 2 companies have different understandings. Considering that current specification does not work as intended for the case when cfra-TwoStep is not included, the rapporteur propose to agree the CR.

**Proposal 6**: R2-2105851 is agreed.

Misc

[R2-2105065](file:///C%3A%5C3GPP%20meetings%5CRAN2%5C2021%5CTSGR2_114-e%5Cdocs%5CR2-2105065.zip) Correction on handling rule for CG-CG conflict vivo CR Rel-16 38.321 16.4.0 1099 - F NR\_IIOT-Core

R2-2105065 proposed the following changes to clarify overlapping PUSCH:

|  |
| --- |
| NOTE 6: If the MAC entity is configured with *lch-basedPrioritization* and if there is overlapping PUSCH duration of at least two configured uplink grants, in the same BWP, whose priorities are equal, the prioritized uplink grant is determined by UE implementation.NOTE 7: If the MAC entity is not configured with *lch-basedPrioritization* and if there is overlapping PUSCH duration of at least two configured uplink grants, in the same BWP, it is up to UE implementation to choose one of the configured uplink grants. |

**Question 7**: Do companies agree with the issue and if yes, are the suggested changes fine or does the text need to be improved / corrected ?

|  |
| --- |
| Answers to Question 7 |
| Company | Yes/No | Technical Arguments |
| MediaTek | Yes | This change is aligned with the rest of the spec |
| Apple | No | We agree with the intention of the CR but prefer not to change the NOTE at this stage (although intra-UE prioritization is indeed on the same carrier). Besides there are other places where “overlap” or “overlapping” is used without “same BWP”. |
| Qualcomm | Yes | We are fine with this clarification. We do not think the first ‘,’ in the TP is needed. |
| ZTE | Neutral  | Considering there is no room for misunderstanding, We can follow the majorities’ view.  |
| OPPO | Yes | Open to have this change |
| Intel | Neutral | We can follow majority view. If we agree on this change, it is better to apply the same change for other overlapping cases for consistency. |
| Huawei, HiSilicon | No | The NOTEs should be read together with procedural text. Since the relevant text above the NOTEs already explicitly indicates the intra-UE prioritization is performed “in the same BWP”, we believe there is no room for misunderstandings.  |
| Samsung | No | Other normative texts already mention that this overlap is only in the same BWP.The note would apply only for this case, so we do not see there is an ambiguity. |
| vivo (Proponent) | Yes  | Agree with MediaTek that we should make the text for CG-CG conflict aligned in the spec, which helps to get rid of any potential misunderstandings. Besides, we are fine with Qualcomm’s editorial suggestion.  |
| Nokia | No | It is clear in the procedure what overlapping UL grant means. |
| Ericsson | Neutral | We argree with the intention and open to the change. On NOTE 6, agree with above that the procedure text before is clear.On NOTE 7, if I understand correctly, the procedure text is only for when “*lch-basedPrioritzation”* is configured, and there is no procedure text for “NOTE 7”.  |
| LG | No | The UE behaviour is clear from the procedural text to consider only the configure grants in the same BWP.  |
|  |  |  |

**Summary 7**: 4 out of 11 companies support the change, 4 disagree and 3 neutral. As it is editorial change to NOTEs, it is proposed not to make the changes since Rel-16 has been frozen.

**Proposal 7**: R2-2105065 is not pursued.

[R2-2105068](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_114-e/Docs/R2-2105068.zip) Clarification on reporting multiplexed CSI on PUCCH OPPO CR Rel-16 38.321 16.4.0 1101 - F NR\_UE\_pow\_sav-Core

R2-2105068 proposed the following changes to clarify CSI multiplexed with UCI(s) for DCP:

|  |
| --- |
| NOTE 4: If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time except for the *drx-onDurationTimer* duration in which *drx-onDurationTimer* is not started due to DCP of the DRX group in which this PUCCH is configured or outside the on-duration period of the DRX group in which this PUCCH is configured if CSI masking is setup by upper layers, it is up to UE implementation whether to report this CSI multiplexed with other UCI(s). |

**Question 8**: Do companies agree with the issue and if yes, are the suggested changes fine or does the text need to be improved / corrected ?

|  |
| --- |
| Answers to Question 8 |
| Company | Yes/No | Technical Arguments |
| Ericsson | Yes | In our understanding, when UE multiplexes periodic CSI with other UCI(s) then this reporting outside Active Time is determined by the *ps-TransmitOtherPeriodicCSI* configuration, i.e. whether to report it or not, and this is not left to UE implementation. We understand that the correction by OPPO is saying this, i.e. in the NOTE4 it says it is not up to UE implementation, and then in the procedure text it says what the UE requirements are. Do companies have the same understanding?[OPPO]: I think your understanding is correct, the procedure and the Note are not aligned well. |
| MediaTek | No | We fail to understand the issue here.If the UE is not in active time (DRX on duration not started), how can there be other overlapping UCIs? There isn’t any HARQ feedback (since there’s no DCI monitoring) or any aperiodic CSI (again due to no DCI monitoring).Comment by QC: There can be scenarios where DRX active time has ended but there are still HARQ retransmissions that cut in the next on duration period. But we agree those scenarios are rather corner cases.[OPPO]: Maybe a scenario that when UE receives the PDSCH in the Active Time, after that, the Active Time ends, while the corresponding ACK/NACK is located outside Active Time. Besides, as said in the Note 4 “If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time”, it implies there is such a case. |
| Apple | No | The blue text in the CR does not say anything about overlapping PUCCH / UCI multiplexing. As long as periodic CSI does not overlap with other UCI(s) the UE transmits CSI when the drx-onDurationTimer does not start (e.g., as controlled by *ps-TransmitOtherPeriodicCSI*). Otherwise, if UCI Multiplexing happens and the final PUCCH for the periodic CSI is still outside DRX Active Time, then it is up to UE implementation according to NOTE 4. Comment by QC: This is not the intention of the Note 4. In OPPO’s case, UE already knows that it is required to transmit CSI during a suppressed on duration (if configured), there is no ambiguity in this requirement on either UE or gNB side, even if UCI multiplexing is performed. Therefore, UE shall transmit CSIs as configured, instead of leaving it up to UE implementation.[OPPO]: Exactly, according to the procedure text, it’s configured to transmissit CSI (including both multiplexing and non-multiplexing cases) during on duration when it’s not started (not in Active Time), however, Note4 says it’s up to UE implementation which is not aligned.Secondly, similar to MTK~~Qualcomm~~’s comment we wonder if the UE would encounter multiple UCIs in such a (configured) case, so perhaps it’s quite a corner case. However, if UCI multiplexing does happen when the drx-onDurationTimer is not started due to DCP, then the likelihood of the final PUCCH resource also falling outside DRX Active Time should be fairly high, so it's OK to clarify.  |
| Qualcomm | Yes | We think the reasons for change are correct (please see our comments above). But we do not think the TP is entirely correct, because UE needs to report CSI during an on duration period suppressed by DCP only if *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is enabled. Therefore, we'd like to suggest the following text:If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time ~~except for the drx-onDurationTimer duration in which drx-onDurationTimer is not started due to DCP~~ of the DRX group in which this PUCCH is configured except when inside an on-duration period whose associated drx-onDurationTimer is not started due to DCP and *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is configured with value *true*, or outside the on-duration period of the DRX group in which this PUCCH is configured if CSI masking is setup by upper layers, it is up to UE implementation whether to report this CSI multiplexed with other UCI(s).[Eri] We agree with the correction proposed by QC. |
| ZTE | It depends | In the current release, the MAC entity being aware of the UCI multiplexing is still under the discussion. This CR is related to the outcome of the discussion:* 1: If the outcome of the discussion is positive, it says MAC entity is able to be aware of the UCI multiplexing, this CR is needed.
* 2: Otherwise, we can not see any need to improve anything in this note

[OPPO]: Not sure what the discussion referring to? However, it’s clear that the procedure text in the CR is not aigned with what the Note 4 says, thus it causes ambiguity for the concerned scenario, thus we think the CR is needed anyhow. |
| OPPO | Yes | Proponent.Thanks for the suggested wording from QC, however, in ourderstanding, what the procedure specifies is UE not reporting CSI (i.e., not relying on UE implementation) when configured parameter is not configured with True, i.e., the following:3> if *ps-TransmitPeriodicL1-RSRP* is not configured with value *true*:4> not report periodic CSI that is L1-RSRP on PUCCH.3> if *ps-TransmitOtherPeriodicCSI* is not configured with value *true*:4> not report periodic CSI that is not L1-RSRP on PUCCH.Thus, in the Note 4, we only need to exclude the not configuring cases. We can accept the change from QC but with the following important update:If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time ~~except for the drx-onDurationTimer duration in which drx-onDurationTimer is not started due to DCP~~ of the DRX group in which this PUCCH is configured except when inside an on-duration period whose associated drx-onDurationTimer is not started due to DCP and *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is not configured with value *true*, or outside the on-duration period of the DRX group in which this PUCCH is configured if CSI masking is setup by upper layers, it is up to UE implementation whether to report this CSI multiplexed with other UCI(s).[Eri] We think the proposed wording by QC is correct, i.e. in NOTE4 the point is to indicated when the UE CSI reporting it not up to UE implementation.  |
| Intel | See comments | We understand the intention is to avoid the inconsistency between the procedure text and NOTE 4, however we don’t think the change is needed. Our understanding is that the procedure text should have precedence over the note. In addition, NOTE4 is already a very long sentence, and adding further exception into the note makes it difficult to understand. |
| Huawei, HiSilicon | No | We believe it is desirable to have a consistent principle on handling of multiplexed UCI when reporting outside “Active/on duration”. From our understanding, this CR further identify a case when reporting multiplexed UCI outside “Active/on duration” due to DCP. From this point, we prefer to align the UE behaviour with other cases where applicable. Otherwise, it may increase the UE complexity of implementation. [Eri] We think it is important that the UE follows the NW configuration. We also think that the general rule to follow the NW configuration is not adding to the UE implementation complexity. |
| Samsung | Yes, but | Even though we think that reason for change is correct, we are not sure whether we need such a lengthy clarification (like what Qualcomm proposed, which seems more accurate than the original TP) for this (unusual) case as pointed out by MediaTek above. Perhaps we could simply capture to the meeting minutes that 'For the scenario in R2-2105068, UE reports the CSI multiplexed with other UCI(s) if it would be reported in on-duration period' or something. |
| vivo | Agree with comments | We agree with the intention of the CR. Regarding the detailed wording, we are wondering, for a reader-friendly sentence, is it possible to have a separate NOTE for the case mentioned by OPPO and Qualcomm? For example, NOTE5: If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource inside the on-duration period of the DRX group in which this PUCCH is configured whose associated *drx-onDurationTimer* is not started in case DCP is configured, and *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is not configured with value *true*, the MAC entity shall report this CSI multiplexed with other UCI(s). |
| Nokia | Yes | We agree with Qualcomm it should depend on the ps-TransmitPeriodicL1-RSRP or ps-TransmitOtherPeriodicCSI configuration. Qualcomm’s proposal looks ok. |
| LG | Yes to change from OPPO. | We agree with the intention and the original text from OPPO is fine. The NOTE4 only describe when it is up to UE implementation. In our understanding, if *onDurationTimer* is not started due to DCP, reporting should depend on NW configuration and there is no case that it is left up to UE implementation. For instance, if ps-TransmitPeriodicL1-RSRP or ps-TransmitOtherPeriodicCSI is configured with value true, our understanding is that the UE will report CSI as it is commanded to do so and it should not be UE implementation. In this sense, the suggested change from QC seems not correct because it leaves the UE behaviour up to implementation if ps-TransmitPeriodicL1-RSRP or ps-TransmitOtherPeriodicCSI is configured with value true. |
|  |  |  |

**Summary 8**: 8 out 12 companies agree with the intention of the CR: some rewording proposal from Qualcomm, oppo and vivo; 2 companies agree with the intention but think there is no need to change the specification. One company mentioned it depends on the UCI discussions. 3 companies do not agree with the issue.

**Proposal 8**: continue discussion in phase 2 to see if possible to come up with an agreeable CR, otherwise postponed to next meeting.

Phase 2 discussion on the following CR:

[R2-2105068](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_114-e/Docs/R2-2105068.zip) Clarification on reporting multiplexed CSI on PUCCH OPPO CR Rel-16 38.321 16.4.0 1101 - F NR\_UE\_pow\_sav-Core

**Question 9**: Which of the options do companies prefer?

Option 1: original change in R2-2105068:

|  |
| --- |
| NOTE 4: If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time except for the *drx-onDurationTimer* duration in which *drx-onDurationTimer* is not started due to DCP of the DRX group in which this PUCCH is configured or outside the on-duration period of the DRX group in which this PUCCH is configured if CSI masking is setup by upper layers, it is up to UE implementation whether to report this CSI multiplexed with other UCI(s). |

Option 2: proposal from Qualcomm:

|  |
| --- |
| If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time ~~except for the drx-onDurationTimer duration in which drx-onDurationTimer is not started due to DCP~~ of the DRX group in which this PUCCH is configured except when inside an on-duration period whose associated drx-onDurationTimer is not started due to DCP and *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is configured with value *true*, or outside the on-duration period of the DRX group in which this PUCCH is configured if CSI masking is setup by upper layers, it is up to UE implementation whether to report this CSI multiplexed with other UCI(s). |

Option 3: revision from OPPO:

|  |
| --- |
| If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource either outside DRX Active Time ~~except for the drx-onDurationTimer duration in which drx-onDurationTimer is not started due to DCP~~ of the DRX group in which this PUCCH is configured except when inside an on-duration period whose associated drx-onDurationTimer is not started due to DCP and *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is not configured with value *true*, or outside the on-duration period of the DRX group in which this PUCCH is configured if CSI masking is setup by upper layers, it is up to UE implementation whether to report this CSI multiplexed with other UCI(s). |

Option 4: separate NOTE proposal from vivo:

|  |
| --- |
| NOTE5: If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5 and this CSI multiplexed with other UCI(s) would be reported on a PUCCH resource inside the on-duration period of the DRX group in which this PUCCH is configured whose associated *drx-onDurationTimer* is not started in case DCP is configured, and *ps-TransmitPeriodicL1-RSRP* or *ps-TransmitOtherPeriodicCSI* is not configured with value *true*, the MAC entity shall report this CSI multiplexed with other UCI(s). |

Option 5: no change.

|  |
| --- |
| Answers to Question 9 |
| Company | Option 1/2/3/4/5 | Technical Arguments |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# 4 Conclusion

Summary and proposals for Phase 1 discussion as follows:

**Summary 1**: All the companies agree there is no impact to RAN2 from the RAN4 LS and the LS can be noted.

**Proposal 1**: LS R2-2104724 is noted. No impact to RAN2.

**Summary 2**: no company other than the proponent company supports the proposal 2 from R2-2105231.

**Proposal 2**: Proposal 2 on sCellDeactivationTimer handling for NR-U in R2-2105231 is not agreed.

**Summary 3**: 11 out of 15 companies agree with the intention of the change, 8 of which support the proposed change and other companies no strong opinion or think no clarification needed. 4 companies have different understandings. Considering the confusing discussion in Rel-17, it is proposed to agree the CR since it reflects the agreement from Rel-16 NR-U discussions.

**Proposal 3**: R2-2105865 is agreed.

**Summary 4**: no company other than the proponent company supports the CR.

**Proposal 4**: R2-2105232 is not pursued.

**Summary 5**: 12 out of 15 companies support the changes in R2-2106321, 1 company supports R2-2105749 and 2 companies support R2-2106031.

**Proposal 5**: R2-2106321 is agreed.

**Summary 6**: 11 of 13 companies support the change in R2-2105851, 3 of which proposed some editorial rewording proposals. 2 companies have different understandings. Considering that current specification does not work as intended for the case when cfra-TwoStep is not included, the rapporteur propose to agree the CR.

**Proposal 6**: R2-2105851 is agreed.

**Summary 7**: 4 out of 11 companies support the change, 4 disagree and 3 neutral. As it is editorial change to NOTEs, it is proposed not to make the changes since Rel-16 has been frozen.

**Proposal 7**: R2-2105065 is not pursued.

**Summary 8**: 8 out 12 companies agree with the intention of the CR: some rewording proposal from Qualcomm, oppo and vivo; 2 companies agree with the intention but think there is no need to change the specification. One company mentioned it depends on the UCI discussions. 3 companies do not agree with the issue.

**Proposal 8**: continue discussion in phase 2 to see if possible to come up with an agreeable CR, otherwise postponed to next meeting.

Summary and proposal for phase 2: