3GPP TSG-RAN WG2 #112-e R2-20xxxxx

Electronic Meeting, 2nd – 13th November 2020

Agenda Item: 5.4.1.1

Source: ZTE Corporation

Title: [AT112-e][006][NR15] RRC Conn Control II (ZTE)

Document for: Discussion, Decision

# Introduction

This document is to kick off the following email discussion:

* [AT112-e][006][NR15] RRC Conn Control II (ZTE)

 Treat R2-2009580, R2-2009581, R2-20094~~5~~79, R2-2009697, R2-2009233, R2-2009234, R2-2009235, R2-2009698, R2-2009699, R2-2010492, R2-2010584, R2-2009236, R2-2009237, R2-2009582, R2-2009583, R2-2009478

 Intended outcome: Intermediate: Determine agreeable parts. Final: For agreeable parts, agreed CRs.

 Deadline: Intermediate deadline(s) by Rapporteur, Final: Discussion stop at Wed Nov 11, 1200 UTC

* Phase 1: collect companies’ view, by Friday 2020-11-06 12:00 UTC
* Phase 2: rapporteur will share summary report and TP based on input of phase 1 for review, by Monday 2020-11-11 12:00 UTC

Following the Guidelines of the chairman: “*For specific corrections when needed it may be valid to discuss whether to make such correction instead only for Rel-16. When/if applicable, email discussions shall determine Release applicablity for such corrections.*”

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|  |  |
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# Phase 1 Discussion

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

## Correction on rach-ConfigDedicated

[R2-2009580](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009580.zip) Correction on rach-ConfigDedicated ZTE Corporation, Sanechips CR Rel-15 38.331 15.11.0 2092 - F NR\_newRAT-Core

[R2-2009581](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009581.zip) Correction on rach-ConfigDedicated(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2093 - A NR\_newRAT-Core

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | Yes | Corrections do make sense. We support them. |
| Ericsson (Tony) | No | We think the CR is not needed. Our understanding is that this is probably a corner case and a smart network implementation can avoid it. Further, we agree in principle with the intention, but we think that there is no need for overclarifications of something that may be obvious. |
| MediaTek | Yes | Maybe it is easier to just remove the “in the *firstActiveUplinkBWP*”? Not sure why we have to emphasize this. |
| Huawei, HiSilicon | No | We think the agreed intention in the last meeting was that the first active DL/UL BWPs have to be configured upon reconfiguration with reconfigurationWithSync, which can be further clarified if not clear yet. |
| Apple | Yes | We think this is obvious, but ok to provide more clarificaiton |
| QUALCOMM | - | It’s an expected behavior, not sure if need any clarification … will go with majority |
| CATT | Yes, but | It seems useful to clarify this point. But we suggest to further modify as the following, for that in the current configuration there is no such field as ***firstActiveUplinkBWP.***Random access configuration to be used for the reconfiguration with sync (e.g. handover). The UE performs the RA according to these parameters in the BWP corresponding to the *firstActiveUplinkBWP-Id**~~firstActiveUplinkBWP~~* ~~(see~~ *~~UplinkConfig~~*~~)~~ if *~~firstActiveUplinkBWP-Id~~* the field is present in the current *RRCReconfiguration* message, otherwise according to the parameters in the UE’s current active UL BWP. |
| Samsung | No | We think there is no real ambiguity. If needed, we could instead introduce a restriction i.e. that network configures rach-ConfigDedicated only if firstActiveUplinkBWP-Id is configured |
| NEC | Yes | fine with some updates |
| LG | No | We can rely on network implementation to avoid the issue as mentioned by Samsung.  |
| ZTE | Yes(Proponent) | Thanks the comments from CATT, and the revision suggested seems fine for us.Response to MediaTek, the reason we have firstActiveUplinkBWP here is that we need to inform UE on which BWP the rach-ConfigDedicated resource is located.Reply to Huawei: In agreed RP-201937 CR1748, it states that the field firstActiveUplinkBWP-Id is optionally present upon reconfiguration with reconfigurationWithSync to the same SpCell, but it is not clear how to understand the rach-ConfigDedicated in case the firstActiveUplinkBWP-Id is not included.Reply to Samsung: The intention of the CR is to clarify two things that whether the rach-ConfigDedicated can be configured in case the firstActiveUplinkBWP-Id is not. And if such configuration is allowed, how to determine the BWP on which the rach-ConfigDedicated is located. Although we think the configuration of rach-ConfigDedicated without firstActiveUplinkBWP-Id should be allowed, it also acceptable for us to clarify that rach-ConfigDedicated can only be configured in case the firstActiveUplinkBWP-Id is included in the same message, in which case one condition can be added for the rach-ConfigDedicated to make it clear. |
| Intel | Yes (with comments) | We agree in principle with the changes. However, the proposed text is confusing as it says „otherwise according to the parameters in the UE’s current active UL BWP“ but the parameters are still configured by this field. Hence suggest to update text to: otherwise according to these parameters in the UE’s current active UL BWP“ |
| OPPO | Yes | We also fine with the CR in principle |
| Fujitsu | No | We have a different understanding on this sentence that “The UE performs the RA according to these parameters in the *firstActiveUplinkBWP* (see *UplinkConfig*)”. In our understanding, it specifies the BWP where the RA is performed other than using the RA resource configured for the first active uplink BWP. Based on this, the possible case can be: RA parameter is configured while the ID for first active uplink BWP is not indicated. In this case, the current active BWP is the BWP where the RA is performed, according to the text regarding ***firstActiveDownlinkBWP*** that “If the field is absent, the RRC (re-)configuration does not impose a BWP switch”.So, I don’t think the CR is needed.  |

Summary

14 companies provide feedbacks, 4 companies think the CR is not needed, and rely on network implementation; 1 company thinks we can introduce restriction that “that network configures rach-ConfigDedicated only if firstActiveUplinkBWP-Id is configured”; 9 companies are fine with clarification, and two companies provide further wording suggestion.

There is support to have the clarification, so rapporteur suggests to update the CRs based on the received comments, update CR can be reviewed during phase II.

**Proposal 1 Update R2-2009580 and R2-2009581 based on the comments from CATT and intel.**

* update based on received comments (11-09)

Two companies raised the concern that the changes agreed last meeting (adding the below red sentence) should be revisited, that whether firstActiveUplinkBWP-Id and firstActiveDownlinkBWP-Id should be mandatory provided upon reconfigurationWithSync.

|  |  |
| --- | --- |
| *SyncAndCellAdd* | This field is mandatory present for a SpCell upon PCell change and PSCell addition/change and upon *RRCSetup*/*RRCResume*.The field is mandatory present for an SCell upon addition.For SpCell, the field is optionally present, Need N, upon reconfiguration without *reconfigurationWithSync*,and upon reconfiguration with *reconfigurationWithSync* to the same SpCell.In all other cases the field is absent. |

Thus above proposal 1 is updated to:

**Proposal 1 In addition to R2-2009580 and R2-2009581, to first discuss whether to revise the decision made last meeting (e.g. whether firstActiveUplinkBWP-Id is mandatory or optional provided upon reconfigurationWithSync to the same SpCell).**

## Clarification on SCell RACH configuration

[R2-2009479](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009479.zip) Clarification on the SCell RACH configuration Apple CR Rel-16 38.331 16.2.0 2183 - F NR\_newRAT-Core, TEI16

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | No | No, why it would be restricted to configure such information? We should leave it up to the network. |
| MediaTek | Yes | We think that it is useful clarification and should be started from Rel-15 (if agreed). |
| Huawei, HiSilicon | Not sure | Not sure we should put a limitation that only one SCell in a sTAG can be configured with rach-ConfigCommon. Or any limitation in other specs? |
| Apple | Yes | We think that RACH for SCell is only sTAG purposes and it is not necessary to have multiple RACH configurations in a TAG when all of the serving cells will have the same UL timing. It also creates additional verification effort at the UE and we agree with MediaTek’s views on the usefulness of this clarification.  |
| Qualcomm | No strong view | We agree it can reduce UE complexity for monitoring PDCCH ordered RACH in SCell if this CR is agreed. But we also think it will put restriction on Network configuration, which was not in Rel-15. So, we agree with MediaTek that if it is agreed, the CR should start from Rel-15. |
| CATT | Not sure | It seems safe to leave this to implementation. Not sure about the benefit to specify such restriction. Regarding the possible PDCCH monitoring reduction we are not sure as it is more about blind detection numbers but not an extra RA-RNTI.So we tend to think this CR is not necessary. |
| Samsung | No | We see no need i.e. can be left to (sensible) network implementation |
| ZTE | No | We think this can be ensured by network implementation.For sTAG, since SCell may be deactivated, we think the NW should be allowed to configure RACH resource on multiple SCells. Otherwise, there will be no RACH resource available in case the SCell with RACH resource is deactivated. |
| NEC | No | If clarification is necessary, this can be captured in Stage 2. |
| Ericsson | No | We agree with others this should be left to network impl. |
| LG | No | This can be left to network implementation.  |
| Intel | No | Agree with the logic, but do not see the need for the change. To our understanding, the network can configure RACH configuration for multiple SCells, but the UE/network should only trigger RACH on a cell of the cell group, i.e. not multiple RACH. Therefore do not need to restrict the configuration. |
| OPPO | No | Normally we don’t specify network’s implementation in spec. |
| Fujitsu | No | This can be left to network implementation. |

Summary

14 companies provide feedbacks, 2 companies agree to add the restriction and suggest to clarify since Rel-15, but most companies think the CR is not needed, and left to network implementation. So rapporteur suggests:

**Proposal 2 The CR R2-2009479 is not pursued.**

## Clarification on RRC Reestablishment procedure

[R2-2009697](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009697.zip) Clarification on RRC Reestablishment procedure Ericsson discussion Rel-15 NR\_newRAT-Core

In above contribution, it clarifies whether the first *RRCReconfiguration* message is required to re-configure SRB1. And whether the first *RRCReconfiguration* message after re-establishment needs to contain the *srb-Identity* value in the *srb-ToAddModList* for SRB1.

In the case of *fullConfig*, the UE is required to release/clear all current dedicated radio configurations. However, the NOTE 1 in TS 38.331 clearly says that the radio configuration does not include SRB1/SRB2 configurations i.e. SRB1 is not released. Moreover, when the text refers to the addition of an SRB, it says in NOTE 2 of TS 38.331 that this is to get the SRB2 for reconfiguration after re-establishment to a known state from which the reconfiguration message can do further configuration.

In the case of delta configuration, the srb-*ToAddModList* is OPTIONAL and is defined by the following condition *“-- Cond HO-Conn*” which says that the field is only mandatory when the *fullConfig* flag is included in the *RRCReconfiguration* message (but only for SRB2, as described above) and in *RRCSetup* for SRB1. In other words, SRB1 configuration is not required in the first *RRCReconfiguration* message after re-establishment.

**Proposal 1 RAN2 to confirm that SRB1 configuration is not required in the first RRCReconfiguration message after re-establishment in the case of fullConfig.**

**Proposal 2 RAN2 to confirm that SRB1 configuration is not required in the first RRCReconfiguration message after re-establishment in the case of delta signalling.**

**Question: Do companies agree with above Proposal 1 and Proposal 2?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | Yes | Agree to both P1 and P2. |
| Ericsson (Tony) | Yes (Proponent) | Our intention here is to clarify the network actions (and what the UE expects) during the RRC re-establishment procedure. Our understanding is that, upon re-establishment, the UE setup the SRB1 with the default configuration and, for this reason, the network does not need to signaling (again) an SRB1 configuration in the first RRCReconfiguration message after re-establishment, unless the dafault SRB1 need to be changed/reconfigured.  |
| MediaTek | Yes |  |
| Huawei, HiSilicon | Yes | The proposals can be observed from the specification. No change seems needed. |
| Apple | Yes | We do not think those observations are relevant to the reestablishPDCP and resestablishRLC settings when SRB1 configuration is present in the first RRCReconfiguration message. So, no changes to the spec are needed. |
| QUALCOMM | Yes | Carry the same understanding. |
| CATT | Yes |  |
| Samsung | Yes |  |
| ZTE | Yes |  |
| NEC | Yes |  |
| Intel | Yes | Agree with the proposals and it is line with the current specification. |
| OPPO | Yes | SRB1 is not required but network is allowed to reconfigure it if necessary |
| Fujitsu | Yes |  |

In addition, it further clarifies whether PDCP and RLC needs to be re-established in the first RRCReconfiguration after re-establishment. The field description of reestablishPDCP and reestablishRLC are copied/pasted as below:

|  |
| --- |
| ***SRB-ToAddMod* field descriptions** |
| ***[…]*** |
| ***reestablishPDCP***Indicates that PDCP should be re-established. Network sets this to *true* whenever the security key used for this radio bearer changes. Key change could for example be due to reconfiguration with sync, for SRB2 when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment in NR. For LTE SRBs using NR PDCP, it could be for handover, RRC connection reestablishment or resume. Network doesn't include this field if any DAPS bearer is configured. |

|  |
| --- |
| ***RLC-BearerConfig* field descriptions** |
| ***[…]*** |
| ***reestablishRLC***Indicates that RLC should be re-established. Network sets this to *true* at least whenever the security key used for the radio bearer associated with this RLC entity changes. For SRB2 and DRBs, it is also set to *true* during the resumption of the RRC connection or the first reconfiguration after reestablishment. |

As mentioned in the contribution, it should be clear that a key change does not necessarily happen at the first reconfiguration after RRC connection reestablishment in NR, but it happens before i.e. upon reception of the *RRCReestablishment* message. So the field description makes the requirement not clear, and leading to different interpretations.

**Proposal 3 If SRB1 is included in the first RRCReconfiguration after re-establishment, RAN2 to clarify whether reestablishPDCP is required to be set to true for SRB1.**

**Proposal 4 If SRB1 is included in the first RRCReconfiguration after re-establishment, RAN2 to clarify whether reestablishRLC is required to be set to true for SRB1.**

**Question: Companies are invited to express your opinion on Proposal 3 & Proposal 4? (i.e. whether reestablishPDCP or reestablishRLC are required to be set to true? )**

|  |  |  |
| --- | --- | --- |
| Company | Required? orNot required? | Comments |
| Nokia |  | See answer to P1 and P2 |
| Ericsson (Tony) | Not required (Proponent) | Similar to the previous comment, in current RRC specification the UE is requested to refresh the security already when receiving an RRCReestablishment by the network. According to this, our understanding ist hat the network is not requested to set the reestablishPDCP and reestablishRLC flags to *true* in the first RRCReconfiguration message after re-establishment.This is would require the UE to unnecessary perform two consecutive security refreshes that are not needed. |
| MediaTek | Not required | The SRB1 has be re-established while initializing the re-establishment procedure. For 1st reconfiguration after reestablishment, it is not a must to re-establish again. |
| Huawei, HiSilicon | Not required | For SRB1, PDCP and RLC have been re-established upon initiation of RRC re-establishment. No need to include PDCP/RLC re-establishment in the first RRCReconfiguration after re-establishment, which is already clear in specification. |
| Apple | Not Required | Agree with Ericsson. |
| QUALCOMM | Not required | Carry the same understanding |
| CATT | Not required | For the same reasons mentioned by above companies.  |
| Samsung | No | UE performs re-establishment of PDCP and RLC for SRB upon initiating re-establishment, so there seems no real need for network to set the bit |
| ZTE | Not required | Same view as above companies.In addition, we are wondering for RRCResume case, whether network is requried to set reestablishPDCP and reestablishRLC to true?  |
| NEC | Not required |  |
| Intel | Not required and do not agree | As in proposal 1 and 2, the PDCP is already re-established and data sent over it. It should not be re-established again. |
| OPPO | Not required |  |
| Fujitsu | Not required | Agree with Ericsson. |

**Proposal 5 If network is not required to set reestablishPDCP and reestablishRLC to true, RAN2 to agree on the TP presented in Section 3.**

**Question: If you think network is not required to set reestablishPDCP and reestablishRLC to true, then any comments to the draft TP presented in section 3?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia |  | See answer to P1 and P2 |
| Ericsson (Tony) | Yes (Proponent) | In our CR we just reused the teminology already in the field description for the SRB2, but we are open to suggestions for rewording or changes. |
| MediaTek | Yes | Thinking that it is already current behavior but fine to clarify if majorities prefer to have this. |
| Huawei, HiSilicon | No | As clarified above, the current specification is already clear to support the above proposals. |
| Apple | Yes | We are fine to add some clarification in the specification about this issue.  |
| QUALCOMM | Yes | Fine to clarify it. |
| CATT | Maybe no | Tend to agree with Huawei. |
| Samsung | No | We see no real need to introduce any clarification |
| ZTE | Yes | We are fine to clarify it.  |
| NEC | Yes | nice to have |
| LG | No | We think it is already clear but no strong view.  |
| Intel | No strong view | As mentioned above, the current specification is clear on UE performing PDCP re-establishment for SRB1. This should be clear but if companies prefer to clarify, that is also acceptable. |
| OPPO | No | Current spec is clear about this aspect |
| Fujitsu | No | We see no need for clarification. |

Summary

All companies agree with Proposal 1~4 in R2-2009697, regarding the draft TP, 7 companies agree to clarify it in spec, 5 companies think the current spec is already clear and clarification is not needed. 1 company has no strong view, but would be fine with majority.

Considering several companies comment the currect spec is clear thus further clarification is not needed. And there is further comment received via email suggesting to futher discuss it. So rapporteur would suggest to further discuss if any clarification is needed in spec during phase II.

**Proposal 3 P1~ P4 in R2-2009697 are agreed. Continue to discuss if any spec clarification is needed in phase2.**

## Clarify UE behaviour on Need S Need R fields

[R2-2009233](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009233.zip) Clarify UE behaviour on Need S Need R fields ZTE Corporation, Sanechips discussion Rel-15 NR\_newRAT-Core

The above contribution discussed the ambiguity issue of scramblingID related fields. Based on current TS38.331, these fields are defined as Need R or Need S with default values. So UE will apply PCI when the field is not signalled in RRC message. However, during handove procedure, if network does not include the parent field (Need M) for delta configuration, it is unclear which value will be applied by UE for the child field.

For instance, the below “hoppingId” field, if network first sends RRCReconfiguration by not including hoppingId, the UE is supposed to apply the PCI of serving cell based on RAN1 spec. Then during handover procedure, if the target cell does not include PUCCH-ConfigCommon field (Need M) in handover command, for hoppingId field, will UE continue use source PCI? or the UE assumes the hoppingId field is still absent, and then applies the default value, e.g. PCI of target cell?

PUCCH-ConfigCommon ::= SEQUENCE {

 pucch-ResourceCommon INTEGER (0..15) OPTIONAL, -- Cond InitialBWP-Only

 pucch-GroupHopping ENUMERATED { neither, enable, disable },

 hoppingId INTEGER (0..1023) OPTIONAL, -- Need R

 p0-nominal INTEGER (-202..24) OPTIONAL, -- Need R

 ...

}

In order to support delta configuration for the parent field. In R2-2009233, it is proposed to clarify the UE shall assume the field is still absent, and then applies the default value after handover.

**Proposal 1: For the scramblingID related fields (e.g. defined as Need S or Need R with default values), in case the network does not signal the field before, during RRC reconfiguration, the UE shall assume the field is still absent if the parent field (Need M) is not included.**

**Question: Do companies agree with the clarification in Proposal1? (If no, please provide your comments?)**

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | No | This is literally about how need codes are defined - if the parent is absent and Need M, nothing changes in the interpretation of the child fields. In this case, the Need R field is treated as being absent if it was before and Need S field refers to the current cell's PCI.We don't think there's anything to correct in RRC for this, though. |
| MediaTek | No | The proposal 1 itself is unclear and does not really match the scenario (i.e. handover) describe by the CR context. The current ASN.1 guide clearly saying that the UE does not automatic release or reconfigure a child field while the parent file is absent.And it unclear to me what is the UE behavior to “*assume the field is still absent*”, there is no new configuration on the field at all so of course it still absent. [ZTE] Sorry for the misleading, the sentence “assume the field is still absent” was trying to imply the UE will re-apply the default value after handover, not inherit the value from source cell.For this particular case, the UE still apply the “default value” for the child field (*hoppingId*) after handover. The default value is changed due to handover but it is still default. We could clarify in the field description of *hoppingId* if really necessary. We think it should be already clear in current RAN1 SPEC that the default value is “current” serving cell PCID. |
| Huawei, Hisilicon | Agree | It is a basic principle. |
| Apple |  | We basically agree that UE considers the fields as absent, if the earlier parent (with M) did not configure this, and the current message does not have the parent field.But the proposal is not clear. Pls see our comments for the actual CR below. |
| QUALCOMM | May be not  | Not sure why the Need R is also considered for scrambling ID IE, when IEs listed in the discussion paper are all Need S.[ZTE] The hoppingId in PUCCH-ConfigCommon is defined as Need R. We were also wondering why those similar fields use different Need codes.If needed, we can simply add in the description of the IE, that default value is the PCI of the current serving cell. |
| CATT | No | Agree with MTK and Apple on the need of clarification. |
| ZTE | Yes(Proponent) | The wording of the proposal may not be clear, but the intention is same as what companies commented. That is:If the field (e.g. hoppingId) is not provided before, and network does not signal the parent field (Need M) in handover command, then after handover, the UE will apply default value of “current” serving cell (i.e. target PCI), not source PCI.  |
| NEC |  | agree with the clarification in P1. No strong view for the CR |
| Ericsson | Yes | We agree with the principle expressed in the Proposal 1 (I think this is the porpose of the Q1) |
| Samsung | No | We agree that in general if parent is absent, need code of subfield is not applied by UE. This should be clear from 6.1. Some further remarks regarding this particular case:1. intention was probably that UE maintains default behavior and applies PCI of target cell for hopping2. we are not sure if we can assume all UEs actually support this intended behavior3. network can however avoid any potential problems by always signaling the field upon HO/ PCell change4. the additional signaling is marginal, so it seem no issue for network to always apply this safe approach[ZTE] For bullet 3, it means for handover/PSCell change, network can never do delta configuration for those parent fields (and parent of parent fields…). This is exactly what we want to avoid. But it worth checking whether all UEs actually support this intended behaviour. |
| LG | Maybe or not | Agree with the intention. If companies think that anything needs to be done, we prefer to clarify that the default value is the PCI of the “current” serving cell. But we need to check if this is acceptable from the observation that in RRC we normally assume a static parameter rather than a running parameter. The alternative is to resolve this by network implementation.  |
| Intel | Yes (with comments) | The basic principle of Need codes is that they apply only if the parent field is included. But we understand that the issue here is specific for this field in that the default value is specific to the current serving cell there is an ambiquity (another reason why default values and use of Need S for it should be avoided!). We are OK to clarify further for this case without changing the basic use of Need fields. |
| OPPO | Yes | We support the intention of the CR |
| Fujitsu | No | Agree with Nokia. |

[R2-2009234](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009234.zip) CR to clarify UE behaviour on Need S Need R fields ZTE Corporation, Sanechips CR Rel-15 38.331 15.11.0 2044 - F NR\_newRAT-Core

[R2-2009235](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009235.zip) CR to clarify UE behaviour on Need S Need R fields ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2045 - A NR\_newRAT-Core

**Question: If the answer to above question is “Yes”, do you have any comments to the Rel15/16 CRs?**

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| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | No | While the proposed change would be correct, it's already covered so we don't think the CR is needed. We would like to know if this was truly about IOT, and if UE it is that is malfunctioning.So please provide some more background information about this. |
| MediaTek | No | As comment in previous one, we think that the original guide in ASN.1 is clear enough. The newly added sentence is difficult to understand. |
| Huawei, HiSilicon | No | The principle in Question 1 should be already clear in specification, e.g. in “For downlink messages, the need codes, conditions and ASN.1 defaults specified for a particular (child) field only apply in case the (parent) field including the particular field is present.”[ZTE] We are afraid the current sentence is not sufficient to cover this scenario, because it requires the parent field to be signalled. And people can interpretate that the “Need Code of child field only applies when parent field is present”. Then for the case we described, the parent field is absent (Need M), then the Need code of child field won’t work, and UE will remain the value used in source cell. |
| Apple | No | We think the original text is clear enough. Also for ‘S’, the behaviour would be specified in the description and so cannot generalize with ‘R’. |
| QUALCOMM | May be | Again, I’m afraid that generalizing the behavior (Need S, Need R) might break other procedures in the spec. if clarification is needed, it can be done for a specific IE (scrambingID).  |
| CATT | No | Agree with MTK and Apple. |
| ZTE | Yes(Proponent) | Response to Nokia’s question: Yes, we bring the contribution for clarification, because we faced the problem during IoT test.But we are glad to see (so far) companies have the same understanding on how UE should behave in such scenario. As we reponsed to HW’s comment, we think the current spec cannot cover this case well. But if majority companies prefer not to change the spec. We would suggest to just confirm this understanding in the Chairman Notes. Such as:* RAN2 confirms that for scrambling ID related fields (i.e. whose default value is defined as PCI of current serving cell). In case network does not signal the field before (e.g. UE applies default value: PCI), during handover procedure, if the parent field (Need M) is not included in handover command, then for those child scrambling ID fields, the UE will apply default value of “current” serving cell (i.e. PCI of target cell), not the PCI of source cell.

Hope this approach is acceptable to all. (Any wording improvement suggestion are welcome) |
| NEC |  | no strong view  |
| Ericsson | No | We agree with the concern raised by Qualcomm on the common guidance text. If clarification is needed, it can be done for a specific IE (scrambingID). But we do not see a need for this.Today they read***pdcch-DMRS-ScramblingID***PDCCH DMRS scrambling initialization (see TS 38.211 [16], clause 7.4.1.3.1). When the field is absent the UE applies the value of the physCellId configured for this serving cell.For hoppingId, it is a bit more complicated, since the default value assignment is in RAN1 spec. But should not really matter, since there is a reference in 38331 field description. Need R should be changed to Need S. This can be done in Rapp/Misc CR. |
| LG | No | Please see our comments for the previous question |
| Intel | No | We should not change the overall Need code handling in this manner as it can have unforeseen consequences. Any clarification shoulbe be in the corresponding field descriptions. |
| OPPO | No  | We also have concern to change ASN.1 rule, but fine to clarify specific IE field |

Summary

Regarding the handling of hoppingId, scramblingId fields in the described scenario, 11 companies agree the UE should apply the PCI of target cell after handover. But 1 company are not sure whether all UEs actually support this intended behavior. Since 1 company express concerns and this is sensible issue, rapporteur suggests to allow more time for companies to check, whether all UEs already behave as intended behaviour or not.

**Proposal 4 Continue discussion in phase 2, companies (especially UE vendors) to check whether UE already behaves as below:**

* **for scrambling ID related fields (i.e. whose default value is defined as PCI of current serving cell). In case network does not signal the field before (e.g. UE applies default value: PCI), during handover procedure, if the parent field (Need M) is not included in handover command, then for those child scrambling ID fields, the UE will apply default value of “current” serving cell (i.e. PCI of target cell), not the PCI of source cell.**

Regarding the CR, most companies think generalizing the behavior (Need S, Need R) might break other procedures in the spec. And 5 companies suggest to clarify it in corresponding field descriptions.

**Proposal 5 If proposal 4 is confirmed, clarify in corresponding field description instead of changing the general principle in 6.1.2. (Update R2-2009234/9235)**

## SUL terminology

[R2-2009698](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009698.zip) Correction on terminology for when the UE is configured with SUL Ericsson CR Rel-15 38.331 15.11.0 2105 - F NR\_newRAT-Core

[R2-2009699](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009699.zip) Correction on terminology for when the UE is configured with SUL Ericsson CR Rel-16 38.331 16.2.0 2106 - F NR\_newRAT-Core

[R2-2010492](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010492.zip) Clarification on the terminology ‘serving cell is configured with a supplementary uplink’ Fujitsu discussion Rel-16 NR\_newRAT-Core

[R2-2010584](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010584.zip) Clarification on the terminology ‘serving cell is configured with a supplementary uplink’ Fujitsu CR Rel-16 38.331 16.2.0 1772 1 F NR\_newRAT-Core R2-2007020

There are four contributions clarifing the terminology “when the UE is configured with SUL”, and “serving cell is configured with a supplementary uplink” in TS 38.331. In general, rapporteur thinks the motivations are the same.

Although [R2-2010584](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010584.zip) is a Rel-16 CR, it is clarified in R2-2010492 that the 2nd change is also applied for Rel-15 specification. While, in [R2-2009698](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009698.zip), it also includes other changes. Comparing the two set of CRs. For Rel-15 overlapping part, the main difference is:

--Modification on ***SI-SchedulingInfo*** in [R2-2009698](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009698.zip):

|  |  |
| --- | --- |
| *SUL-MSG-1* | The field is optionally present, Need R, if *supplementaryUplink* is configured in *ServingCellConfigCommonSIB*and if *si-BroadcastStatus* is set to *notBroadcasting* for any SI-message included in *SchedulingInfo*. It is absent otherwise. |

--Modification on ***SI-SchedulingInfo*** in [R2-2010584](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010584.zip):

|  |  |
| --- | --- |
| *SUL-MSG-1* | The field is optionally present, Need R, if *supplementaryUplink* is present in *servingCellConfigCommon* and if si-BroadcastStatus is set to *notBroadcasting* for any SI-message included in *SchedulingInfo*. It is absent otherwise. |

Similarly, for Rel-16 overlapping part in [R2-2009699](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009699.zip) and [R2-2010584](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010584.zip), the main difference is:

--Modification on ***PosSI-SchedulingInfo*** in [R2-2009699](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009699.zip):

|  |  |
| --- | --- |
| *SUL-MSG-1* | The field is optionally present, Need R, if *supplementaryUplink* is configured in *ServingCellConfigCommonSIB* and if *posSI-BroadcastStatus* is set to *notBroadcasting* for any SI-message included in *PosSchedulingInfo*. It is absent otherwise. |

--Modification on ***PosSI-SchedulingInfo*** in [R2-2010584](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010584.zip):

|  |  |
| --- | --- |
| *SUL-MSG-1* | The field is optionally present, Need R, if *supplementaryUplink* is present in *servingCellConfigCommon* and if *posSI-BroadcastStatus* is set to *notBroadcasting* for any SI-message included in *PosSchedulingInfo*. It is absent otherwise. |

As we can see, one refers to the field name, the other refers the name of IE definition. Companies are invited to show your preference to above two versions.

**Question: For the modification on SI-SchedulingInfo and PosSI-SchedulingInfo, which version do you prefer? (use ServingCellConfigCommonSIB, or servingCellConfigCommon)**

|  |  |  |
| --- | --- | --- |
| Company | Preferred name | Comments |
| Nokia | None | We don’t see the need to really clarify which is which as the cases for both EN-DC and NR SA use the different fields. Even without the naming the current specification is already clear.For the editorial parts where the field description has to be referred, we would recommend moving this to rapporteur miscellaneous corrections. |
| Ericsson (Tony) | ServingCellConfigCommonSIB | The main reason why we decided to use ServingCellConfigCommonSIB is because we have a “field” and an “IE” that are called (s)ServingCellConfigCommon and the only difference is the capital letter at the beginning.The main problem with (s)ServingCellConfigCommon is that the two name are referring to two different field/IEs and this may cause more confusion.In fact, sevingCellConfigCommon if pointing to ServingCellConfigCommonSIB:SIB1 ::= SEQUENCE {[...] servingCellConfigCommon ServingCellConfigCommonSIB OPTIONAL, -- Need RBut the fields that are pointing to ServingCellConfigCommon are called spCellConfigCommon and sCellConfigCommon.ReconfigurationWithSync ::= SEQUENCE { spCellConfigCommon ServingCellConfigCommon OPTIONAL, -- Need M[...]SCellConfig ::= SEQUENCE {[...] sCellConfigCommon ServingCellConfigCommon OPTIONAL, -- Cond SCellAddOn top of this, in multiple parts of the specification we already refer to the IEs for the ServingCellConfigCommonSIB and ServingCellConfigCommon and we would like to align the terminology also here. |
| MediaTek | Prefer the name in Ericsson CR |  |
| Huawei, Hisilicon | ServingCellConfigCommonSIB | No strong view, and slightly prefer using the IE name in this case as it is more descriptive and would not cause any confusion. |
| Apple | No clarification needed, but if companies prefer, then we agree with the Ericsson approach |  |
| CATT | ServingCellConfigCommonSIB | For the sake of clarity. |
| Samsung | NA | We see no real need to change i.e. seems no real confusion. If majority prefers, maybe this can be in RapCR |
| ZTE | ServingCellConfigCommonSIB |  |
| NEC | ServingCellConfigCommonSIB |  |
| LG | NA | We do not see any confusion  |
| Intel | NA | We don’t see a real need to clarify further. The usage is only in a condition and the intention should be sufficiently clear already. Using an IE name here is also a bit confusing. |
| OPPO | NA | We also don’t think it is necessary |
| Fujitsu | **servingCellConfigCommon** | The main reason why we propose to use this is to keep aligned with the text procedure.We are fine to use ServingCellConfigCommonSIB if companies prefer it. And then it is better to make corresponding modification in 5.2.2.4.2. For example,4> if supplementaryUplink is present in ServingCellConfigCommonSIB; and |

**Question: Any comments to the other changes in R2-2009698/9699?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | None | We don’t see the need to really clarify which is which as the cases for both EN-DC and NR SA use the different fields. Even without the naming the current specification is already clear.For the editorial parts where the field description has to be referred, we would recommend moving this to rapporteur miscellaneous corrections. |
| Ericsson (Tony) | Yes (Proponent) | In our CR we just used the same teminology that is present in other parts of the specifications by we are open to suggestion of how to solve this possible conflict in the terminology for SUL. |
| MediaTek | Agree with comment | First we actually think it is not critical but fine to clarify this.If we agree to clarify, we prefer to start from R15. The CR from Ericsson is general ok with the following suggestion:Change in *PUSCH-TPC-CommandConfig* 🡪 Should use IE name *ServingCellConfig* (capital S)R15 Coversheet: should remove 6.3.1a in affected clauses |
| Huawei, Hisilicon |  | Agree with Nokia, and prefer to merge the changes to the rapporteur CR, as it does not have functional changes. |
| Apple | Neutral | We are ok if majority wants the change. |
| QCOM | - | Go with the majority |
| CATT | No much strong view |  |
| Samsung | No | We see no real need to change (see previous) |
| ZTE | No strong view | Same view as Nokia and HW, we prefer to merged it into rapporteur’s CR.  |
| NEC |  | we are fine with CR contents, which could be in Rapp CR |
| LG |  | *We can agree with the yellow part added in R2-2009698****supplementaryUplink***Network may configure this field only when *supplementaryUplinkConfig* is configured in *ServingCellConfigCommon* or *supplementaryUplink* is configured in *ServingCellConfigCommonSIB*. |
| Intel | No | We don’t see a real need to change (see previous response) |
| OPPO | No |  |
| Fujitsu | No strong view |  |

Summary

For the use of terms “*ServingCellConfigCommonSIB*” or “*servingCellConfigCommon*”, more companies prefer to use “ServingCellConfigCommonSIB” (in R2-2009698/9699).

For the necessity of the CRs, 4 companies think the CR is not needed, 1 company agree partial of the changes, and more companies are fine with the changes, and 4 companies prefer to merge it into rapporteur CR. Considering it does not have functional changes, rapporteur suggests to merge it into rapporteur CR.

**Proposal 6 Changes in R2-2009698, R2-2009699 are merged into rapporteur CR (take into account the comments from MTK ).**

## Clarify smtc field in SCell addition w/o SSB

[R2-2009236](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009236.zip) CR to clarify smtc field in case of SCell addition ZTE Corporation, Sanechips CR Rel-15 38.331 15.11.0 2046 - F NR\_newRAT-Core

[R2-2009237](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009237.zip) CR to clarify smtc field in case of SCell addition ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2047 - A NR\_newRAT-Core

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | Yes | This looks logical to us i.e. not to signal SMTC for Scell not having SSB. |
| MediaTek | No | The smtc field is optional and we also understand that the NW does not provide this for SCell without SSB. The UE should still try to find the SCell even without the smtc configuration (even it cannot find SMTC in MO, it still a valid configuration). The NW is not mandated to provide the smtc based on current SPEC. We think that the CR is not necessary. |
| Huawei, Hisilicon | No | Agree with MediaTek. |
| Apple | No strong view | We are ok to clarify if majority prefer, but this is also already evident as *smtc* is optional.  |
| QUALCOMM | Alternative solution | We understand ZTE intention and we see MediaTek and Hawei concern. the CR will create a confusion, as the SMTC if not provided, UE assumes that no SSB is broadcasted and bail out and will not use the SMTC in the MeasObject (as indicated in the description of the IE). Alternative solution: if no SMTC is provided (absent) in the SCellConfig and if no MeasObject with same SSB arfcn is configured with an SMTC, then UE can assume no SSB is broadcasted and bail out. [ZTE] We may not fully understand word “bail out”, could you please clarify a bit more? We understand the UE can know whether SSB is broadcasted based on the presence of *absoluteFrequencySSB* in *FrequencyInfoDL*. Not by the presence of *smtc* and MO.  |
| CATT | No | Agree with MTK and Huawei. Network implementation can handle this and thus no need to change.  |
| Samsung | Yes | We are fine to clarify, but no strong view |
| ZTE | Yes(Proponent) | Based on the comments from companies, seems companies all agree that NW is allowed to not signal the smtc field (based on “optional” attribution) together without providing MO.Then our question is, whether it is a wrong configuration, if network includes the smtc field, e.g. set it to the SMTC of sPCell, because it has the same timing reference. If companies consider this is a wrong configuration, then we think it worth clarify the field is anyway not applicable to “SCell w/o SSB” case. |
| NEC | Yes | it is good to clarify this |
| Ericsson | No | We agree with others no CR is needed. |
| LG | Maybe | We are fine with this clarification, only if this is merely to restrict IOT cases. Otherwise, we think this CR is not needed.  |
| Intel | May be | We agree with MediaTek’s comments. But we are open to consider a clarification if others feel it is needed. |
| OPPO |  | For the case both SMTC and NR measurement object is not configured for the concerned scell, UE will still try to check SMTC within NR measurement object. Then it is not clear what’s UE’s behavior. So an alternative is to add “if any” as following:the UE uses the SMTC in the *measObjectNR,* if any, having the same SSB frequency and subcarrier spacingfor configuration with SMTC and measurement object, UE will not try to get SMTC which doesn’t exist.[ZTE] This is another approach, but still, we should first clarify whether it will cause RRC failure if network sends the smtc field. And if that is wrong configuration, then adding restriction (as original proposed) is necessary.  |
| Fujitsu | No | This can be handled by network implementation. |

Summary

5 companies think the CR is not needed because currently the smtc field is optional, so network is allowed to not signal it. 4 companies agree the CR, 3 companies have no strong view, but are fine to have clarification. 1 company provide an alternative solution, but rapporteur thinks it needs further clarification. 1 company suggest to add “if any” to the field description.

In general, all companies agree network is not required to include smtc field when the SCell is configured without SSB, however, it is unclear whether it is a wrong configuration if network provides the field (because the spec implies so). If companies consider this will result in reconfiguration failure, then rapporteur think the spec should be clear to aovid IOT problem.

**Proposal 7 RAN2 confirms when adding a SCell without SSB, network is allowed to not provide *smtc* field together with not providing corresponding MO.**

**Proposal 8 Continue to discuss whether any clarification is needed (depends on whether RRC failure would happen if network provides the smtc field).**

## Clarify essential system information

[R2-2009582](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009582.zip) Correction on essential system information ZTE Corporation, Sanechips CR Rel-15 38.331 15.11.0 2094 - F NR\_newRAT-Core

[R2-2009583](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009583.zip) Correction on essential system information(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2095 - A NR\_newRAT-Core

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | No | What is essential SI and how it relates to valid SIBs for a given RRC state was discussed before and the current text in 5.2.2.1 is a result of this discussion. UE, depending on the features supported may require additional SIBs as essential SIBs. If this discussion has to be re-opened, then we need further clarifications about the definition of essential SI/SIB in 5.2.2.1. We prefer to avoid using both essential and valid terms and just use the term "essential".We don’t see anything broken here. |
| MediaTek | No | Changing the reference section does not clear identify the essential SIB and also not clarify only MIB/SIB1 is needed before RRC setup. We also understand the UE does not receive the SIB2 – SIB5 for connection setup but it is incorrect to clarify in this way. If something is needed, we could have a NOTE to clarify the behavior.[ZTE] It would be good if an example (of NOTE) can be provided. ; ) |
| Huawei, Hisilicon | No, but | It is to remove the reference and merge into rapporteur CR. |
| Apple  | No | change not needed. The essential information, as shown in 5.2.2.5, only contains MIB and SIB1. Any additional SIBs are not absolutely needed. |
| Qualcomm | - | No doubt there is ambiguity when it comes to the essential system information. It would be good if clarification can be added to the spec. I second MediaTek comment on adding a “Note” |
| CATT | No strong view | Currently the text refers to a more general part of the section, which may not be that accurate but nothing is wrong and the current behavior should be quite clear in SI reception.  |
| Samsung | Yes |  |
| NEC |  | we share the intention (understanding), while Mediatek approach sounds better  |
| Ericsson | Maybe | If we would like to clarify anything and make the specification more clear, we should perhaps explicitly say that UE has to have (valid) MIB/SIB1 before accessing the system. |
| LG | No | Essential information is already clear from the section 5.2.2.5 “Essential system information missing“. And the section 5.2.2.1 does not say anything about “essential” SI. So we do not think there is confusion.  |
| ZTE | Yes (Proponent) | The reason we bring this CR is that we have a sentence in 5.2.2.1 that “The UE in RRC\_IDLE and RRC\_INACTIVE shall ensure having a valid version of (at least) the MIB, SIB1 through SIB4 and SIB5 (if the UE supports E-UTRA).”, and based on the sentence, there may be different understandings.Alt1: The 5.2.2.1 is a correct reference and the essential system information shall be replaced by necessary information* The UE initiates the procedure when upper layers request establishment of an RRC connection while the UE is in RRC\_IDLE and it has acquired ~~essential~~necessary system information as described in 5.2.2.1.

Alt2: The 5.2.2.1 is a wrong reference* The UE initiates the procedure when upper layers request establishment of an RRC connection while the UE is in RRC\_IDLE and it has acquired essential system information as described in ~~5.2.2.1~~5.2.2.3.1.

We think clarification is needed to understand which one of the above is the correct understanding. |
| Intel | No | The referenced sentence in 5.2.2.1 does not make the other SIBs „essential“ system information in our view. The essential SI is listed in section 5.2.2.5.While we agree that the current reference to 5.2.2.1 is not that helpful, changing the reference in itself does not add clarity here in our view. If felt essential, a NOTE to list the essential SIBs is a better approach. |
| OPPO | Yes | We have sympathy for the intention of the CR, but would like to follow majority |
| Fujitsu | No |  |

Summary

4 companies think no clarification is needed, but seems they have different understandings on what is the essential SIBs (one company thinks it depends on the features, and others think there are MIB and SIB1 according to 5.2.2.3 ), 3 companies agree with the CR, 4 companies think clarification might be helpful and 3 of them suggest to have a Note. 1 company has no strong view, and 1 company suggests to merge it into rapporteur CR.

Since there is no majority, so rapporteur suggest to further discuss it during phase2.

**Proposal 9 Continue to discuss R2-2009582 and R2-2009583 in phase 2.**

## Clarify AS configuration during HO

[R2-2009478](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009478.zip) Clarification on AS configuration during HO Apple CR Rel-16 38.331 16.2.0 2082 - F NR\_newRAT-Core, TEI16

|  |  |  |
| --- | --- | --- |
| Company | Agree?(Yes or No) | Comments |
| Nokia | No | This was followed as a practice even in Rel-15 and also in LTE. What is really broken is not clear. |
| Ericsson (Tony) | No | We are not enterely sure what is the main motivation for having this CR and what the change in the CR actually means. Our understanding is that the UE should indeed reconfigure the fields that are received in the RRCReconfiguration and this should be already clear from the procedural text.We belive that this CR is not needed, unless is clarified what is the real issue that needs to be solved. |
| MediaTek | No | The newly added NOTE is confusing. We think the original text is clear enough on how the UE handle the configuration |
| Huawei, HiSilicon |  | Not sure the added NOTE is aligned with the reason of change. We don’t see a big need of the NOTE itself. |
| Apple | Yes(Proponent) | The same issue exists in LTE. In TS 36.331 for HO procedure 5.4.2.3, a NOTE is used to avoid the case that UE may not apply the full configuration upon the RACH procedure successful completion. We think the same NOTE is needed in 38.331 spec to ensure the UE to apply the parameters received in the RRCReconfiguration.  |
| Qualcomm | Yes | We think the cover sheet is not well written so that some companies may misunderstand. Let me clarify our understanding of the issue:*2>  apply the parts of the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the respective target SpCell, if any;**2>  apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the respective target SpCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of that target SpCell;*The 1st bullet specifies UE behavior on how to handle configuration which doesn’t require SFN of target cell. Howeve, it doesn’t use “for example” or “e.g.”, so it will restrict the UE behaviors to only the 3 cases (i.e. only *the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration*). Then, it may not be entirely clear what the UE does with other configurations that do not require SFN beyond the 3 ones. The note is intended to clarify UE behavior on how to handle these, which is aligned with our understanding. Please note that 36.331 has the same note captured:1> if MAC indicates the successful reception of a PDCCH transmission addressed to C-RNTI and if *rach-Skip* is configured:2> stop timer T304;2> release *rach-Skip*;2> apply the parts of the CQI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the target PCell, if any;2> apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the target PCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of the target PCell;NOTE 3: Whenever the UE shall setup or reconfigure a configuration in accordance with a field that is received it applies the new configuration, except for the cases addressed by the above statements. |
| CATT | No strong view |  |
| Samsung | No |  |
| ZTE | Yes | We think this is not an essential correction. However, since we have similar NOTE in LTE, we are fine to add it in NR.  |
| NEC |  | according to the explanation by QC, it seems the change is just similar to what LTE spec describes. Fine to add the Note but cover page should be updated to clarify the issue e.g. refer to 36.331? |
| LG | No strong view | We do not see any confusion for now. But considering QC explanation, only if there is other function not covered by the listed 3 functionalities (CSI, SRS, SR), then the note may be beneficial.  |
| Intel | May be | The explanation from Qualcomm was helpful in understanding the issue. The text in the NOTE is quite difficult to understand, and also the reference to „above statements“ does not indicate which of the above (could the whole section). Considering the NOTE is also present in LTE, we are OK to add it here as well.  |
| OPPO | Maybe | The “above statements” seems refer to radio configuration which is applied upon acquiring the SFN i.e. not applied immediately but with some delay. That’s why we think the note is technically correct. But QC’s explanation is bit confusing and not sure what else will be applied without SFN apart from existing 3 items. If it does, then we may need add e.g. wording.  |
| Fujitsu | No | We see no confusion. |

Summary

6 companies think the CR is not needed, 4 companies agree the CR, and 3 companies have no strong view but also fine to have it .

Althought we already have the NOTE in LTE spec, almost half companies consider the problem is unclear and would like to clarify more about the real issue we want to solve. So rapporteur suggest to continue the discussion in phase2, please proponent companies provide more explanation on the necessity of NOTE.

**Proposal 10 Continue to discuss R2-2009478 in phase2 (please proponent provides more clarification on the issue that needs to be solved).**

# Phase 2 Discussion

## For clarification on RRC Reestablishment procedure

Based on phase1 discussion, companies have reached consensus that for SRB1, network is not required to set reestablishPDCP and reestablishRLC to “true” during the first reconfiguration after reestablishment.

And R2-2009697 also provides following spec changes:

|  |
| --- |
| ***RLC-BearerConfig* field descriptions** |
| ***[…]*** |
| ***reestablishRLC***Indicates that RLC should be re-established. Network sets this to *true* at least whenever the security key used for the radio bearer associated with this RLC entity changes. For SRB2 and DRBs, it is also set to *true* during the resumption of the RRC connection or the first reconfiguration after reestablishment. For SRB1, it is not required to be set to *true* during the first reconfiguration after reestablishment. |

|  |
| --- |
| ***SRB-ToAddMod* field descriptions** |
| ***[…]*** |
| ***reestablishPDCP***Indicates that PDCP should be re-established. Network sets this to *true* whenever the security key used for this radio bearer changes. Key change could for example be due to reconfiguration with sync, for SRB2 when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment in NR. For LTE SRBs using NR PDCP, it could be for handover, RRC connection reestablishment or resume. Network doesn't include this field if any DAPS bearer is configured. For SRB1, it is not required to be set to *true* during the first reconfiguration after reestablishment. |

However, during phase1 discussion, there is no consensus due to some companies pointed out the current spec is already clear and clarification is not needed. So companies are invited to show your opinion on this.

**Question 3.1-1: Do company agree to above clarifications in TS38.331?**

|  |  |  |
| --- | --- | --- |
| Company | AgreeYes or No? | Comments |
| ZTE | Yes | We think it is helpful by making it clear in specification. |
| Apple | Yes |  |
| CATT | No | As discussed in ph2 the current spec is clear. |
| Ericsson | Yes | Given that everybody agree with P1-P4, according to the current TS 38.331, the behavior of the field reestablishPDCP and reestablishRLC in the first RRCReconfiguration message upon re-establishment is only clear for the SRB2 and DRB but not for SRB1: reestablishPDCPKey change could for example be due to reconfiguration with sync, for SRB2 when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment in NRreestablishRLCFor SRB2 and DRBs, it is also set to true during the resumption of the RRC connection or the first reconfiguration after reestablishment.In particular, for the reestablishPDCP field, the highlighted comma in the field description may implies that the field is set to true for SRB2 resuming an RRC connection or, for SRB1 and SRB2, at the first reconfiguration after RRC connection reestablishment. This is of course not not the case as the all sentence refers “only” to SRB2.According to this, is not clear how the network should set these fields for the SRB1 in the first reconfiguration after re-establishment and if the UE expects those fields to be set to true or not. |
| NEC | Yes |  |
| Huawei, HiSilicon | No | After the phase-I discussion, I guess people have been clear why for SRB1 PDCP and RLC don’t need to be re-established in the first RRC reconfiguration message after RRC re-establishment, that is why only SRB2 and DRBs are mentioned in the field description. Note that we normally do not add description in a negative manner; otherwise, we may need to do maintenance for other cases in the future (e.g. why SRB3 is not considered, and so on).  |
| Samsung | No | We think spec is sufficiently clear i.e. see no need to further clarify network operation  |
| MediaTek | Yes |  |
| Nokia | No | Fully agree with HW. |

Summary for phase 2

9 companies provide feedback, 5 companies are fine with the change, but 4 companies insist the spec is clear and further clarification is not needed.

Considering there is no sufficient support, rapporteur would suggest not to pursue the CRs.

**Proposal 11 For P1~P4 in R2-2009697, confirm no specification change is needed.**

## For UE behaviour on Need S Need R fields

After phase 1, following proposals are made:

|  |
| --- |
| **Proposal 4 Continue discussion in phase 2, companies (especially UE vendors) to check whether UE already behaves as below:*** **for scrambling ID related fields (i.e. whose default value is defined as PCI of current serving cell). In case network does not signal the field before (e.g. UE applies default value: PCI), during handover procedure, if the parent field (Need M) is not included in handover command, then for those child scrambling ID fields, the UE will apply default value of “current” serving cell (i.e. PCI of target cell), not the PCI of source cell.**

**Proposal 5 If proposal 4 is confirmed, clarify in corresponding field description instead of changing the general principle in 6.1.2. (Update R2-2009234/9235)** |

For proposal 4, although almost all companies agree it should be the intended behaviour. It was recommended to further check whether all UEs/Chipsets already behaves as this or not.

**Question 3.2-1: Do companies have concern or object to the UE ehavior described in P4?**

|  |  |  |
| --- | --- | --- |
| Company | AgreeYes or No? | Comments |
| ZTE | No | We think it should be the intended ehavior when defining those Need R/S fields. But better to check and ensure all UEs have the same understanding. Otherwise, we need to discuss how to fix it, in order to support delta configuration on parent fields.  |
| Apple | No objection |  |
| CATT | No |  |
| NEC | No |  |
| Huawei, Hisilicon | No |  |
| Samsung | Yes | Although we agree that UEs should in general support delta signaling, this is a quite particular case i.e. to continue a default operation that nevertheless involves some modification. Hence we are not sure it is supported by all UE implementations |
| MediaTek |  | We think the description is basically correct but prefer to postpone this issue to allow more time for checking. |
| Nokia | No | Prefer not to do anything as majority view. |

**Question 3.2-2: If found some UEs do not support such behaviour, do companies think we should find a way to solve it (e.g. by adding new capability)?**

|  |  |  |
| --- | --- | --- |
| Company | AgreeYes or No? | Comments |
| ZTE | Yes | Signalling size reduction is important especially for handover scenario. We think companies need to further evaluate the impact on signalling size if parent fields must be signalled. In our opinion, if the impact is not negligible, we would prefer to find a solution.  |
| Apple | we are open | We think the spec intends the UE to apply the PCI (and other params) of the target cell, as using the source cell info at target cell during handover should not be the way. We can discuss if we need to go down the capability path, and in addition this causes NWs to functions in two ways (for UEs with and without capability) |
| CATT | maybe not | Perhaps no need to correct a wrong implementation via specification.  |
| NEC | depends | if some UEs/Chipsets vendors have problem, can think about solution. Otherwise, not. |
| Huawei, Hisilicon | No | Agree with CATT. Not sure if there is any wrong implementation now.  |
| Samsung | Yes | We think network can easily avoid any potential problems at little additional cost (i.e. by signaling parent field i.e. for this particular field not to apply delta) |
| MediaTek | Unclear | Unclear on “**find a way to solve**”. We don’t know what exactly the proposal is. One way maybe to change UE behavior with capability. The other way may just require NW to always signal the parent IE during handover. Anyway, we prefer to postpone the discussion. |

**Question 3.2-3: If confirmed all UEs support such behaviour, do you think it can be clarified in the field description of corresponding fields?**

|  |  |  |
| --- | --- | --- |
| Company | AgreeYes or No? | Comments |
| ZTE | Yes | Considering majority companies prefer not to change the general section 6.1, and problem only happens to those specific fields. We are fine to add clarification to the field description of those fields.  |
| Apple | Yes |  And we hope that this is the eventual outcome. |
| CATT | No |  |
| NEC | No | given confirming all UEs support this, probably no need to capture |
| Huawei, Hisilicon | No | Agree with NEC |
| Samsung | Yes |  |
| MediaTek | Maybe |  |
| Nokia |  | This is literally about how need codes are defined - if the parent is absent and Need M, nothing changes in the interpretation of the child fields. In this case, the Need R field is treated as being absent if it was before and Need S field refers to the current cell's PCI.We don't think there's anything to correct in RRC for this, though. |

Summary for phase 2

8 companies provide feedback, 6 companies think below should be intended UE behaviour. But 1 company show concern, and think this is a particular case that may not be supported by all UEs. And 1 company suggests to postpone this discussion to allow more time for checking.

* **for scrambling ID related fields (i.e. whose default value is defined as PCI of current serving cell). In case network does not signal the field before (e.g. UE applies default value: PCI), during handover procedure, if the parent field (Need M) is not included in handover command, then for those child scrambling ID fields, the UE will apply default value of “current” serving cell (i.e. PCI of target cell), not the PCI of source cell.**

Considering this is a sensible issue that may cause inter-operability problem. It would be good to confirm all UE’s implementation first, so rapporteur would suggest to postpone this topic to next meeting, companies are encouraged to have more internal checking, and bring contribution to next meeting.

**Proposal 12 The issue is postponed to next meeting, allow companies to have more time for checking.**

## For smtc field in SCell addition w/o SSB

For during phase 1, although most companies think network is allowed to not signal smtc field when SSB is configured without SSB, but it is still unclear whether it will result in reconfiguration failure if smtc is provided, because currently the spec does not forbid this. So to aovid IoT issue, rapporteur suggests to further clarify this.

**Question 3.3-1: If smtc field is included when adding a Scell without SSB, will UE ignore the field, or it will cause reconfiguration failure?**

(if all companies confirm reconfiguration failure will not happen and UE cannot be benefit from this field, then the change in R2-2009236 is not pursued)

|  |  |
| --- | --- |
| Company | Comments |
| ZTE | Not sure, the current field description gives a hint that either smtc or MO should be provided if network wants to achieve better performance (i.e. shorter delay). But it is also unclear to us whether UE can be benefit or even behave wrong if network provides the smtc field (e.g. the smtc of SpCell that has the same timing). If UE can ignore the field in this case, then any further clarification is not needed. But if UE will trigger reconfiguration failure in this case, to avoid inter-operability problem, we would suggest to make it clear in spec (as proposed in R2-2009263).  |
| Apple | We prefer that the NW does not provide this field and this can avoid dwelling into UE behaviours. And we are open to see other RAN2 views. |
| CATT | We do not see a failure, and thus it can be left to implementation. No changes needed.  |
| NEC | network should not provide smtc field in this case. If provided, we assume the UE can just ignore it but fine to check whether there is any problem in UE side |
| Huawei, Hisilicon | We assume that the network doesn’t configure this field. |
| Samsung | We assume that if network provides the field, the UE would try to measure SSB but merely fail to detect it. I.e. we don’t expect UE to trigger failure procedures/ re-establishment |
| MediaTek | We assume that the network doesn’t configure this field. And we don’t think change on field description is needed.BTW, do we really have SCell without SSB deployed in the field?  |
|  |  |

Summary for phase 2

7 companies provide feedback, most companies prefer the network not to provide smtc when SCell is configured without SSB. 3 companies think even if the field is provided, UE will not trigger RRC failure/re-establishment.

Considering no company thinks RRC failure would happen in this case, then we don’t need further clarification in spec.

**Proposal 13 CR R2-2009236, R2-2009237 are not pursued (based on the assumption that RRC failure will not happen even if *smtc* field is provided).**

## Clarify essential system information

During phase1 discussion, 4 companies suggest to add a NOTE to explicitly list the essential system information. However, some companies also suggest to simply remove the reference and merge it into rapporteur CR.

Rapporteur understands either change does not imply any functional change, so for simplicity, rapporteur would suggest to remove the reference and merge it into rapporteur CR. This means we will rely on section 5.2.2.5 to know that essential system information only includes “MIB and SIB1”.

Below is an example of change:

|  |
| --- |
| 5.3.3.2 InitiationThe UE initiates the procedure when upper layers request establishment of an RRC connection while the UE is in RRC\_IDLE and it has acquired essential system information ~~as described in 5.2.2.1~~. |

**Question 3.4-1: Do companies agree to above change (remove reference) and merge it into rapporteur CR? (If no, please provide your suggestion)**

|  |  |  |
| --- | --- | --- |
| Company | AgreeYes or No? | Comments |
| ZTE | Yes |  |
| Apple | Yes | We are fine with just removing the reference. |
| CATT | no strong view | This is acceptable to us.  |
| NEC |  | slightly prefer to add a NOTE but removing the reference is acceptable if majority support |
| Huawei, Hisilicon | Yes | Can accept this change. |
| Samsung | Yes |  |
| MediaTek |  | Our original suggestion is to add NOTE (similar in LTE 36.331 5.3.3.2) to NR. But it indeed require more discussion. Note that we need to deal with connection resume procedure too. So, we are fine if majorities don’t want to have this. NOTE 2: Upon initiating the connection establishment procedure, the UE is not required to ensure it maintains up to date system information applicable only for UEs in RRC\_IDLE state or UEs in RRC\_INACTIVE. Deleting the reference section is acceptable to us but it actually does not clarify the original intention. |
| Nokia | Yes | Removing the reference is fine and merge to rapporteur CR |

Summary for phase 2

8 companies provide feedback, most companies agee with the proposed way forward (i.e. removing the reference and merge to rapporteur CR). 1 company proposes to add an NOTE as in LTE 36.331, and thinks deleting the reference number does not clarify the original intention. But as proponent company, we understand the proposed NOTE is a slightly different issue that can be discussed next meeting.

**Proposal 14 For R2-2009582 and R2-2009583, remove “** as described in 5.2.2.1**” and merge to rapporteur CR.**

## Clarify AS configuration during HO

The NOTE proposed in R2-2009478 is copied/pasted as below:

|  |
| --- |
| 1> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG, and when MAC of an NR cell group successfully completes a Random Access procedure triggered above:2> stop timer T304 for that cell group;2> stop timer T310 for source SpCell if running;2> apply the parts of the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the respective target SpCell, if any;2> apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the respective target SpCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of that target SpCell;NOTE X: Whenever the UE shall setup or reconfigure a configuration in accordance with a field that is received it applies the new configuration, except for the cases addressed by the above statements. |

Although we have similar NOTE in LTE spec. During phase 1 discussion, companies still show their concern on the reason of change. So it is proposed to further discuss it in phase2.

**Question 3.5-1: Do companies agree to add above NOTE in TS 38.331?**

(Companies can refer to the explanation from Apple and Qualcomm provided phase 1. But any futher clarifications are still welcome)

|  |  |  |
| --- | --- | --- |
| Company | AgreeYes or No? | Comments |
| Apple | Yes (Proponent) | We think the Qualcomm’s explanation is exactly our intention. We can revise the CR and update the coversheet with the following explanation in “reasons for change”:In current spec 38.331, clause 5.5.5.3, upon RACH success completion, the text reads: *2>  apply the parts of the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the respective target SpCell, if any;**2>  apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the respective target SpCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of that target SpCell;*The problem with the above text is that the 1st level-2 bullet specifies UE behavior on how to handle configuration which doesn’t require UE to know the SFN of target cell. However, it doesn’t use “for example” or “e.g.”, so it will restrict the UE behaviors to only the 3 cases (i.e. only *the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration*). Then, it may not be entirely clear what the UE does with other received configurations that do not require UE to know the SFN, beyond CSI, SR, SRS configurations mentioned above. For example, when to apply the beam management (e.g. BFD/BFR) related configuration is not clear.The note is intended to clarify UE behavior on how to handle these, which is aligned with our understanding. The same note is used in LTE Spec to clarify the similar behavior for HO.We are also fine to merge this change to rapporteur CR, if company prefer. |
| CATT | no strong view |  |
| Ericsson | No | Even if we have the note in LTE, this does not mean that we should import it by default also in NR. A part of this, if majority of companies prefer to have it anyway, we are fine to include it in the Rapporteur’s CR.However, current proposed note does not read well. We would encorage proponent to propose a revision of it as current text does not clarify what is the scope of it. |
| Huawei,Hisilicon | No strong view | But if the concern is just there is no “e.g.” for these 3 cases (i.e. the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration), why don’t we just add an “e.g.” there? |
| Samsung | no strong view | We understand intention is to clarify that UE merely delays application of the received configuration until UE obtains the SFN (while existing bullets might be interpret as if UE does not apply received configuration)We are fine with this intention and to do this in Rap CR (there probably was confusion as wording of the note is unclear, so alike Ericsson we welcome improvement) |
| MediaTek | No | We don’t think copy this NOTE from LTE will help to clarify the UE behavior. The NOTE itself is simply difficult to read and to understand. Of course the UE apply new configuration while received it. The procedure text already clear say that some configuration may be applied later while SFN is not available. It is quite clear from our side. We don’t see the need to have this. |
| Nokia | No | This was followed as a practice even in Rel-15 and also in LTE. What is really broken is not clear. |

Summary for phase 2

7 companies provide feedback, 1 company agree with the change, 3 companies have no strong view, 3 companies think we cannot simply inherit the NOTE from LTE, and think the wording is unclear and needs improvement.

Since no improved wording is provided so far, and some companies are questioning about the necessity of having the NOTE, rapporteur would suggest to postpone this, if needed, proponent company can bring CR to next meeting.

**Proposal 15 CR R2-2009478 is postponed.**

# Conclusion

Based on the discussion in the previous sections we propose the following:

Summary for phase 1 discussion:

For correction on rach-ConfigDedicated (R2-2009580/9581)

**Proposal 1 In addition to R2-2009580 and R2-2009581, to first discuss whether to revise the decision made last meeting (e.g. whether firstActiveUplinkBWP-Id is mandatory or optional provided upon reconfigurationWithSync to the same SpCell).**

For clarification on SCell RACH configuration (R2-2009479)

**Proposal 2 The CR R2-2009479 is not pursued.**

For clarification on RRC Reestablishment procedure (R2-2009697)

**Proposal 3 P1~ P4 in R2-2009697 are agreed. Continue to discuss if any spec clarification is needed in phase2.**

For UE behaviour on Need S Need R fields (R2-2009233/9234/9235)

**Proposal 4 Continue discussion in phase 2, companies (especially UE vendors) to check whether UE already behaves as below:**

* **for scrambling ID related fields (i.e. whose default value is defined as PCI of current serving cell). In case network does not signal the field before (e.g. UE applies default value: PCI), during handover procedure, if the parent field (Need M) is not included in handover command, then for those child scrambling ID fields, the UE will apply default value of “current” serving cell (i.e. PCI of target cell), not the PCI of source cell.**

**Proposal 5 If proposal 4 is confirmed, clarify in corresponding field description instead of changing the general principle in 6.1.2. (Update R2-2009234/9235)**

For SUL terminology (R2-2009698/9699, R2-2010492/10584)

**Proposal 6 Changes in R2-2009698, R2-2009699 are merged into rapporteur CR (taking into account the comments from MTK ).**

For smtc field in SCell addition without SSB (R2-2009236/9237)

**Proposal 7 RAN2 confirms when adding a SCell without SSB, network is allowed to not provide *smtc* field together with not providing corresponding MO.**

**Proposal 8 Continue to discuss whether any clarification is needed (depends on whether RRC failure would happen if network provides the smtc field).**

For essential system information (R2-2009582/9583)

**Proposal 9 Continue to discuss R2-2009582 and R2-2009583 in phase 2.**

For AS configuration during HO (R2-2009478)

**Proposal 10 Continue to discuss R2-2009478 in phase2 (please proponent provides more clarification on the issue that needs to be solved).**

Summary for phase 2 discussion:

For clarification on RRC Reestablishment procedure (R2-2009697)

**Proposal 11 For P1~P4 in R2-2009697, confirm no specification change is needed.**

For UE behaviour on Need S Need R fields (R2-2009233/9234/9235)

**Proposal 12 The issue is postponed to next meeting, allow companies to have more time for checking.**

For smtc field in SCell addition without SSB (R2-2009236/9237)

**Proposal 13 CR R2-2009236, R2-2009237 are not pursued (based on the assumption that RRC failure will not happen even if *smtc* field is provided).**

For essential system information (R2-2009582/9583)

**Proposal 14 For R2-2009582 and R2-2009583, remove “** as described in 5.2.2.1**” and merge to rapporteur CR.**

For AS configuration during HO (R2-2009478)

**Proposal 15 CR R2-2009478 is postponed.**

# References

[1]