3GPP TSG-RAN WG2 Meeting #118 Electronic [R2-220xxxx](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-220xxxx.zip)

Elbonia, 09 – 20 May 2022

**Agenda item: 6.0.1**

**Source: Nokia (Rapporteur)**

**Title: Report of [AT118-e][024][NR17] RRC II (Nokia)**

**WID/SID: TEI17 - Release 17**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

* [AT118-e][024][NR17] RRC II (Nokia)

Scope: Treat [R2-2205433](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205433.zip), [R2-2205434](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205434.zip).

Intended outcome: Report, agreeable TPs for merge with rapporteur CR.

Deadline: Rapporteur Set

General issues

Offline

[R2-2205433](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205433.zip) [N108] IE structures for L1 parameters Nokia, Nokia Shanghai Bell discussion Rel-17 TEI17 Late

[R2-2205434](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205434.zip) [N104] Survey of Rel-17 Need S fields Nokia, Nokia Shanghai Bell discussion Rel-17 TEI17 Late

However, as the document [R2-2205433](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205433.zip) was never submitted (and is now withdrawn), this discussion will only consider [R2-22054343](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205434.zip).

# 2 Contact Points

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

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

The document [R2-2205434](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205434.zip) is a continuation of the ASN.1 AH discussion topic on the RIL N104 based on [R2-2204350](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_AHs/2022_04_ASN1_Review/Docs/R2-2204350.zip), for which the following was minuted:

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| N104 General on Need codes  [R2-2204350](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_AHs/2022_04_ASN1_Review/Docs/R2-2204350.zip) [N104] Using Need S and Need R Nokia, Nokia Shanghai Bell discussion Rel-17 TEI17   * Intel think we should better use wording is not configured rather than absent we don’t need to use need S. * Intel agrees that we should avoid Need S if possible. MTK wonder if a new principle is suggested. Intel think this is just general. Ericsson agrees with Intel. * HW think the first example may be more correct as is, and may be incorrect if changed. * QC think that feature knowledge is needed to understand properly. * MTK think we can change need codes after freeze if needed, e.g. Need S with text can likely be changed in the e.g. Need R if applicable. Think P2 P3 are good. QC agrees P2 P3 are good.   *Chair: there seems to be general agreement to attempt to use need codes rather than text, but for the details it seems each case need to be reviewed (likely in the context of the WI).*   * P2: Use Need R (instead of Need S) for fields whose absence simply means a configuration is released. * P3: Use Need R (instead of Need S) for fields for which there are some conditions when network does or does not include the field.   [R2-2204345](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_AHs/2022_04_ASN1_Review/Docs/R2-2204345.zip) [N104] Need R vs. Need S Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core, LTE\_NR\_DC\_enh2-Core, LTE\_NR\_MUSIM-Core, NR\_IAB\_enh-Core, NR\_IIOT\_URLLC\_enh-Core, NR\_SmallData\_INACTIVE-Core, NR\_SL\_relay-Core, NR\_slice-Core, NR\_UE\_pow\_sav\_enh-Core, NR\_NTN\_solutions-Core, NR\_pos\_enh-Core, NR\_redcap-Core, NR\_ENDC\_SON\_MDT\_enh-Core, NR\_QoE-Core, NR\_SL\_enh-Core, NG\_RAN\_PRN\_enh-Core, NR\_feMIMO-Core, NR\_cov\_enh-Core, NR\_ext\_to\_71GHz-Core, NR\_MG\_enh-Core   * Already covered * Noted |

The main topic of N104 was to discuss when to use Need S and when to use another need code (typically Need R). The document makes a survey of Need S - fields added in Rel-17, and makes observations of those fields that seem to have some potential issues concerning the use of Need S:

1. Some fields should use a different need code
2. Some their field descriptions are missing the absence condition or the conditions are incomplete/unclear
3. The wording of the absence condition for some field descritpion or is not consistent with what is used elsewhere in RRC.

Obviously, the points 1 and 2 are the most crucial ones for ASN.1 freezing, while point 3 is something that can be improved on at any time. Hence, the moderator would propose to focus on those points at this point, and consider the last point perhaps for August meeting as "clean-up" after the many changes coming from the current meeting are resolved.

The following fields have been marked in [R2-2205434](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205434.zip) as requiring different need code than Need S:

* *RRCReconfiguration:: scg-State*
* *RRCResume:: scg-State*
* *SIB1::intraFreqReselectionRedCap*
* *DMRS-BundlingPUCCH-Config::pucch-DMRS-Bundling*
* *DMRS-BundlingPUCCH-Config:: pucch-WindowRestart*
* *DMRS-BundlingPUSCH-Config::pusch-DMRS-Bundling*
* *DMRS-BundlingPUSCH-Config:: pusch-WindowRestart*
* *LogicalChannelConfig::allowedHARQ-mode*
* *MAC-CellGroupConfig:: Group-Config::harq-FeedbackEnablerMulticast*
* *NR-DL-PRS-PDC-ResourceSet::timeGap*
* *RLC-BearerConfig::isPTM-Entity*
* *SSB-MTC::SSB-MTC-AdditionalPCI::periodicity*

The following fields are difficult to evaluate and likely need more discussion (in FeMIMO session):

* *TCI-State::DLorJoint-TCIState-r17::pathlossReferenceRS-Id-r17*
* *TCI-State:: UL-TCIState-r17::servingCellId-r17*
* *TCI-State::UL-TCIState-r17::pathlossReferenceRS-Id-r17*

**Question 1**: Do companies agree that the above fields should not be Need S? If not, please indicate which shuold stay as Need S and reasons for that.

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| Answers to Question 1 | | |
| Company | Yes/No | Technical Arguments |
| OPPO | No | For *SIB1::intraFreqReselectionRedCap,* different understanding as rapporteur, we think it’s need S, as it’s already specified in the field description  For *LogicalChannelConfig::allowedHARQ-mode* , we observed that the reason for updating this parameter as Need R is also applied to “allowedCG-List-r16” which is now Need S.  For *MAC-CellGroupConfig:: Group-Config::harq-FeedbackEnablerMulticast*, it’s not clear whether the UE provides HARQ feedback for multicast irrespective of DCI indication when the parameter is absent, thus we think it might to be set as Need S to clarify this case.  For *RLC-BearerConfig::isPTM-Entity,* the current Need S is fine, because if it’s absent, it’s hard to say whether the RLC entity for this MRB is used for PTM reception and PTP reception.  Can wait for the discussion in the feMIMO session to complete the field description, for the last three parameters in the TCI-State IE. |
| Samsung | Yes | We are fine for the suggestion from this contribution. We understand only Rel-17 fields are considered here. In addition, field in system information should be Need i.e. regardless of need codes UE applies this fields as Need R. |
| Lenovo |  | For most of the fields we agree with rapporteur’s suggestions except of the following:   1. For handling of scg-State (in RRCReconfiguration / RRCResume) there is procedure text specified, e.g. in 5.3.5.3 see below. Therefore, Need S can be kept.   2> if the *RRCReconfiguration* includes the *scg-State*:  3> perform SCG deactivation as specified in 5.3.5.13b;  2> else:  3> perform SCG activation as specified in 5.3.5.13a;   1. harq-FeedbackEnablerMulticast (in Group-Config IE): can be kept as Need S. 2. isPTM-Entity (in RLC-BearerConfig IE): can be kept as Need S 3. periodicity (in SSB-MTC-AdditionalPCI IE): whether it should be Need R or Need S needs to be clarified in the feMIMO session |
| Apple | See comments | We tend to agree with Lenovo’s views on this, but prefer to revisit after feMIMO discussion is concluded. |
| MediaTek | Mostly | SIB1::intraFreqReselectionRedCap: Agree with OPPO; this seems to be a correct use of Need S.  [RRCReconfiguration | RRCResume]::scg-State: In light of the procedural text quoted by Lenovo, it seems these are correct as Need S.  LogicalChannelConfig::allowedHARQ-mode: Tend to think this is clearer if left as Need S. The question is whether it is obvious that “no allowed HARQ mode indicated” means “no restriction”, and we think it’s safer to give explicit guidance to forestall any risk of implementer confusion.  MAC-CellGroupConfig::Group-Config::harq-FeedbackEnablerMulticast: Agree with OPPO and Lenovo that this is clearer if made explicit.  SSB-MTC-AdditionalPCI::periodicity: This looks as though it was intended for a default value. Should be checked in feMIMO session.  TCI-State fields also need to be checked in feMIMO. |
| Intel | Yes, apart from: | *SIB1::intraFreqReselectionRedCap:* The field description does indeed give a UE behaviour on absence (it is not a condition for presence) and so should keep Need S.  Agree with others comments on:  *RRCReconfiguration:: scg-State*  *RRCResume:: scg-State*  *LogicalChannelConfig::allowedHARQ-mode*  *MAC-CellGroupConfig::Group-Config::harq-FeedbackEnablerMulticast* |
| Qualcomm Incorporated | See comment | *scg-State* (multiple occurrences): This should be Need S because the procedural text defines the behaviour in case of absence.  *intraFreqReselectionRedCap*: This should be Need S becasue the procedural text defines the behaviour in case of absence. The field description can be deleted.  *validityDuration*: Probably the default behaviour should be conditioned to the presence of trs-ResouceSetConfig-r17. We afraid having a default value in case of absence can affect extensibility of SIB17.  *allowedHARQ-mode*: Need S in the sense that MAC specification defines the behaviour in case of absence. We could add reference to MAC spec.  *isPTM-Entity*: I would keep the current text, just for the purpose of clarify. |
| vivo | See comment | RRCReconfiguration/RRCResume::scg-State: agree with Lenovo that it should be Need S.  SIB1::intraFreqReselectionRedCap: Agree that it should be Need S.  LogicalChannelConfig::allowedHARQ-mode: Agree with Rapporteur it should be changed to Need R.  MAC-CellGroupConfig::Group-Config::harq-FeedbackEnablerMulticast: Agree with Lenovo that this is should be Need S.  SSB-MTC-AdditionalPCI::periodicity: prefer to keep it as Need S for a default value. |
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**Summary 1**: Based on the discussion above, the fields that are Need S are retained based on above discussion. Post discussion, the following fields marked in YELLOW **DO NOT** require Need S. The fields marked in CYAN need to be confirmed in the respective session.

* *RRCReconfiguration:: scg-State*
* *RRCResume:: scg-State*
* *SIB1::intraFreqReselectionRedCap*
* *DMRS-BundlingPUCCH-Config::pucch-DMRS-Bundling*
* *DMRS-BundlingPUCCH-Config:: pucch-WindowRestart*
* *DMRS-BundlingPUSCH-Config::pusch-DMRS-Bundling*
* *DMRS-BundlingPUSCH-Config:: pusch-WindowRestart*
* *LogicalChannelConfig::allowedHARQ-mode*
* *MAC-CellGroupConfig:: Group-Config::harq-FeedbackEnablerMulticast*
* *NR-DL-PRS-PDC-ResourceSet::timeGap*
* *RLC-BearerConfig::isPTM-Entity*
* *SSB-MTC::SSB-MTC-AdditionalPCI::periodicity*

The following fields are left for checking in FeMIMO session **(i.e., check for either Need R or Need S)**:

* *TCI-State::DLorJoint-TCIState-r17::pathlossReferenceRS-Id-r17*
* *TCI-State:: UL-TCIState-r17::servingCellId-r17*
* *TCI-State::UL-TCIState-r17::pathlossReferenceRS-Id-r17*
* *SSB-MTC::SSB-MTC-AdditionalPCI::periodicity*

**Proposals from the rapporteur are as follows**

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| **Proposal 1**: The following fields do not require Need S.   * ***DMRS-BundlingPUCCH-Config::pucch-DMRS-Bundling*** * ***DMRS-BundlingPUCCH-Config:: pucch-WindowRestart*** * ***DMRS-BundlingPUSCH-Config::pusch-DMRS-Bundling*** * ***DMRS-BundlingPUSCH-Config:: pusch-WindowRestart*** * ***NR-DL-PRS-PDC-ResourceSet::timeGap***   **Proposal 2**: The following fields need further checking (FeMIMO session).   * ***TCI-State::DLorJoint-TCIState-r17::pathlossReferenceRS-Id-r17*** * ***TCI-State:: UL-TCIState-r17::servingCellId-r17*** * ***TCI-State::UL-TCIState-r17::pathlossReferenceRS-Id-r17*** * ***SSB-MTC::SSB-MTC-AdditionalPCI::periodicity*** |

Second, the following field descriptions are missing or have incomplete absence condition:

* *RRCRelease::SRS-PosRRC-InactiveConfig::bwp*
* *CG-SDT-Configuration:: sdt-SSB-Subset*
* *DMRS-BundlingPUCCH-Config::pucch-TimeDomainWindowLength*
* *DMRS-BundlingPUSCH-Config::pusch-TimeDomainWindowLength*
* *PDSCH-Config::priorityIndicatorDCI-1-1, priorityIndicatorDCI-1-2, priorityIndicatorDCI-4-2*
* *PUSCH-TimeDomainResourceAllocationList::k2*
* *RACH-ConfigGenericTwoStepRA::msgB-ResponseWindow*
* *ServingCellConfig::UplinkConfig:: moreThanOneNackOnlyMode-r17*

On these, it seems difficult to have a general rule to apply to each case, so these may need to be looked at in WI-specific sessions.

**Question 2**: Do companies agree the above field descriptions should be improved to clarify UE actions on absence? If no, please explain why clarification is not needed. If yes, please provide suggestions for improvement (if any).

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| Answers to Question 2 | | |
| Company | Yes/No | Technical Arguments |
| OPPO |  | *RRCRelease::SRS-PosRRC-InactiveConfig::bwp*  It’s not clear to us either whether this “bwp” parameter is absent. It seems like the UE will be configured with SRS for positioning in the initial BWP?  *CG-SDT-Configuration:: sdt-SSB-Subset*  It’s not clear to us either, update as “If this field is absent, ~~UE assumes~~ the SSB set for SSB to CG PUSCH mapping within one CG configuration includes all actually transmitted SSBs configured by SIB1.”  We don’t have strong view on other parameters. |
| Samsung | Yes | At least those fields seem Need S. Not sure all fields can be improved in WI but it is good to check from each WI. |
| Lenovo | Yes |  |
| Apple | Ok |  |
| MediaTek | Yes | Clarity is generally good.  We should be careful especially about mixing “not configured” and “not present”. These have well-defined and distinct meanings, and it seems clear that in some of the examples here, “not configured” is misused. |
| Intel | Yes | Agree with MediaTek. Also need to be careful about conditions that depend on “presence” of another field. In this case, “not configured” and “not present” are not the same (and we shouldn’t use conditions that depend on other configuration that may be provided by a previous configuration). |
| Qualcomm Incorporated | Yes | Agree with MediaTek. Companies should be reminded about this point. |
| vivo | Yes |  |
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**Summary 2**: Companies agree that further checking is needed for the following fields for UE behavior upon absence need clarification. A more careful check is also needed to ensure there is no inadvertent mixing between “not configured” and “not present”.

* *RRCRelease::SRS-PosRRC-InactiveConfig::bwp*
* *CG-SDT-Configuration:: sdt-SSB-Subset*
* *DMRS-BundlingPUCCH-Config::pucch-TimeDomainWindowLength*
* *DMRS-BundlingPUSCH-Config::pusch-TimeDomainWindowLength*
* *PDSCH-Config::priorityIndicatorDCI-1-1, priorityIndicatorDCI-1-2, priorityIndicatorDCI-4-2*
* *PUSCH-TimeDomainResourceAllocationList::k2*
* *RACH-ConfigGenericTwoStepRA::msgB-ResponseWindow*
* *ServingCellConfig::UplinkConfig:: moreThanOneNackOnlyMode-r17*

**Proposal 3: Rapporteur proposes that the fields are checked in the respective WI while paying special attention to avoid inadvertent mixing between fields that are “not configured” and those that are “not present”.**

* ***RRCRelease::SRS-PosRRC-InactiveConfig::bwp***
* ***CG-SDT-Configuration:: sdt-SSB-Subset***
* ***DMRS-BundlingPUCCH-Config::pucch-TimeDomainWindowLength***
* ***DMRS-BundlingPUSCH-Config::pusch-TimeDomainWindowLength***
* ***PDSCH-Config::priorityIndicatorDCI-1-1, priorityIndicatorDCI-1-2, priorityIndicatorDCI-4-2***
* ***PUSCH-TimeDomainResourceAllocationList::k2***
* ***RACH-ConfigGenericTwoStepRA::msgB-ResponseWindow***
* ***ServingCellConfig::UplinkConfig:: moreThanOneNackOnlyMode-r17***

Finally, moderator proposes to do the "wording consistency" checks only in August meeting as that is less critical at the moment.

**Question 3**: Do companies agree to do clarify the consistency of absence conditions for Need S fields only in Augusst meeting? If not, any suggestions how to do it now?

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| Answers to Question 3 | | |
| Company | Yes/No | Technical Arguments |
| OPPO | Yes | We can further clarify the consistency of absence condition s in August, as they have no impacts on freezing the ASN.1 |
| Samsung | Yes |  |
| Lenovo | Yes |  |
| Apple | Yes | We think aug meeting is more the practical one in terms of timelines. |
| MediaTek | Yes |  |
| Intel | Yes |  |
| Qualcomm Incorporated | Yes |  |
| vivo | Yes |  |
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**Summary 3**: Companies are okay to conclude the consistency of absence conditions for Need S fields in the August meeting.

**Proposal 4: Rapporteur proposes to conclude the topic on clarifying the wording of the consistency of absence conditions for Need S fields in the August meeting.**

# 4 Conclusion

Final proposals are as follows based on the comments on the reflector.

**Proposal 1: The following fields do not require Need S.**

* ***DMRS-BundlingPUCCH-Config::pucch-DMRS-Bundling***
* ***DMRS-BundlingPUCCH-Config:: pucch-WindowRestart***
* ***DMRS-BundlingPUSCH-Config::pusch-DMRS-Bundling***
* ***DMRS-BundlingPUSCH-Config:: pusch-WindowRestart***
* ***NR-DL-PRS-PDC-ResourceSet::timeGap***

**Proposal 2: The following fields need further checking (FeMIMO session) (i.e., check for either Need R or Need S).**

* ***TCI-State::DLorJoint-TCIState-r17::pathlossReferenceRS-Id-r17***
* ***TCI-State:: UL-TCIState-r17::servingCellId-r17***
* ***TCI-State::UL-TCIState-r17::pathlossReferenceRS-Id-r17***
* ***SSB-MTC::SSB-MTC-AdditionalPCI::periodicity***

**Proposal 3: Rapporteur proposes that the following fields are checked wrt the UE behavior upon absence in the respective WI while paying special attention to avoid inadvertent mixing between fields that are “not configured” and those that are “not present”.**

* ***RRCRelease::SRS-PosRRC-InactiveConfig::bwp***
* ***CG-SDT-Configuration:: sdt-SSB-Subset***
* ***DMRS-BundlingPUCCH-Config::pucch-TimeDomainWindowLength***
* ***DMRS-BundlingPUSCH-Config::pusch-TimeDomainWindowLength***
* ***PDSCH-Config::priorityIndicatorDCI-1-1, priorityIndicatorDCI-1-2, priorityIndicatorDCI-4-2***
* ***PUSCH-TimeDomainResourceAllocationList::k2***
* ***RACH-ConfigGenericTwoStepRA::msgB-ResponseWindow***
* ***ServingCellConfig::UplinkConfig:: moreThanOneNackOnlyMode-r17***

**Proposal 4: Rapporteur proposes to conclude the topic on clarifying the wording of the consistency of absence conditions for Need S fields in the August meeting.**