3GPP TSG RAN WG2 Meeting #109bis-e R2-200xxxx

**Electronic, 20th – 30th April 2020**

**Agenda item:** 6.0.1

**Source:** Lenovo

**Title:** Report from email discussion [AT109bis-e][071][NR RIL] DiscMail10

**Document for:**  Discussion and decision

# Introduction

This contribution summarizes the discussion and result of the email discussion below that took place during RAN2#109bis-e:

* [AT109bis-e][071][NR RIL] DiscMail10 (Lenovo)

Scope: Discussion and implementation of review issues.

Wanted outcome: a) Agreed RIL Status update in the email discussion report b) Agreed ASN.1/procedure text proposal included in the email discussion report.  
After email discussion report is agreed, the TPs will be included in the ASN.1 Review file, for the continued ASN.1 review.

Deadline: Email discussion Stop at EOM, April 30 (short extension 1 week could be considered if needed).

In detail, the following issues from [1] and [2] were discussed in the email discussion:

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Issue** | **Feature** |
| Q001 | SIB validity check for non-NPN-only / NPN-only cell | NPN |
| Z101 | Description of SIB1 reception | NPN |
| Z102 | Definition for selected NPN | NPN |
| H233 | Changes for MRDC-SecondaryCellGroupConfig in RRCReconfiguration and mrdc-SecondaryCellGroup-r16 in RRCResume | DCCA |
| I675 | Issues with availableCombToAddModList-r16,  availableCombToReleaseList-r16 and iabDuCellId-AI-r16 | IAB |
| H199 | Description of the condition AsyncCA | DCCA |
| I644 | Need code for field monitoringCapabilityConfig-r16 | URLLC |
| B002 | IE DL-AM-RLC-v16xy in RLC-Config | URLLC |
| I654 | IE DL-AM-RLC-v16xy in RLC-Config | URLLC |
| I653 | IE DL-AM-RLC-v16xy in RLC-Config | URLLC |
| M004 | Need code for field t316-r16 | DCCA |
| S206 | Unused IE SchedulingRequestResourceConfig-v16xy | IIOT |
| Z016 | Missing field description for enableConfiguredUL-r16 | NR-U |

# Discussion

## RIL #Q001

Issue #Q001 is related to the description of SIB validity check for non-NPN-only / NPN-only cell, see highlighted part in the procedure text of 5.2.2.2.1 below. The description of the issue is shown below.

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| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| Q001 | These bullets are related to legacy behaviour, but addtion of this text somehow implies that the UE not supporting NPN needs to check if the cell is NPN-only cell. It is clear from the following defition in section 3.1 that only NPN capable UE can identify NPN-only cell.  ***NPN-only Cell:*** *A cell that is only available for normal service for NPNs' subscriber. An NPN-capable UE determines that a cell is NPN-only Cell by detecting that the cellReservedForOtherUse IE is set to true while the npn-IdentityInfoList IE is present in CellAccessRelatedInfo.* | The following structure could be used.  > if the UE is NPN capable and the cell is an NPN-only cell  […new text…]  > else  […legacy text…] |

5.2.2.2.1 SIB validity

<Text omitted>

The UE shall:

1> delete any stored version of a SIB after 3 hours from the moment it was successfully confirmed as valid;

1> for each stored version of a SIB:

2> if the *areaScope* is associated and its value for the stored version of the SIB is the same as the value received in the *si-SchedulingInfo* for that SIB from the serving cell:

3> if the cell is non-NPN-only cell and the first *PLMN-Identity* included in the *PLMN-IdentityInfoList*, the *systemInformationAreaID* and the v*alueTag* that are included in the *si-SchedulingInfo* for the SIB received from the serving cell are identical to the *PLMN-Identity*, the *systemInformationAreaID* and the *valueTag* associated with the stored version of that SIB:

4> consider the stored SIB as valid for the cell;

3> if the cell is an NPN-only cell and the first *NPN-Identity* included in the *NPN-IdentityInfoList*, the *systemInformationAreaID* and the v*alueTag* that are included in the *si-SchedulingInfo* for the SIB received from the serving cell are identical to the *NPN-Identity*, the *systemInformationAreaID* and the *valueTag* associated with the stored version of that SIB:

4> consider the stored SIB as valid for the cell;

2> if the *areaScope* is not present for the stored version of the SIB and the *areaScope* value is not included in the *si-SchedulingInfo* for that SIB from the serving cell:

3> if the cell is non-NPN-only cell and the first *PLMN-Identity* in the *PLMN-IdentityInfoList,* the *cellIdentity* and *valueTag* that are included in the *si-SchedulingInfo* for the SIB received from the serving cell are identical to the *PLMN-Identity,* the *cellIdentity* and the *valueTag* associated with the stored version of that SIB:

4> consider the stored SIB as valid for the cell;

3> if the cell is an NPN-only cell and the first *NPN-Identity* in the *NPN-IdentityInfoList,* the *cellIdentity* and *valueTag* that are included in the *si-SchedulingInfo* for the SIB received from the serving cell are identical to the *NPN-Identity,* the *cellIdentity* and the *valueTag* associated with the stored version of that SIB:

4> consider the stored SIB as valid for the cell;

**Question 1:** Do you agree with the intention for restructuring the description of SIB validity check for non-NPN-only / NPN-only cell as proposed by #Q001?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Qualcomm | Agree | Proponent |
| Nokia | Agree | The same principle should also be used after “2> if the *areaScope* is not present …” |
| vivo | Disagree | RAN2 has agreed that “*Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, but optional for non-NPN capable UEs*. ” Based on our understanding, non-NPN capable UE is also able to parse the *npn-IdentityInfoList IE* and identify a NPN-only cell. Thus, we prefer to keep the current description of SIB validity. |
| MediaTek | Agree | We should not change the legacy behaviour of R15 UE(s). |
| OPPO | Agree | We tend to agree with the intention that the non-NPN-capable UE may be not able to read the NPN list, but the change may be adjusted as:  > if the UE is NPN capable  […new text…]  > else  […legacy text…]  And the change should be applied to both “*areaScope* is / is not present” cases. |
| CATT | Agree, but | For “else” branch of Proposed Change, it should not include the scenario of “if the UE is non NPN capable and the cell is an NPN-only cell” which has no valid UE action, so “if XXX, else **if XXX**” maybe used. |
| Intel | Agree | Only NPN capable UE will know whether a cell is an NPN cell. Hence the action for NPN only cell should be limited to NPN capable UE and the legacy should not be affected. |
| Lenovo | Agree | Agree that the changes need to be made for “if the areaScope is not present” as well. |
| Huawei | Agree | Agree with Nokia/Oppo that the same principle should also be applied after “2> if the *areaScope* is not present …” |

## RIL #Z101, Z102

Issues #Z101, Z102 are related to the description of SIB1 reception and definition for selected NPN, see highlighted part in the procedure text of 5.2.2.4.2 below. The description of the issues is shown below.

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| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| Z101 | Since the upper layer will provide either a selected NPN or a selected PLMN to AS layer, there is no need for UE to differentiate between a NPN-only cell and a non NPN-only cell in this case. | The following changes in the procedural text are proposed for simplicity:  Upon receiving the SIB1 the UE shall:  1> store the acquired *SIB1*;  1> if ~~the cell is not an NPN-only cell and~~ the *cellAccessRelatedInfo* contains an entry with the *PLMN-Identity* of the selected PLMN:  2> in the remainder of the procedures use *plmn-IdentityList*, *trackingAreaCode*, and *cellIdentity* for the cell as received in the corresponding *PLMN-IdentityInfo* containing the selected PLMN;  1> else if the *cellAccessRelatedInfo* contains an entry with the *NPN-Identity* of the selected NPN:  2> in the remainder of the procedures use *npn-IdentityList*, *trackingAreaCode*, and *cellIdentity* for the cell as received in the corresponding *NPN-IdentityInfo* containing the selected NPN; |
| Z102 | There has been clear definition for selected PLMN in TS38.304 (see below) but there is no definition for selected NPN, we suggest to add one.  Selected PLMN: This is the PLMN that has been selected by the NAS, either manually or automatically. | Add definition for selected NPN as follows:  *Selected NPN: This is the SNPN or PNI-NPN that has been selected by the NAS, either manually or automatically. The selected SNPN is identified by a NID in combination with a PLMN ID. The selected PNI-NPN is identified by a CAG-ID in combination with a PLMN ID.* |

5.2.2.4.2 Actions upon reception of the *SIB1*

Upon receiving the *SIB1* the UE shall:

1> store the acquired *SIB1*;

1> if the cell is not an NPN-only cell and the *cellAccessRelatedInfo* contains an entry with the *PLMN-Identity* of the selected PLMN:

2> in the remainder of the procedures use *plmn-IdentityList*, *trackingAreaCode*, and *cellIdentity* for the cell as received in the corresponding *PLMN-IdentityInfo* containing the selected PLMN;

1> if the *cellAccessRelatedInfo* contains an entry with the *NPN-Identity* of the selected NPN:

2> in the remainder of the procedures use *npn-IdentityList*, *trackingAreaCode*, and *cellIdentity* for the cell as received in the corresponding *NPN-IdentityInfo* containing the selected NPN;

<Text omitted>

**Question 2:** Do you agree with the changes for the description of SIB1 reception and to add a definition for selected NPN as proposed by #Z101, Z102?

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| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Qualcomm | Disagree both | For Z101: We think it is related to different understandings of NPN capable UE behaviours upon reception of SIB1, i.e. functional change. We prefer to discuss it in NPN session because it is not ASN.1 issue.  For Z102: There is discussion ongoing in CT1 on the “selected PNI-NPN” and RAN2 is waiting for LS response from CT1. Meanwhile, please note that current running CR has one related FFS captured in Section 5.2.2.4.2:  “Editor’s note: The definition of NPN-capable is FFS.”  Thus, we suggest to wait for CT1 response. |
| Nokia | Requires further discussion | I think the current text has similar issue as the issue brought up in Q001: it does not clearly describe the procedure from the UE perspective. The problem of the proposed solution is that it is not simple to define the selected PNI-NPN, as in case of PNI-NPN there is no selected PNI-NPN, but AS receives the selected PLMN and a list of allowed CAG IDs, and can select a cell that supports one of them. I agree with Qualcomm that this discussion should go to NPN session. (As the rapporteur I can add this issue to the NPN open issue list.) |
| vivo | Agree |  |
| MediaTek | Need Further discussion | This is more like class 3 issue and should be discussed in WI specific section. |
| OPPO | Agree | Based on the latest CT1 CR:  *“Upon selection of a PLMN (and CAG-ID if the user selected a desired CAG-ID as well) by the user, the NAS shall provide the AS with the* *selected PLMN ID (and CAG-ID if the user selected a desired CAG-ID as well or an indication to select a non-CAG cell if the user did not select any CAG-ID) and the MS initiates registration…”*  We think the intention here is OK, but the term of “selected NPN” is misleading, since NAS would only indicated selected-PLMN with either a CAG ID or an indication of non-CAG cell, so some rewording here would be helpful. |
| CATT | Agree |  |
| Intel | Agree | There is similar issue as in Q001. The changes seem to solve the problem for now. Whether some further wording for selected NPN in the case of PNI-NPN can be discussed further. |
| Huawei | Needs further discussion | Z101 is ok, disagree with Z102.  In CT1, there is only “Registered/Selected SNPN”, no concept like “Registered/Selected NPN” or “Registered/Selected PNI-NPN” (there is “Selected CAG” though). Besides, according to SA2 spec 23.501, the PNI-NPN can be deployed as a slice or a CAG, so we think if RAN2 wants to define “Selected NPN” to facilitate the procedure text writing, it’s better to use “Selected CAG” instead of “Selected PNI-NPN” in the definition of “Selected NPN”. |

## RIL #H233

Issue #H233 is related to the *mrdc-SecondaryCellGroup-r16* in *RRCResume* that was introduced in the context of DCCA. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| H233 | In RRCReconfiguration there is:  mrdc-SecondaryCellGroupConfig SetupRelease { MRDC-SecondaryCellGroupConfig } OPTIONAL, -- Need M  and  MRDC-SecondaryCellGroupConfig ::= SEQUENCE {  mrdc-ReleaseAndAdd ENUMERATED {true} OPTIONAL, -- Need N  mrdc-SecondaryCellGroup CHOICE {  nr-SCG OCTET STRING (CONTAINING RRCReconfiguration),  eutra-SCG OCTET STRING  }  }  These two "nr-SCG" and "nr-SCG-r16" should be considered as the same parameter, so that it is possible to use the RRCReconfiguration message to modify what was configured with RRCResume. In order to achieve this RRCResume should have a SetupRelese of MRDC-SecondaryCellGroup, which needs to be made an IE. | Move the MRDC-SecondaryCellGroupConfig in RRCReconfiguration to an IE and use this IE for mrdc-SecondaryCellGroup-r16. |

RRCResume-v16xy-IEs ::= SEQUENCE {

idleModeMeasurementReq-r16 ENUMERATED {ffs} OPTIONAL, -- Need N

restoreMCG-SCells-r16 ENUMERATED {true} OPTIONAL, -- Need N

restoreSCG-r16 ENUMERATED {true} OPTIONAL, -- Need N

mrdc-SecondaryCellGroup-r16 CHOICE {

nr-SCG-r16 OCTET STRING (CONTAINING RRCReconfiguration),

eutra-SCG-r16 OCTET STRING

} OPTIONAL, -- Need M

nonCriticalExtension SEQUENCE{} OPTIONAL

}

**Question 3:** Do you agree with the changes for *MRDC-SecondaryCellGroupConfig* in *RRCReconfiguration* and *mrdc-SecondaryCellGroup-r16* in *RRCResume* as proposed by #H233?

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| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Ericsson | Disagree | What is proposed is more an enhancement than a fix for something that is broken. Further, we are not sure that we can port MRDC-SecondaryCellGroup as a separate IE in a easy way. For instance, is not clear how the mrdc-ReleaseAndAdd will be handled in this case (as this does not apply to the resume case).  According to this, our preference is to stick with the current signalling. |
| ZTE | Disagree | Same view as Ericsson. |
| vivo | Disagree | We prefer the MRDC-SecondaryCellGroupConfig not to be used for defining mrdc-SecondaryCellGroup-r16 as their contents are not exactly the same. |
| OPPO | Tend to disagree | For my understanding, the key point is that the IE in RRCReconfiguration message for SCG configuration is R15 IE and the IE for SCG configuration is R16 IE in RRCResume. So you think the RRCreconfiguration can not modify the SCG configuration message configured in RRCResume message.  But my understanding is correct, I think both IE in RRCReconiguration message and RRCResume message refer to “RRCReconfiguration” for SCG or E-UTRA *RRCConnectionReconfiguration* in R16 spec.  So I cannot see the necessary of he change. Sorry if I misunderstand this point. |
| MediaTek | Disagree | We think that the difference is whether to have “*mrdc-ReleaseAndAdd*” is RRC Resume. We think this is not necessary and bring some confusion. The RRC Resume already has another flag to control whether the old SCG configuration is released or kept (filed *restoreSCG-r16*). Thus we think that this is not necessary. |
| CATT | See the comments | In RRC resume message, if the restoreSCG is absent, the UE will release the stored SCG configuration, which equals to the field of mrdc-ReleaseAndAdd.  If use the MRDC-SecondaryCellGroupConfig in RRCReconfiguration to an IE for mrdc-SecondaryCellGroup-r16 in RRC resume message, the restoreSCG should also be taken placed by the mrdc-ReleaseAndAdd. |
| Huawei, HiSilicon | Ok but we would like to suggest creating an IE with no change in the ASN.1 format | We have provided this on 36.331 in R2-2003718 but it is applicable in the same way to 38.331:  RCConnectionReconfiguration-v1510-IEs ::= SEQUENCE {  nr-Config-r15 CHOICE {  release NULL,  setup SEQUENCE {  endc-ReleaseAndAdd-r15 BOOLEAN,  nr-SecondaryCellGroupConfig-r15 NR-SecondaryCellGroupConfig-r15 OPTIONAL, -- Need ON  p-MaxEUTRA-r15 P-Max OPTIONAL -- Need ON  }  RRCConnectionResume-v16xy-IEs ::= SEQUENCE {  newUE-Identity-r16 C-RNTI OPTIONAL, -- Cond PUR  idleModeMeasurementReq-r16 TypeFFS OPTIONAL, -- Need ON  restoreMCG-SCells ENUMERATED {true} OPTIONAL, -- Need ON  restoreSCG ENUMERATED {true} OPTIONAL, -- Need ON  sCellToAddModList-r16 TypeFFS OPTIONAL, -- Need ON  sCellToReleaseList-r16 SCellToReleaseListExt-r13 OPTIONAL, -- Need ON  sCellGroupToReleaseList-r16 SCellGroupToReleaseList-r15 OPTIONAL, -- Need ON  sCellGroupToAddModList-r16 SCellGroupToAddModList-r15 OPTIONAL, -- Need ON  nr-SecondaryCellGroupConfig NR-SecondaryCellGroupConfig-r15 OPTIONAL, -- Cond 5GC  nonCriticalExtension SEQUENCE {} OPTIONAL  }  }  – NR-SecondaryCellGroupConfig  The IE *NR-SecondaryCellGroupConfig* is the NR SCG configuration. Regardless via which parameter/message it is configured, there is a single instance of this IE in the UE configuration. The value of the octet string is the NR *RRCReconfiguration* message as specified in TS 38.331 [82]. In this version of the specification, the NR RRC message only includes fields *iab-F1AP-TransferOverSRB-r16*, *secondaryCellGroup, conditionalReconfiguration* and/ or *measConfig*.  ***NR-Config* information element**  -- ASN1START  NNR-SecondaryCellGroupConfig-Config-r15 ::= OCTET STRING  -- ASN1STOP |

## RIL #I675

Issue #I675 is related to the *availableCombToAddModList-r16*, *availableCombToReleaseList-r16* and *iabDuCellId-AI-r16* which were introduced in the context of IAB. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| I675 | There seems to be few issues with this addMod and Release list.  1) We normally have an index in the list and use it in the release list. CellID doesn’t look like an index  2) the list size for the addMod and Release are different – should be the same normally  3) In the IE definition of IAB-DU-CellID-AI-r16, abDuCellId-AI-r16 can directly refet to CellIdentity (i.e., there is no need to define IAB-DU-CellID-AI-r16) | Add an index to the list AvailabilityCombinationsPerCell-r16 and refer to it here.  Change the size of the addMod and Release list to the same size.  In the IE definition of IAB-DU-CellID-AI-r16, update as follows: iabDuCellId-AI-r16 CellIdentity |

AvailabilityIndicator-r16 ::= SEQUENCE {

ai-RNTI-r16 AI-RNTI-r16,

dci-PayloadSize-AI-r16 INTEGER (1..maxAI-DCI-PayloadSize-r16),

availableCombToAddModList-r16 SEQUENCE (SIZE(1..maxNrofAssociatedDUCellsPerMT-r16)) OF AvailabilityCombinationsPerCell-r16 OPTIONAL, -- Need FFS

availableCombToReleaseList-r16 SEQUENCE (SIZE(1..maxNrofDUCells-r16)) OF CellIdentity OPTIONAL, -- Need FFS

...

}

AI-RNTI-r16 ::= RNTI-Value

AvailabilityCombinationsPerCell-r16 ::= SEQUENCE {

iabDuCellId-AI-r16 IAB-DU-CellID-AI-r16,

positionInDCI-AI-r16 INTEGER(0..maxAI-DCI-PayloadSize-r16-1) OPTIONAL, -- Need FFS (M)

availabilityCombinations-r16 SEQUENCE (SIZE (1..maxNrofAvailabilityCombinationsPerSet-r16)) OF AvailabilityCombination-r16,

...

}

AvailabilityCombination-r16 ::= SEQUENCE {

availabilityCombinationId-r16 AvailabilityCombinationId-r16,

resourceAvailability-r16 SEQUENCE (SIZE (1..maxNrofResourceAvailabilityPerCombination-r16)) OF INTEGER (0..7)

}

IAB-DU-CellID-AI-r16 ::= CellIdentity

AvailabilityCombinationId-r16 ::= INTEGER (0..maxNrofAvailabilityCombinationsPerSet-r16-1)

**Question 4:** Do you agree with the changes for *availableCombToAddModList-r16*, *availableCombToReleaseList-r16* and *iabDuCellId-AI-r16* as proposed by #I675?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Qualcomm | Agree | Agree Intel to use an index for the list. There may be some ambiguity to use CellID for addMod and Release structure. |
| vivo | Agree | We also think it could be better to use cell index. |
| MediaTek | Agree |  |
| Lenovo | Agree | Agree with all changes, On the first change we tend to think that maxNrofDUCells-r16 (Integer ::= 512) can be used as index for AddMod and Release lists since maxNrofAssociatedDUCellsPerMT-r16 is set as FFS. |
|  |  |  |

## RIL #H199

Issue #H199 is related to the description of the condition *AsyncCA* in *MeasGapConfig* that was introduced in the context of DCCA. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| H199 | The statement it is unclear what the following statement exactly refers to "when configuring FR2 gap pattern to UE in (NG)EN-DC / NR SA with asynchronous CA involving FR2 carrier(s) , and NE-DC / NR-DC with asynchronous CA involving FR2 carrier(s))". In our understanding,"if the field" (not IE) "refServCellIndicator is set to mcg-FR2" is sufficient. Also, need code is missing in case of absence. | 1) Remove " when configuring FR2 gap pattern to UE in (NG)EN-DC / NR SA with asynchronous CA involving FR2 carrier(s), and NE-DC / NR-DC with asynchronous CA involving FR2 carrier(s)"  2) change "IE" to "the field"  3) add ",Need R" after "absent". |

MeasGapConfig ::= SEQUENCE {

gapFR2 SetupRelease { GapConfig } OPTIONAL, -- Need M

...,

[[

gapFR1 SetupRelease { GapConfig } OPTIONAL, -- Need M

gapUE SetupRelease { GapConfig } OPTIONAL -- Need M

]]

}

GapConfig ::= SEQUENCE {

gapOffset INTEGER (0..159),

mgl ENUMERATED {ms1dot5, ms3, ms3dot5, ms4, ms5dot5, ms6},

mgrp ENUMERATED {ms20, ms40, ms80, ms160},

mgta ENUMERATED {ms0, ms0dot25, ms0dot5},

...,

[[

refServCellIndicator ENUMERATED {pCell, pSCell, mcg-FR2} OPTIONAL -- Cond NEDCorNRDC

]],

[[

refFR2ServCellAsyncCA-r16 ServCellIndex OPTIONAL -- Cond AsyncCA

]]

}

| ***MeasGapConfig* field descriptions** |
| --- |
| ***refFR2ServCellIAsyncCA***  Indicates the FR2 serving cell identifier whose SFN and subframe is used for FR2 gap calculation for this gap pattern with asynchronous CA involving FR2 carrier(s). |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *AsyncCA* | This field is mandatory present when configuring FR2 gap pattern to UE in (NG)EN-DC / NR SA with asynchronous CA involving FR2 carrier(s), and NE-DC / NR-DC with asynchronous CA involving FR2 carrier(s) if IE *refServCellIndicator* is set to *mcg-FR2*. Otherwise, it is absent. |

**Question 5:** Do you agree with the changes for the description of the condition *AsyncCA* in *MeasGapConfig* as proposed by #H199?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Ericsson | Tend to agree | We agree that the explanation is not crystal clear. However, we may need some iteration to come up with a good text. What is proposed by Huawei can be taken as baseline. We also agree that the need code for when the field is absent is missing (Need R). |
| Qualcomm | Disagree suggested change 1)  Agree suggested change  2) and 3) | It is not sufficient if only “refServCellIndicator” is set to mcg-FR2, which is only present in NE-DC and NR-DC:  =============Copy from 38.331=====================  refServCellIndicator ENUMERATED {pCell, pSCell, mcg-FR2} OPTIONAL -- Cond NEDCorNRDC  =======================================  In case of (NG)EN-DC / NR SA, the field “refServCellIndicator” is absent, but a serving cell in FR2 is still required to be indicated by RRC for FR2 gap timing reference.  Note that in RAN2#109-e, we have made the agreement:   * In (NG)EN-DC and NR SA with async CA involving FR2 carrier(s), NW indicates which FR2 serving cell as FR2 gap timing reference via a newly introduced RRC IE *refFR2ServCellAsyncCA.* Same as NR rel-15, SpCell in FR1 can’t be used as FR2 gap timing reference.   If Huawei has better wording how to capture this agreement, we are glad to consider it.  For 2) and 3), we agree |
| ZTE | Disagree with 1)  Agree with 2) and 3) | We agree with 2) and 3).  For proposed change 1), we share the same view with Qualcomm that the proposed change does not cover all the cases. So far the description looks ok to us.  In addition, we would like to clarify if companies have the same understanding on the following aspect:  For “FR2 carrier(s)” in the sentence, because we use bracket here, we understand it implies that even if only one FR2 serving cell is configured in case of asynchronous CA, the network is required to provide the refFR2ServCellAsyncCA field.  We are fine with above interpretation, just to make sure companies have the same understanding thus no inter-operability issue will happen. |
| vivo | Disagree suggested change 1)  Agree suggested change  2) and 3) | Agree with Qualcomm’s comments.  And to reflect the above RAN2#109-e agreements for change 1), we propose:   1. to simply delete the text “NE-DC / NR-DC with asynchronous CA involving FR2 carrier(s)” as it has already been reflected by the presence condition for *refServCellIndicator ,* and 2. move the text “in (NG)EN-DC / NR SA ” after “when configuring FR2 gap pattern to UE with asynchronous CA involving FR2 carrier(s)” considering it is common scenario for all MR-DC cases.   The text proposal is shown as follows:  This field is mandatory present when configuring FR2 gap pattern to UE ~~in (NG)EN-DC / NR SA~~ with asynchronous CA involving FR2 carrier(s) in (NG)EN-DC / NR SA , and ~~NE-DC / NR-DC with asynchronous CA involving FR2 carrier(s)~~ if IE *refServCellIndicator* is set to *mcg-FR2*. |
| OPPO | Tend to agree | The original wording is correct, and you just want to improve the wording.  If my understanding is correct, I agree. |
| MediaTek | Agree suggested change  2) and 3) | For change 1), we tend to agree with Qualcomm that the proposed change seems not aligned with previous agreement. We do ack that the wording could be (or should be) improved but does not have good suggestion at this moment. |
| CATT | Disagree | the refFR2ServCellAsyncCA is mandatory present should under both the condition of async CA and the IE refServCellIndicator set to mcg-FR2 , not only under the condition of the IE refServCellIndicator set to mcg-FR2. |
| Huawei, HiSilicon |  | Ok but the meaning of the condition is still undefined, will make another try. |

## RIL #I644

Issue #I644 is related to the field *monitoringCapabilityConfig-r16* in *PDCCH-Config* that was introduced in the context of URLLC. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| I644 | Need code missing | Add need code considering possibility to release the configuration. |

PDCCH-Config ::= SEQUENCE {

controlResourceSetToAddModList SEQUENCE(SIZE (1..3)) OF ControlResourceSet OPTIONAL, -- Need N

controlResourceSetToReleaseList SEQUENCE(SIZE (1..3)) OF ControlResourceSetId OPTIONAL, -- Need N

searchSpacesToAddModList SEQUENCE(SIZE (1..10)) OF SearchSpace OPTIONAL, -- Need N

searchSpacesToReleaseList SEQUENCE(SIZE (1..10)) OF SearchSpaceId OPTIONAL, -- Need N

downlinkPreemption SetupRelease { DownlinkPreemption } OPTIONAL, -- Need M

tpc-PUSCH SetupRelease { PUSCH-TPC-CommandConfig } OPTIONAL, -- Need M

tpc-PUCCH SetupRelease { PUCCH-TPC-CommandConfig } OPTIONAL, -- Need M

tpc-SRS SetupRelease { SRS-TPC-CommandConfig} OPTIONAL, -- Need M

...,

[[

controlResourceSetToAddModList-r16 SEQUENCE (SIZE (1..5)) OF ControlResourceSet OPTIONAL, -- Need N

controlResourceSetToReleaseList-r16 SEQUENCE (SIZE (1..5)) OF ControlResourceSetId-r16 OPTIONAL, -- Need N

searchSpacesToAddModList-r16 SEQUENCE(SIZE (1..10)) OF SearchSpace-v16xy OPTIONAL, -- Need N

searchSpaceSwitchingTimer-r16 INTEGER (1..ffsValue) OPTIONAL, -- Need R

searchSpaceSwitchingGroupList-r16 SEQUENCE(SIZE (1..ffsValue)) OF SearchSpaceSwitchingGroup-r16 OPTIONAL, -- Need R

uplinkCancellation-r16 SetupRelease { UplinkCancellation-r16 } OPTIONAL, -- Need M

monitoringCapabilityConfig-r16 ENUMERATED { r15monitoringcapability,r16monitoringcapability } OPTIONAL

]]

}

**Question 6:** Which need code should be defined for field *monitoringCapabilityConfig-r16* in *PDCCH-Config*?

|  |  |  |
| --- | --- | --- |
| **Company** | **Need code (N/R/M)** | **Additional comments** |
| Ericsson | M | Need R is also fine.  The field value *r15monitoringcapability* is equivalent to that the Rel-16 feature is not configured, and so it seems okay to have need M. |
| Qualcomm | Need M | Considering the UE may not dynamically change PDCCH monitoring capability, the UE can store the field. Thus, “Need M” seems to be more appropriate. |
| OPPO | R | If this IE is absent, it means UE will use Rel-15 monitoring capability, which is the legacy behavior. Thus, release the IE is sufficient. |
| MediaTek | M | Need M seems appropriate considering that this behaviour is not expected to dynamically change, and it includes *r15monitoringcapability* which effectively would be similar to a release (if needed). |
| Lenovo | Need M | In the URLLC CR1487r1, the need code “Need M” was specified for the field. It seems that the need code was missed during CR implementation. Therefore, acc. to the original intention of the URLLC CR1487r1 the field can only be released when the parent field pdcch-Config is released. This looks ok to us. |
|  |  |  |

## RIL #B002, I654, I653

Issues #B002, I654, I653 are related to the IE *DL-AM-RLC-v16xy* in *RLC-Config* that was introduced in the context of IIOT. The description of the issues is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| B002 | New values are introduced by t-StatusProhibitExt-r16 which are not overlapping with the legacy ones in t-StatusProhibit. In such case there is no need to introduce them by t-StatusProhibitExt-r16. Instead they can be introduced as Rel-16 NCE of t-StatusProhibit. Furthermore, there is no stringent need to have extension marker in DL-AM-RLC-v16xy. | Replace “Ext-r16” by “-v16xy” and remove extension marker as shown below.  DL-AM-RLC-v16xy ::= SEQUENCE {  t-StatusProhibit-v16xy  T-StatusProhibit-v16xy OPTIONAL -- Need N  } |
| I654 | DL-AM-RLC-v16xy is not used anywhere and is an orphan. | Update where it is to be used. |
| I653 | Looks like a configuration parameter that is stored. Hence should be Need M/R. Difficult to say which one without understanding how the IE is used but the extension marker and field description implies it should be possible to release this field independently and hence Need R might be more appropriate. See also comment I654. | Change Need code to M/R. |

RLC-Config ::= CHOICE {

am SEQUENCE {

ul-AM-RLC UL-AM-RLC,

dl-AM-RLC DL-AM-RLC

},

um-Bi-Directional SEQUENCE {

ul-UM-RLC UL-UM-RLC,

dl-UM-RLC DL-UM-RLC

},

um-Uni-Directional-UL SEQUENCE {

ul-UM-RLC UL-UM-RLC

},

um-Uni-Directional-DL SEQUENCE {

dl-UM-RLC DL-UM-RLC

},

...

}

DL-AM-RLC ::= SEQUENCE {

sn-FieldLength SN-FieldLengthAM OPTIONAL, -- Cond Reestab

t-Reassembly T-Reassembly,

t-StatusProhibit T-StatusProhibit

}

T-StatusProhibit ::= ENUMERATED {

ms0, ms5, ms10, ms15, ms20, ms25, ms30, ms35,

ms40, ms45, ms50, ms55, ms60, ms65, ms70,

ms75, ms80, ms85, ms90, ms95, ms100, ms105,

ms110, ms115, ms120, ms125, ms130, ms135,

ms140, ms145, ms150, ms155, ms160, ms165,

ms170, ms175, ms180, ms185, ms190, ms195,

ms200, ms205, ms210, ms215, ms220, ms225,

ms230, ms235, ms240, ms245, ms250, ms300,

ms350, ms400, ms450, ms500, ms800, ms1000,

ms1200, ms1600, ms2000, ms2400, spare2, spare1}

DL-AM-RLC-v16xy ::= SEQUENCE {

t-StatusProhibitExt-r16 T-StatusProhibitExt-r16 OPTIONAL, -- Need N

...

}

T-StatusProhibitExt-r16 ::= ENUMERATED { ms1, ms2, ms3, ms4, spare4, spare3, spare2, spare1}

| ***RLC-Config* field descriptions** |
| --- |
| ***t-StatusProhibit***  Timer for status reporting in TS 38.322 [4], in milliseconds. Value *ms0* means 0 ms, value *ms5* means 5 ms and so on. |
| ***t-StatusProhibitExt***  Timer for status reporting in TS 38.322 [4], in milliseconds. Value *ms1* means 1 ms, value *ms2* means 2 ms and so on. If this field is present, the field *t-StatusProhibit* is ignored and *t-StatusProhibitExt* is used instead. |

**Question 7:** Do you agree with the changes for IE *DL-AM-RLC-v16xy* in *RLC-Config* as proposed by #B002, I654, I653?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Ericsson | B002: Agree  I654, I653: Agree | On B002:  A critical extension should be avoided. Here the comment is more on the naming such as the use of “Ext” and “-r16” versus “-v16”.  We prefer an aligned approach throughout the RRC spec on how to deal with these extensions. In that regard, we agree with the suggestion.  On I653: It seems it should be Need R. The Rel-15 version of *t-StatusProhibit* is mandatory and so if the rel-16 version is present, it would override the rel-15 version. If we use need “M”, then it seems no way to configure back to a Rel-15 version value. |
| Qualcomm | B002: Agree  I654: disagree (not clear what needs to update)  I653: prefer “need R” | For B002, we have the same understanding on Lenovo, and think it is aligned with the below agreement related to S352 which was made in last Monday: **=> We consider to Remove Ext (at least)**  For I654, our understanding is that it is used in URLLC to configure short t-StatusProhibit (1/2/3/4ms). And it seems nothing more needs to be updated. Maybe Intel can make clear what is suggested change.  For I653, we think “need R” is more appropriate |
| OPPO | B002: No strong view.  I654, I653: Agree | Regarding B002, it is more like renaming.  Regarding I653, we share the similar view as Ericsson, it should be optional with R. |
| MediaTek | B002, I654, I653: Agree | B002: Using –v16xy would be consistent with the rest of the RRC spec  I654: Needs a hook for configuring the value. For example, with an extension to RLC-Config  I653: Need R seems appropriate, although where the Need code is placed would depend on the fix for I654 |
| Huawei | B002: No strong view  I654, I653: Agree | B002: No strong preference between Ext-r16 and –v16xy. Both IE names are used in the current RRC spec. We would prefer to have a common solution to address all the issues. |

## RIL #M004

Issue #M004 is related to the timer *t316-r16* in *RLF-TimersAndConstants* that was introduced in the context of DCCA. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| M004 | For the timer T316 configuration, need code Need N is used. Need N means one-shot configuration field that is not stored and whose presence causes a one-time action by the UE. Value for timer T316 is not such parameter. | Change to “Need M” |

-- ASN1START

-- TAG-RLF-TIMERSANDCONSTANTS-START

RLF-TimersAndConstants ::= SEQUENCE {

t310 ENUMERATED {ms0, ms50, ms100, ms200, ms500, ms1000, ms2000, ms4000, ms6000},

n310 ENUMERATED {n1, n2, n3, n4, n6, n8, n10, n20},

n311 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10},

...,

[[

t311 ENUMERATED {ms1000, ms3000, ms5000, ms10000, ms15000, ms20000, ms30000}

]],

[[

t316-r16 SetupRelease {T316-r16 } OPTIONAL -- Cond MCG-Only

]]

}

T316-r16 ::= ENUMERATED {ms50, ms100, ms200, ms300, ms400, ms500, m600, ms1000, ms1500, ms2000}

-- TAG-RLF-TIMERSANDCONSTANTS-STOP

-- ASN1STOP

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *MCG-Only* | This field is optionally present, Need N, in the *RLF-TimersAndConstants* of the MCG, if the UE is configured with split SRB1 or SRB3. It is absent otherwise. |

**Question 8:** Should the need code for field *t316-r16* in *RLF-TimersAndConstants* be changed to “Need M” as proposed by #M004?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Ericsson | Agree but… | We agree with the intention of this RIL. However, most likely the configuration of timer T316 will be moved to the RRCReconfiguration message. Therefore, this is something to remind the new implementation of T316 will be done. |
| Qualcomm | Agree | We understand the UE will store T316 |
| ZTE | Agree | We also understand this field will be moved outside RLF-TimersAndConstants (as proposed by CATT), and we agree to change the need code into “Need M”. |
| vivo | Agree |  |
| OPPO | Not sure | I remember the timer T316 is agreed to move to RRCreconfiguration? Right? If so, I think this point can be consider there. |
| MediaTek | Agree (Proponent) | Even if we move the configuration to RRC Reconfiguration, it should also be clear that the UE will stored this configuration.  It may be better to capture in WI specific CR considering that T316 is also changed in that CR. Anyway, they should be merged at the end. |
| CATT | Agree with comments | Related to C103 C104 which we suggest to move the t316 from the *RLF-TimersAndConstants* to RRCReconfiguration message. The C103 C104 is handled via offline discussion in DCCA session.  But we agree with the change of the need code from need N to need M. |
| Lenovo | Agree |  |
| Huawei, HSilicon | Agree |  |

## RIL #S206

Issue #S206 is related to the IE *SchedulingRequestResourceConfig-v16xy* in *SchedulingRequestResourceConfig* that was introduced in the context of IIOT. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| S206 | SchedulingRequestResourceConfig-v16xy is defined but not used anywhere. | schedulingRequestResourceToAddModList-v16xy should be added in PUCCH-Config |

SchedulingRequestResourceConfig ::= SEQUENCE {

schedulingRequestResourceId SchedulingRequestResourceId,

schedulingRequestID SchedulingRequestId,

periodicityAndOffset CHOICE {

sym2 NULL,

sym6or7 NULL,

sl1 NULL, -- Recurs in every slot

sl2 INTEGER (0..1),

sl4 INTEGER (0..3),

sl5 INTEGER (0..4),

sl8 INTEGER (0..7),

sl10 INTEGER (0..9),

sl16 INTEGER (0..15),

sl20 INTEGER (0..19),

sl40 INTEGER (0..39),

sl80 INTEGER (0..79),

sl160 INTEGER (0..159),

sl320 INTEGER (0..319),

sl640 INTEGER (0..639)

} OPTIONAL, -- Need M

resource PUCCH-ResourceId OPTIONAL -- Need M

}

SchedulingRequestResourceConfig-v16xy ::= SEQUENCE {

phy-PriorityIndex-r16 ENUMERATED {p0, p1} OPTIONAL, -- Need M

...

}

**Question 9:** Should IE *SchedulingRequestResourceConfig-v16xy* in *SchedulingRequestResourceConfig* be added in IE *PUCCH-Config* as proposed by #S206?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Ericsson | Agree |  |
| Qualcomm | Agree | Agree the change suggested by Lenovo |
| vivo | Agree, but | The IE *SchedulingRequestResourceConfig-v16xy* in *SchedulingRequestResourceConfig* be added in IE *PUCCH-Config.*  There is no non-critical extension marker in the SchedulingRequestResourceConfig IE, it seems an anchor(e.g. schedulingRequestResourceId) is needed to couple SchedulingRequestResourceConfig-v16xy with the corresponding SchedulingRequestResourceConfig. |
| OPPO | Agree |  |
| Lenovo | Agree | SchedulingRequestResourceConfig-v16xy can be added in IE PUCCH-Config after the extension marker in the existing Rel-16 extension group as shown below.  [[  …  resourceGroupToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofPUCCH-ResourceGroups-r16)) OF PUCCH-ResourceGroupId-r16 OPTIONAL, -- Need N  schedulingRequestResourceToAddModList-v16xy SEQUENCE (SIZE (1..maxNrofSR-Resources)) OF SchedulingRequestResourceConfig-v16xy OPTIONAL -- Need N  ]] |
|  |  |  |

## RIL #Z016

Issue #Z016 is related to the field *enableConfiguredUL-r16* in *SlotFormatCombinationsPerCell* that was introduced in the context of NR-U. The description of the issue is shown below.

|  |  |  |
| --- | --- | --- |
| **RIL #** | **Description** | **Proposed Change** |
| Z016 | field description is missing for the field enableConfiguredUL | Add field description. E.g: If configured, UE is allowed to transmit UL signals(SRS, PUCCH, CG-PUSCH) in the set of symbols of the slot which is configured for transmission of UL signals. |

SlotFormatCombinationsPerCell ::= SEQUENCE {

servingCellId ServCellIndex,

subcarrierSpacing SubcarrierSpacing,

subcarrierSpacing2 SubcarrierSpacing OPTIONAL, -- Need R

slotFormatCombinations SEQUENCE (SIZE (1..maxNrofSlotFormatCombinationsPerSet)) OF SlotFormatCombination OPTIONAL, -- Need M

positionInDCI INTEGER(0..maxSFI-DCI-PayloadSize-1) OPTIONAL, -- Need M

...,

[[

enableConfiguredUL-r16 ENUMERATED {enabled} OPTIONAL -- Need N

]]

}

**Question 10:** Should a field description for *enableConfiguredUL-r16* in *SlotFormatCombinationsPerCell* be added as proposed by #Z016?

|  |  |  |
| --- | --- | --- |
| **Company** | **Agree/Disagree** | **Additional comments** |
| Qualcomm | Agree | The added field description looks fine to us |
| vivo | Agree |  |
| OPPO | Yes | If configured, UE is allowed configured UL transmission in a set of symbols of a slot when the UE is configured with DCI format 2\_0 monitoring but does not detect a DCI format 2\_0 providing a slot format for the set of symbols. |
| MediaTek | Agree | A shorter field description with a reference to 38.213 should be sufficient. We do not need to repeat conditions in two specifications. For example:  *If configured, indicates whether UL transmissions can take place when a DCI format 2\_0 is not detected (see TS 38.213 [13], 11.1.1)* |
| Lenovo | Agree | We suggest some minor corrections in the field description as highlighted in red below to be aligned with TS 38.211, clause 4.3.2 where the symbols in a downlink or uplink frame can be configured as downlink/uplink/flexible, and not for "transmission of UL signals":  If configured, the UE is allowed to transmit UL signals/channels (SRS, PUCCH, CG-PUSCH) in the set of symbols of the slot that are configured as 'uplink'. |
| Huawei | Agree |  |

# Conclusion

xxx

# Reference

[1] R2-2003309, TS 38.331 Rel-16 ASN.1 review file, phase 1, Ericsson

[2] R2-2003310, RIL list TS 38.331 Rel-16 ASN.1 review file, phase 1, Ericsson