**3GPP TSG-RAN WG2#109bis eMeeting *Tdoc*** ⌘***R2-2003843***

**Online, 20th- 30th April 2020**

**Agenda Item: 7.0.1**

**Souce: Samsung**

**Title: [AT109e][066][R16] R16 LTE RRC coordination (Samsung)**

**Document for: Discussion and decision**

# Introduction

This document is the report of the following email discussion:

 [AT109bis-e][204][LTE ASN1] LTE general ASN.1 discussion (Samsung)

Scope:

  General ASN.1 issue discussion covering AI 7.0.1 according to ASN.1 review issue list.

  Flagging issues for discussion during the LTE ASN.1 web conference session(s) via email before the session(s)

      Intended outcome:

  Discussion summary document in [R2-2003843](https://protect2.fireeye.com/url?k=63c0fd8d-3e12ea84-63c176c2-0cc47a31cdf8-8ae5ddcae40afa8b&q=1&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG2_RL2%2FTSGR2_109bis-e%2FDocs%2FR2-2003843.zip), detailing the proposals for ASN.1 issue resolution (including ASN.1 changes).

  Combined CR with the agreed changes on general ASN.1 for LTE

      Deadline for providing comments and for rapporteur inputs:

  Flagging review issues for discussion in the 1st ASN.1 session: Tuesday Apr. 21st, 8:00 UTC

  Flagging review issues for discussion in the 2nd ASN.1 session: Monday Apr. 27th, 8:00 UTC

  Initial deadline (for rapporteur's summary in [R2-2003843](https://protect2.fireeye.com/url?k=65bbd46b-3869c362-65ba5f24-0cc47a31cdf8-181649ad7af34fda&q=1&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG2_RL2%2FTSGR2_109bis-e%2FDocs%2FR2-20038xx.zip)):  Friday 2020-04-24 08:00 UTC

  Proposed agreements in [R2-2003843](https://protect2.fireeye.com/url?k=4cadd19f-117fc696-4cac5ad0-0cc47a31cdf8-76d06eb9b353b249&q=1&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG2_RL2%2FTSGR2_109bis-e%2FDocs%2FR2-20038xx.zip) indicated for email agreement and not challenged until Tuesday 2020-04-28 12:00 UTC will be declared as agreed by the session chair.

Status: Not yet started (to be done Monday Apr. 20th)

Some further clarification regarding the scope and time plan:

* This e-mail concerns the general issues i.e. of **class 2 type**
* This e-mail also captures the flagging of **class 3 issues for WIs other than NB-IoT and eMTC**
* We will have 2 parts
	+ **Part 1 (deadline Thu 23 Apr 12.00 UCT)**: main intention is to determine the issues requiring further discussion. Companies are requested to use the **flagging** procedure (see below) if they have a concern regarding the way forward for issues marked as PropAgree, PropReject, PropNoAct, PropTDoc
		- Note that for PropTDoc, I will assume assigned company will distribute TDoc by deadline of part 2
	+ **Part 2 (deadline Thu 27 Apr 8.00 UCT)**: Discussion of the way forward for issues with status DiscMail (possibly after flagging)
		- So far we just have 2: N016, H114

Flagging procedure (as announced by Hakan)

* If a company has concerns with the proposed way forward, flag the concerned RIL by sending a mail to the relevant session chairman, the rapporteurs (Håkan/ Himke) and cc 3GPP RAN2 mail list
* The following format should be used for the mail
	+ Subject field: **[LTE Rel-16] 36331 RIL FLAGGING: <RIL-id>**
	+ Mail body: Please provide the reason for flagging

# Discussion

## Overview of class 2 issues to be resolved within scope of this e-mail

The following table provides a number of more general ASN.1 review issues for LTE RRC R16 that are to be progressed as part of this RAN2 e-mail [AT109bis-e][204][LTE ASN1] LTE general ASN.1 discussion. The table will be updated in accordance with flagging by companies.

|  |  |  |  |
| --- | --- | --- | --- |
| No | Company | Remarks | Status |
| N016 | NA | Class 2 issue with status DiscMail | DiscMail |
| H114 | NA | Class 2 issue with status DiscMail | DiscMail |
| H162 | Qualcomm | Do not agree with PropAgree. See comment in the ASN.1 review file | DiscMail |
| H163 | Qualcomm | Do not agree with PropAgree. Same as H162 | DiscMail |
| N010 | Qualcomm | Not convinced by the argument about not having Need OR on higher level due to extension marker overhead, based on understanding that if any of the following highlighted Need OR parameters is to be included, then the extension overhead is already included. | DiscMail |
| H157 | Qualcomm | Suggest to change to class 3. Assumption is that a bullet 2> will be inserted in 5.3.3.4 prior to ‘except for NB-IoT’. The exact wording for that new part may need some polishing by eMTC folks, it is better handled in eMTC ASN.1 session | DiscMail |
| N011 | Nokia | Disagree with conclusion: If the outer field name encodes information, it is better captured in the file description of the contained field. It’s not good to create unnecessary SEQUENCEs for this purpose | DiscMail |
| S005 | NA | Leftover issues from R2-2003231 | DiscMail |
| S003 | NA | Leftover issues from R2-2003231 | DiscMail |
| S006 | NA | Leftover issues from R2-2003231 | DiscMail |
| B002 | OPPO | We do not agree with rapporteur PropAgree. As mentioned in details in [204], the inter-RAT sidelink measurement configuration and report framework needs to be considered as a whole | DiscMail |
|  |  |  |  |

**Tab. 1**: General protocol issues to be progressed by eMail

|  |  |  |  |
| --- | --- | --- | --- |
| No | Company | Remarks | Status |
| H136 | Qualcomm | Disagree with rapp’s suggestion to reject. Agree with suggested change by Huawei | Minutes: ConcAgree i.e. no suffix from R15 |
| H140 | Qualcomm | Same as H136 | As above |
| H148 | Huawei | We do not agree with rapporteur PropReject we think this should be discussed in NB-IOT specific session | Minutes: change to class 3, discMeet |
| H115 | Huawei | We do not agree with rapporteur PropTdoc. We propose to change to PropNoActThis should be captured by the eMTC RRC CR rapporteur based on the RAN1 spreadsheet in email discussion [AT109bis-e][408][eMTC] 36.331 CR | Minutes: ConcAgree, class 3 (develop TP and capture in MTC CR) |
| Z256 | Qualcomm | Editorial suggestion compared to suggested change: in conditional presence, add optional before need ON | Conclusion: proposed way forward remains unchanged, but add optional in condition i.e. Otherwise, it is optional need ON. |
| B003 | Qualcomm | Unclear what “as suggested” means. Does that include suggested in comment v17 as the status was given in v18 | Conclusion: proposed way forward remains unchanged. Clarification added that all spares will be listed explicitly |
| Z301 | Huawei | The first bullet needs correction because of name changes but we prefer not to move the contents in order to reduce unnecessary changes between Rel-15 and Rel-16 specifications.In general, the more changes we do to EUTRA measurements, as in Rel-15, in Rel-16, the more likely we will by mistake introduce diverging behaviour between Rel-15 and Rel-16 UEs for this feature, which can create problems to use this feature. | Conclusion: Class to be changed 3 and Status to DiscMail>Issue is best concluded together with the discussion on the proposal 4 from R2-2003395, that is raised in eMail#32 (i.e. related to how we capture the agreement that receipt of a frequency list within release, also if this concerns NR freqs only, would means UE will not take LTE freq listed in SIB) |
| Z311 | Huawei | On the change: The agreement is about inclusion of reconfigurationWithSync. Since the field description already mentions the contents of the contained message, it can be captured there that when restoreSCG is included, the network always includes this field including an RRCReconfiguration with secondaryCellGroup and reconfigurationWithSync.On the status: If moved to DCCA session, the status should be PropNoAct | Conclusion: Status to be changed to DiscMail>Issue is already class 3. Seems best to do consistent for LTE and NR. Assume there will also be general discussion on how to handle conditions with implications for parent fields (under wings of NR RRC) |
| Z307 | Huawei | If moved to DCCA session, the status should be PropNoAct | Conclusion: Class to be changed to 3>Issue seems covered by OL #32 RRC issues (same with the RILs 308, 302) |
| Z309 | Huawei | Support the rapporteur proposal but would like to remove everything else from the field description (covered in procedure text). | Conclusion: Proposed agreement will be updated to clarify intention was to remove everything else |
|  |  |  |  |

**Tab. 2**: General protocol issues flagged but not requiring further discussion

## Overview of flagged class 3 issues of other WIs other than NB-IoT and eMTC

|  |  |  |  |
| --- | --- | --- | --- |
| No | Company | Remarks | Status |
|  |  |  |  |

**Tab. 3**: WI specific issues flagged but to be resolved within WI specific session

## Discussion of class 2 issues

### N016

Issue is illustrated below

GWUS-TimeParameters-r16 ::= SEQUENCE {

 maxDurationFactor-r16 ENUMERATED {one32th, one16th, one8th, one4th},

 numPOs-r16 ENUMERATED {n1, n2, n4, spare1} DEFAULT n1,

 timeOffsetDRX-r16 ENUMERATED {ms40, ms80, ms160, ms240},

 timeOffset-eDRX-Short-r16 ENUMERATED {ms40, ms80, ms160, ms240},

 timeOffset-eDRX-Long-r16 ENUMERATED {ms1000, ms2000} OPTIONAL, -- Need OP

 ...

}

GWUS-ResourcePerGapConfig-r16 ::= SEQUENCE {

 gwus-ResourceMappingPattern-r16 GWUS-ResourceMappingPattern-r16,

 gwus-NumGroupsList-r16 SEQUENCE (SIZE (1..maxGWUS-Resources-r16)) OF GWUS-NumGroups-r16 OPTIONAL, -- Need OP

 gwus-GroupsForServiceList-r16 SEQUENCE (SIZE (1..maxGWUS-ProbThresholds-r16)) OF INTEGER (1..maxGWUS-Groups-1-r16) OPTIONAL -- Need OR

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Rap | There was mistake in my original comment i.e. not missing:Seems preferable to be consistent across GWUS IEs (rather than with WUS), and generally prefer to NOT have the prefix in field names (clear from context).It should be no problem to adopt this principle even though there are cases deviating from this in previous releases  |
| Huawei | We agree that there is no need to have ‘gwus-‘ for each parameter in other IEs. We suggest to remove everywhere in the parameters in GWUS-Config-r16 (and GWUS-Config-NB-r16). This will be easier to handle the configuration parameters that are common to Rel-15 WUS and Rel-16 as highligted by this issue. Note that this can also apply to other features, e.g. PUR-Config-r16 (PUR-Config-NB-r16). |
| Qualcomm | In general, we agree with the principle, but the potential issue is when RAN1 refers to these fields. For example, if same field name is used for two features, then RAN1 spec needs to differentiate upper layer field *for XYZ feature* or *included in XYZ.*Also, one additional editorial correction in the same section:gwus-ProbaThreshList-r16 should be gwus-ProbThreshList-r16 |
|  |  |

**Tab. 4**: Other general issues

**Proposal 1 N016: Do not use prefix gwus for subfields of GWUS related IEs e.g. GWUS-TimeParameters, GWUS-ResourcePerGapConfig**

### H114

Issue is illustrated below

TA-ValidationConfig-r16 ::= SEQUENCE {

 pur-TimeAlignmentTimer-r16 CHOICE {

 release NULL,

 setup ENUMERATED {sXX, sYY, ffs}

 } OPTIONAL, --Need ON

 pur-RSRP-ChangeThreshold-r16 CHOICE {

 release NULL ,

 setup SEQUENCE {

 rsrp-IncreaseThresh-r16 RSRP-ChangeThresh-r16,

 rsrp-DecreaseThresh-r16 RSRP-ChangeThresh-r16 OPTIONAL --Need OP

 }

 } OPTIONAL --Need ON

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Rap | S007 is covered by R2-2003820 that merely suggests that delta signalling should be used only for fields which size exceeds 1 octetAnyhow, it seems appropriate to use need OR for pur-TimeAlignmentTimerThe individual subfields of pur-RSRP-ChangeThreshold are also small, so simplest would be to just have 2 need OR fields also |
| Huawei | We think that the structure is not needed at all and that the two parameters can be signalled independently at the top level in a similar way to NB-IoTPUR-Config-r16 ::= SEQUENCE {  pur-ImplicitReleaseAfter-r16 CHOICE { release NULL, setup ENUMERATED {e2, e4, e8, spare} } OPTIONAL, --Need ON pur-NumOccasions-r16 ENUMERATED {one, infinite}, pur-RNTI-r16 C-RNTI OPTIONAL, -- Need ON ~~ta-ValidationConfig-r16 TA-ValidationConfig-r16 OPTIONAL, -- Need ON~~ pur-TimeAlignmentTimer-r16 ENUMERATED {sXX, sYY, ffs} OPTIONAL, -- Need OR pur-RSRP-ChangeThreshold-r16 SEQUENCE { rsrp-IncreaseThresh-r16 RSRP-ChangeThresh-r16, rsrp-DecreaseThresh-r16 RSRP-ChangeThresh-r16 OPTIONAL --Need OP } OPTIONAL, --Need OR pur-StartTime-r16 TypeFFS OPTIONAL, -- Need ON pur-ResponseWindowTimer-r16 ENUMERATED {sf240, sf480, sf960, sf1920, sf3840, sf5760, sf7680, sf10240} OPTIONAL, -- Need ON pur-MPDCCH-Config-r16 PUR-MPDCCH-Config-r16 OPTIONAL, -- Need ON  pur-PDSCH-FreqHopping-r16 BOOLEAN, pur-PUCCH-Config-r16 PUR-PUCCH-Config-r16 OPTIONAL, -- Need ON pur-PUSCH-Config-r16 PUR-PUSCH-Config-r16 OPTIONAL, -- Need ON ...} |
| Qualcomm | For pur-TimeAlignmentTimer-r16, already indicated that it is ok to simply, and also captured in eMTC CRFor pur-RSRP-ChangeThreshold-r16, the subfields are themselves multibit (and meets the rapp’s threshold of total 8 bits). If both the fields are absent, then the TA validation based on RSRP change in not applicable. Additionally, second field is not needed if network wants to configure both to be same, and second field cannot be present if first field is absent. Therefore, it seems appropriate to use setup/release with Need ON. Regarding Huawei’s comment on putthng both TA validation criteria configrurations at the root, it is better to create a separate group for related fields so that if in the future if the fields are extended (there is possibility of that and hence we keep ellipsis), it will be organized. |
|  |  |

**Tab. 5**: Other general issues

**Proposal 2 H114: Some further discussion required (although Huawei proposal to adopt the simplified structure and move PUR-Config subfields pur-TimeAlignmentTimer and pur-RSRP-ChangeThreshold seemed fine)**

**Proposed conclusion N Bla**

### H162

Issue is illustrated below

PhysicalConfigDedicated ::= SEQUENCE {

 -- Irrelevant parts omitted

 ...,

 -- Irrelevant parts omitted

 [[ pdsch-ConfigDedicated-v16xy PDSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

 -- Irrelevant parts omitted

PDSCH-ConfigDedicated-v16xy ::= SEQUENCE {

 ce-PDSCH-MultiTB-AllocConfig-r16 CHOICE {

 release NULL,

 setup SEQUENCE {

 ce-PDSCH-MultiTB-Interleaving-r16 ENUMERATED {on} OPTIONAL, -- Need OR

 ce-PDSCH-MultiTB-HARQ-Bundling-r16 ENUMERATED {on} OPTIONAL -- Need OR

 }

 }

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Qualcomm | Do not agree with PropAgree. See comment in the ASN.1 review file |
| Rap | If indeed it’s possible to configure multiTB without signalling any configuration parameters (i.e. no interleaving and harq bundling), current ASN.1 seems appropriate. Assuming this is the case, suggestion is to revert to PropReject.BTW: If there are companies having a different understanding, the issue should be changed to class 3 |
| Huawei | The same approach as NB-IoT can be followedPDSCH-ConfigDedicated-v16xy ::= SEQUENCE { ce-PDSCH-MultiTB-Interleaving-r16 ENUMERATED {~~on~~interleaving, non-interleaving} OPTIONAL, -- Need OR ce-PDSCH-MultiTB-HARQ-Bundling-r16 ENUMERATED {on} OPTIONAL -- Need OR }we propose to change to class 3 |
| Qualcomm | It is indeed possible to configure mutliTB without signalling any config parameters. The suggestion from Huawei also works (basically that means *setup* of multiTB without any of the parameters is added as new codepoint to the first field), however in fact this adds more bits instead of making it efficient. When setup: this needs 4 bits (unchanged), but for release this needs 3 bits instead of 2 bits in current structure. So, clearly this is not signalling efficient. If the only comment is to make ASN.1 “look” smaller, that is different issue.Also see N018 where rapporteur’s suggestion is to add setup/release for all new groups.In NB-IoT, the case is different. The IE for both UL and DL can be in one. Here we need two. DL HARQ ACK bundling in NB-IoT is cond interleaving, but not in eMTC. Related: *non-interleaving* should be *nonInterleaving*. |
|  |  |

**Tab. 6**: Other general issues

**Proposal 3 Change H162 to class 3 issue**

### H163

Issue is illustrated below

PhysicalConfigDedicated ::= SEQUENCE {

 -- Irrelevant parts omitted

 ...,

 -- Irrelevant parts omitted

 [[ pdsch-ConfigDedicated-v16xy PDSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

 pusch-ConfigDedicated-v16xy PUSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

 -- Irrelevant parts omitted

PUSCH-ConfigDedicated-v16xy ::= SEQUENCE {

 ce-PUSCH-MultiTB-AllocConfig-r16 CHOICE {

 release NULL,

 setup SEQUENCE {

 ce-PUSCH-MultiTB-Interleaving-r16 ENUMERATED {on} OPTIONAL -- Need OR

 }

 }

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Qualcomm | Do not agree with PropAgree. Same as H162 |
| Rap | Similar to H162 i.e. if indeed it’s possible to configure multiTB without signalling any configuration parameters (i.e. no interleaving), current ASN.1 seems appropriate. Assuming this is the case, suggestion is to revert to PropReject.BTW: If there some companies have different understanding, issue should be changed to class 3 |
| Huawei | Same comment as for H162PUSCH-ConfigDedicated-v16xy ::= SEQUENCE { ce-PUSCH-MultiTB-Interleaving-r16 ENUMERATED { ~~on~~interleaving, non-interleaving} OPTIONAL -- Need OR }we propose to change to class 3 |
| Qualcomm | HW suggestion looks cleaner (in that case the field name should remove Interleaving and repace by Config, and non-Interleaving should be nonInterleaving). However, should be consistent with conclusion of N018. |
|  |  |

**Tab. 7**: Other general issues

**Proposal 4 Change H163 to class 3 issue**

### N010

Issue is illustrated below

PhysicalConfigDedicated ::= SEQUENCE {

 -- Irrelevant parts omitted

 ...,

 -- Irrelevant parts omitted

 [[ pdsch-ConfigDedicated-v16xy PDSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

 pusch-ConfigDedicated-v16xy PUSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

 -- Irrelevant parts omitted

PUSCH-ConfigDedicated-v16xy ::= SEQUENCE {

 ce-PUSCH-MultiTB-AllocConfig-r16 CHOICE {

 release NULL,

 setup SEQUENCE {

 ce-PUSCH-MultiTB-Interleaving-r16 ENUMERATED {on} OPTIONAL -- Need OR

 }

 }

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Qualcomm | Not convinced by the argument about not having Need OR on higher level due to extension marker overhead, because there are just too many existing fields already with need OR, so the likelihood of needing to include only this r16 new field and none of the other in the extension groups is very low. My understanding is if any of the following highlighted Need OR parameters is to be included, then the extension overhead is already included. May be I am missing something and if so could you kindly elaborate?However, if the conclusion is to add optionality for the lower level field just so that it is encoded, then it should be Enumerated {true} Need OR, instead of Boolean mandatory because otherwise the field description needs to be updated to say when set to TRUE (and there is no meaning of FALSE) |
| Rap | We understand that each Extension Addition Group that is signalled (i.e. extensions in between set of quare brackets) will cost at least 2 octets, so need OR should be avoided. Default approach for such fields is to use BOOLEAN with need M[[     allowInterruptions-r11           BOOLEAN                    OPTIONAL      -- Need ON |
| Qualcomm2 | After further checking, we agree there is such overhead and that it is good to avoid that. For consistency with field description and earlier HS fields, we prefer to stick to using Enum {true} with Need R while adding additional level with optional, need N like below[[        highSpeedConfigSCell-v16xy          HighSpeedConfigSCell-v16xy     OPTIONAL -- Need ON~~OR~~    ]] HighSpeedConfigSCell-v16xy ::=  SEQUENCE {    highSpeedEnhMeasFlagSCell-r16       ENUMERATED {true} OPTIONAL -- Need OR} |

**Tab. 8**: Other general issues

**Proposal 5 N010: Change field highSpeedConfigSCell-v16xy into a Boolean, optional need ON and update field description accordingly**

### H157

Issue is illustrated below

|  |
| --- |
| ***lte-M***Indicates the UE is category M. This field is included only when the UE is connected to 5GC. |

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Qualcomm | Understanding is that proposal is to introduce new bullet 2 in 5.3.3.4 as shown below.The UE shall:<<skip>>1>  set the content of *RRCConnectionSetup**Complete* message as follows:<<skip>>2> if the UE is connected to EPC:-- Irrelevant parts omitted2> <<insert somewhere here “else” (i.e., UE is connected to 5GC) and UE is a cat M UE then include lte-M indication>>2> except for NB-IoT:We think the exact wording for the statement above is best handled within eMTC folks |
| Rap | Seems fine to conclude in same manner as for H115 i.e. ConcAgree, class 3 (develop TP and capture in MTC CR) |
| Qualcomm | TP already captured in eMTC CR in offline [408] |
|  |  |

**Tab. 9**: Other general issues

**Proposal 6 H157: For lte-M, cover when UE shall include field within procedural specification (and remove statements from field descriptions. Change to class 3 issue (i.e. to reflect that detailed wording will be agreed in WI session)**

### N011

Issue is illustrated below

SystemInformationBlockType1-v16xy-IEs ::= SEQUENCE {

 eDRX-Allowed-5GC-r16 ENUMERATED {true} OPTIONAL, -- Need OR

 bandwidthReducedAccessRelatedInfo-v16xy SEQUENCE {

 transmissionInControlChRegion-r16 ENUMERATED {true} OPTIONAL -- Need OR

 } OPTIONAL, -- Cond BW-reduced

 plmn-IdentityList-v16xy PLMN-IdentityList-v16xy OPTIONAL, -- Need OR

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Nokia | Disagree with conclusion: If the outer field name encodes information, it is better captured in the file description of the contained field. It’s not good to create unnecessary SEQUENCEs for this purpose |
| Rap | Alike indicated by QC, I assume it’s good to clarify this is an extension of the set of parameters introduced in –r13 i.e. as shown below i.e. will only be signalled if original set is present SystemInformationBlockType1-v1310-IEs ::= SEQUENCE { -- Irrelevant parts omitted bandwidthReducedAccessRelatedInfo-r13 SEQUENCE { si-WindowLength-BR-r13 ENUMERATED {I however think that we have a convention that if the extension is done within the same ASN.1 section, it is not required to replicate the original ASN.1 structure. Hence I’m also fine to merely add statement in field descrition indicating that transmissionInControlChRegion concerns extension of bandwidthReducedAccessRelatedInfo and update condition to reflect that it is included only if original field is present |
|  |  |

**Tab. 10**: Other general issues

**Proposal 7 N011: Maintain structure bandwidthReducedAccessRelatedInfo-v16xy (as removal does not seem to simplify/ reduce specification). Condition may be updated to reflect extension is included only if original field is present**

### S005

Issue is illustrated below

The *SidelinkUEInformationNR* message is used for the indication of NR sidelink information to the eNB.

Signalling radio bearer: SRB1

SidelinkUEInformationNR-r16-IEs::= SEQUENCE {

 sidelinkUEInformationNR-r16 OCTET STRING,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| ***SidelinkUEInformationNR* field descriptions** |
| --- |
| ***sidelinkUEInformationNR***Container for the indication of NR sidelink information, this field includes the *SidelinkUEInformationNR* IE as specified in TS 38.331 [82]. |

Alternative suggested during R2#109bis

During the meeting it was clarified that the NR signalling carried within the container is not passed transparently but that eNB actually needs to decode the concerned information. Correspondingly, using a transparent transfer message seems not appropriate. It seems more appropriate to re-use the SidelinkUEInformation message and add a container for NR information as shown below. It is noted that all fields in SidelinkUEInformation are optional i.e. this approach seems feasible.

SidelinkUEInformation-v1530-IEs ::= SEQUENCE {

 reliabilityInfoListSL-r15 SL-ReliabilityList-r15 OPTIONAL,

 nonCriticalExtension SidelinkUEInformation-v16xy-IEs OPTIONAL

}

SidelinkUEInformation-v16xy-IEs ::= SEQUENCE {

 sidelinkUEInformationNR-r16 OCTET STRING,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Ericsson | We agree with the way forward suggested by the rapporteur (add a container for NR information in the existing SidelinkUEInformation). Please, also note that our preference is to not change the principle we agreed on in Rel-15 for the ULInformationTranferMRC. In fact, UL-DCCH messages that are transported in the ULInformationTranferMRDC are transparent to the node receiving it (i.e., MN or SN). In fact, what the node that receives this message does, is to simply forwards the message to the other note via X2/Xn.Regarding V2X, the CBR LTE measurement are not intended to transparently tranferred to an eNB, but needs to be understood and decoded by the receiving gNB (i.e., no DC operation here). |
| Huawei | As for whether to use ULInformationTransferMR-DC to transmit the UEAssistanceInformationNR and SidelinkUEInformationNR, we from a V2X point of view still want to keep the current specification, i.e. separate messages/procedures for them, with the previous V2X agreements made in Reno. The reason, as indicated, is that 1/ ULInformationTransferMR-DC is used to transmit information to the other CG in MR-DC case, but SL of the other RAT is not a CG, so no reason to couple SL with Uu CGs; 2/these messages are not transparently transmitted to the eNB, as we support SA eNB controlling NR SL, and if eNB supports this feature, it has the capability to decode and read the message directly. We think it is better to keep the current definition of ULInformationTransferMR-DC, instead of extending its usage to a case which is not in line with its original intention. As for the Alternative, then there will be no “pure” LTE SL UE information any more. Our concern is that, this may lead to impacts on TS 38.331, since for the NR Uu controlling LTE V2X SL case, the procedure for transmitting LTE SL UE information to the gNB is currelty refering to the procedure of this “pure” LTE SL UE information in TS 36.331 directly. However, after changing as the Alternative, this way may need to be changes as well, and we may need to further check what extra impacts to the current procedures.  |
| OPPO | The alternative above to put SUI message of NR into the SUI message of LTE does not work, since the triggering condition of NR-SUI message and LTE-SUI message are independent from each other, i.e., the triggering of LTE-SUI message is not the premise of triggering of NR-SUI message.If the original proposal of using ULInformationTransferMRDC is not feasible, we can consider to define a separate message to take care all these inter-RAT message for sidelink only, to differentiate from ULInformationTransferMRDC. This would benefit not only the SUI message here, but also the UAI message, and the inter-RAT sidelink CBR measurement report message. |
| MediaTek | We agree with other comments that ULInformationTransferMRDC seems not suitable for information that terminates at the eNB with no DC operation involved. Regarding the choice between the existing LTE SUI message and the new SUINR message, we think this is a bit a matter of taste—either we have an additional message, or we have some additional procedural text to capture the different triggering conditions under the SUI—and accordingly we don’t have a really strong view, but we agree with Huawei’s observation that this was already discussed in the V2X session and the current status reflects the decision that was taken then, so we have a slight preference not to change. |
| CATT | It is not suitable to include the *SidelinkUEInformationNR* into the ULInformationTransferMRDC since it is referces to the scenario the LTE Uu cross-RAT schedules NR SL, not related to MRDC. In addition, it is also not suitable to include the *SidelinkUEInformationNR* in *SidelinkUEInformation* since the triggers of these two messages are different. Hence, we slightly prefer keep the text as it is. |

**Tab. 11**: Other general issues

**Observation** There seems a slight preference to not introduce any changes. It seems the signalling of the V2X information defined in NR is best discussed together so that a consistent approach is taken. Some further discussion seems desirable, also avoiding introduction of numerous additional messages in future**.**

**Proposed way forward See B002**

### S003

Issue is illustrated below

The *UEAssistanceInformationNR* message is used for the indication of UE assistance information to the eNB.

Signalling radio bearer: SRB1

UEAssistanceInformationNR-r16-IEs ::= SEQUENCE {

 configuredGrantAssistanceInfo-r16 OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| ***UEAssistanceInformationNR* field descriptions** |
| --- |
| ***configuredGrantAssitanceInfo***Container for the indication of traffic characteristic of sidelink logical channel(s) that are setup for NR sidelink communication. The content is *SL-UE-AssistanceInformationNR* IE as specified in TS 38.331 [82]. |

Alternative suggested during R2#109bis

For SL-UE-AssistanceInformationNR the situation seems same i.e. that the NR signalling carried within the container is not passed transparently but that eNB actually needs to decode the concerned information. Correspondingly, using a transparent transfer message seems not appropriate. It seems more appropriate to re-use the UEAssistanceInformation message/ procedure by adding a container for NR information as shown below.

UEAssistanceInformation-v1450-IEs ::= SEQUENCE {

 overheatingAssistance-r14 OverheatingAssistance-r14 OPTIONAL,

 nonCriticalExtension UEAssistanceInformation-v1530-IEs OPTIONAL

}

UEAssistanceInformation-v1530-IEs ::= SEQUENCE {

 sps-AssistanceInformation-v1530 SEQUENCE {

 trafficPatternInfoListSL-v1530 TrafficPatternInfoList-v1530

 } OPTIONAL,

 nonCriticalExtension UEAssistanceInformation-v16xy-IEs OPTIONAL

}

UEAssistanceInformation-v16xy-IEs ::= SEQUENCE {

 configuredGrantAssistanceInfoNR-r16 OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

It is noted that the configuration is already handled by LTE signalling, as shown below

OtherConfig-r9 ::= SEQUENCE {

 reportProximityConfig-r9 ReportProximityConfig-r9 OPTIONAL, -- Need ON

 ...,

 -- Irrelevant parts omitted

 [[ configurdGrantAssistanceInfoReport-r16 BOOLEAN OPTIONAL -- Need ON

 ]]

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Ericsson | We agree with the way forward suggested by the rapporteur (add a container for NR information in the existing SidelinkUEInformation). Please, also note that our preference is to not change the principle we agreed on in Rel-15 for the ULInformationTranferMRC. In fact, UL-DCCH messages that are transported in the ULInformationTranferMRDC are transparent to the node receiving it (i.e., MN or SN). In fact, what the node that receives this message does, is to simply forwards the message to the other note via X2/Xn.Regarding V2X, the CBR LTE measurement are not intended to transparently tranferred to an eNB, but needs to be understood and decoded by the receiving gNB (i.e., no DC operation here). |
| Huawei | As for whether to use ULInformationTransferMR-DC to transmit the UEAssistanceInformationNR and SidelinkUEInformationNR, we from a V2X point of view still want to keep the current specification, i.e. separate messages/procedures for them, with the previous V2X agreements made in Reno. The reason, as indicated, is that 1/ ULInformationTransferMR-DC is used to transmit information to the other CG in MR-DC case, but SL of the other RAT is not a CG, so no reason to couple SL with Uu CGs; 2/these messages are not transparently transmitted to the eNB, as we support SA eNB controlling NR SL, and if eNB supports this feature, it has the capability to decode and read the message directly. We think it is better to keep the current definition of ULInformationTransferMR-DC, instead of extending its usage to a case which is not in line with its original intention. As for the Alternative, the UEAssistanceInfor for LTE SL and UEAssistanceInfo for NR SL are mixed together. Our concern is that this may lead to impacts to TS 38.331, as for the NR Uu controlling LTE V2X SL case, the procedure for transmitting UEAssistanceInfo for LTE SL to the gNB is currelty refering to the procedure of this “pure” UEAssistanceInfo for LTE SL” in TS 36.331 directly. However, after changing as the Alternative, this way may need to be changes as well, and we may need to further check what extra impacts to the current procedures.  |
| OPPO | Similar to what we replied to S005 above: The alternative above to put UAI message of NR into the UAI message of LTE does not work, since the enabler / triggering condition of NR-UAI message and LTE-UAI message are independent from each other, i.e., the triggering of LTE-UAI message is not the premise of triggering of NR-UAI message.If the original proposal of using ULInformationTransferMRDC is not feasible, we can consider to define a separate message to take care all these inter-RAT message for sidelink only, to differentiate from ULInformationTransferMRDC. This would benefit not only the UAI message here, but also the SUI message, and the inter-RAT sidelink CBR measurement report message. |
| MediaTek | Same view as in S005 above; ULInformationTransferMRDC seems unsuitable, and we have a slight preference to keep the messages separate to avoid revisiting the agreement. |
| CATT | Same view as in S005 above. |

**Tab. 12**: Other general issues

**Proposed way forward See B002**

### S006

Issue is illustrated below

ULInformationTransfer-r8-IEs ::= SEQUENCE {

 dedicatedInfoType CHOICE {

 dedicatedInfoNAS DedicatedInfoNAS,

 dedicatedInfoCDMA2000-1XRTT DedicatedInfoCDMA2000,

 dedicatedInfoCDMA2000-HRPD DedicatedInfoCDMA2000

 },

 nonCriticalExtension ULInformationTransfer-v8a0-IEs OPTIONAL

}

ULInformationTransfer-v8a0-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

ULInformationTransfer-r16-IEs ::= SEQUENCE {

 dedicatedInfoType-r16 CHOICE {

 dedicatedInfoNAS-r16 DedicatedInfoNAS,

 dedicatedInfoCDMA2000-1XRTT-r16 DedicatedInfoCDMA2000,

 dedicatedInfoCDMA2000-HRPD-r16 DedicatedInfoCDMA2000

 } OPTIONAL, -- Need ON

 dedicatedInfoF1AP-r16 DedicatedInfoF1AP-r16 OPTIONAL, -- Need ON

 nonCriticalExtension ULInformationTransfer-v8a0-IEs OPTIONAL

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Samsung | R2-2003231 includes the following proposal:Add the F1AP information by non-critical extension of the a regular critical extension of the ULInformationTransfer message i.e. stating that when F1AP information is included, dedicatedInfoType contents is invalid and to be ignored by the network |
|  |  |
|  |  |

**Tab. 13**: Other general issues

**Proposal 8 S006: Add the F1AP information by non-critical extension of the a regular critical extension of the ULInformationTransfer message i.e. stating that when F1AP information is included, dedicatedInfoType contents is invalid and to be ignored by the network**

### B002, S046

Issues are illustrated below

 eventS1-r16 SEQUENCE {

 s1-Threshold-r16 OCTET STRING

 },

 eventS2-r16 SEQUENCE {

 s2-Threshold-r16 OCTET STRING

 }

|  |
| --- |
| ***s1-Threshold, s2-Threshold***Threshold used for events s1 and s2 specified in subclauses 5.5.4.18 and 5.5.4.19, respectively. They are containers with contents being *c1-Threshold* IE and *c2-Threshold* IE respectively, as specified in TS 38.331 [82]. |

We note that for S046 status was set to DiscMeet. It however is of similar nature as e.g. S005. Hence it seems best to conclude these together.

Alternative proposed by OPPO

It seems OPPO has paper proposing an alternative approach in R2-2002626/7/8, that can be summarised as follows:

* Configuration
	+ The entire measurement configuration is specified by NR signalling i.e. in LTE an octet string is introduced carrying an NR IE
	+ More specifically, the proposal is to add a field sl-MeasConfig in the LTE Reconfiguration message that is an octet string containing the NR IE MeasConfig
* Reporting
	+ The measurement report is specified entirely by NR signalling i.e. in LTE an octet string is used carrying the NR message
	+ The proposal is to re-use the same transfer option as used in MRDC i.e. ULInformationTransferMRDC, carrying an NR MeasurementReport message

We understand that same approach of adding fields containing NR IEs seems proposed for other fields e.g. OtherConfig i.e. as related to S003.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| OPPO | We do not agree with rapporteur PropAgree. As mentioned in details in [204], the inter-RAT sidelink measurement configuration and report framework needs to be considered as a whole.[Description]: For inter-RAT CBR measurement configuration and reporting,, e.g., for the UE camped on Uu RAT-1, is configured to perform measurement on PC5 RAT-2 – we have two alternatives:• Alt-1 (adopted by the running CR): Similar to Uu interface B-series measurement, i.e., UE camped on Uu RAT-1 to perform measurement on Uu RAT-2, via configuration / report via messages defined based on RAT-1, another series of measurement can be defined, in order for UE camped on Uu RAT-1 to perform measurement on PC5 RAT-2, via configuration / report via messages defined based on RAT-1.• Alt-2: Similar to the introduction of ULInformationTransferMRDC, which is used for UE camped on Uu RAT-1 to perform measurement on Uu RAT-2, via configuration / report via messages defined based on RAT-2, included in ULInformationTransferMRDC as a container. Please note that by using this method, the impact to UE internal variable (e.g., VarMeasConfig) is also avoided.Considering the ASN.1 impact from Alt-1, Alt-2 is more preferred, due to the avoidance of ASN.1 impact. And according to the running CR, even in Alt-1, one needs to rely on container to carry LTE RRC configuration on resource pool for measurement configuration and threshold configuration.[Proposed Change]: 1. Rely on container-based method for inter-RAT PC5-related measurement / report configuration, and 2. Report inter-RAT PC5-related measurement result in ULInformationTransferMRDC message.We bring a discussion paper and draft-CRs for that R2-2002626/2627/2628See TDocResponse to Huawei’s concern on the pool ID association issue: isn’t that so all the related procedural text for this type of container-based method is specified in the RRC of another RAT? We fail to see the difference here for sidelink measurement configuration / report. |
| Ericsson | We have the same opionion as in S003 and S006. Therefore, we prefer the original proposal formulated by Samung and set to PropAgree.  |
| Huawei | First, we think it is better to keep the current cross-RAT CBR measurement and reporting framework, and do not alternatively go for the contrainer way. The main reason is that there is a “*SL-ResourcePoolID(-NR/-EUTRA)”* included in the MeasObject and MeasResult for SL, and it is used to associate the Measresult (i.e. CBR in SL case) to the right Measobject (Tx resource pool in SL case). For cross-RAT CBR measruemnt reporting case, if both MeasObject and MeasResult for SL use a contrainer manner, the *SL-ResourcePoolID(-NR/-EUTRA)* (respectively for LTE Uu controlling NR SL/NR Uu controlling LTE SL) is then “hiden” in the contrainer and will not appear in the corresponding Spec (36.331/38.331) at all, so that how such association between Measobject and Measresult is done may not be clear. This is why we did not use the container way from the very beginning. If we follow the current framework, we think B002 might be better. As for whether we need to explicitly define all the NR SL IEs in the LTE Uu controlling NR SL case, we can understand the intention from some companies’ comments, that as long as the eNB itself can encode/decode those IEs, it seems clearer to have explicit IEs directly defined in 36.331. But this would lead to the consequence that many NR SL IEs already defined in TS 38.331 will have to be copied-pasted to TS 36.331, thus resulting in obvious texts duplications across Specs. This (to avoiding texts duplication) was also the reason why we still decided to use the container manner for the cross-RAT Uu controlling SL cases (even if it is not related to MR-DC). Anyway, we think to avoid too many text duplication across Specs is also one important thing that needs to be taken into account.  |
| CATT | Agree with Huawei. We prefer to keep the current spec.  |

**Tab. 14**: Other general issues

**Observation** There seems a slight preference to not introduce any changes. It seems the signalling of the V2X information defined in NR is best discussed together so that a consistent approach is taken. Some further discussion seems desirable, also avoiding introduction of numerous additional messages in future**.**

**Proposal 9 S003, S006, B002, S046: Continue discussions regarding the signalling of the V2X information defined in NR together so that a consistent and future proof approach is taken**

## Discussion of class 3 issues (new)

### Q601

Issue is illustrated below

InDeviceCoexIndication-v16xy-IEs::= SEQUENCE {

 victimSystemType-v16xy VictimSystemType-v16xy OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

VictimSystemType-v16xy ::= SEQUENCE {

 navic-r16 ENUMERATED {true}

}

We assume the new victim system also applies for AffectedCarrierFreqCombInfoMRDC, so we should keep an IE VictimSystemType-v16xy and also use it for the MRDC case, see below. The proposal shown takes into account some further comments provided by Qualcomm (e.g. to move the optional field one level down).

InDeviceCoexIndication-v16xy-IEs::= SEQUENCE {

 victimSystemType-v16xy VictimSystemType-v16xy ~~OPTIONAL~~,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

VictimSystemType-v16xy ::= SEQUENCE {

 navic-r16 ENUMERATED {true} OPTIONAL

}

MRDC-AssistanceInfo-r15 ::= SEQUENCE {

 affectedCarrierFreqCombInfoListMRDC-r15 SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqCombInfoMRDC-r15,

 ...,

 [[ affectedCarrierFreqCombInfoListMRDC-v16xy SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqCombInfoMRDC-v16xy OPTIONAL

 ]]

}

AffectedCarrierFreqCombInfoMRDC-r15 ::= SEQUENCE {

 victimSystemType-r15 VictimSystemType-r11,

 interferenceDirectionMRDC-r15 ENUMERATED {eutra-nr, nr, other, eutra-nr-other,

 nr-other, spare3, spare2, spare1},

 affectedCarrierFreqCombMRDC-r15 SEQUENCE {

 affectedCarrierFreqCombEUTRA-r15 AffectedCarrierFreqComb-r15 OPTIONAL,

 affectedCarrierFreqCombNR-r15 AffectedCarrierFreqCombNR-r15

 } OPTIONAL

}

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Qualcomm | Suggested to move the optional to the level of VictimSystemType-v16xy and add optional for affectedCarrierFreqCombInfoListMRDC-v16xy, as now present in the above |
| Rap |  |
|  |  |

**Tab. 15**: Other general issues

**Proposal 10 Q601: Maintain IE VictimSystemType-v16xy and move optional to this level. Apply the new victim system (Navic) also applies for AffectedCarrierFreqCombInfoMRDC, as shown.**

### XX

Issue is illustrated below

Extract

Further comments/ suggestions can be added below.

|  |  |
| --- | --- |
| Source | Comments/ suggestions |
| Qualcomm |  |
| Rap |  |
|  |  |

**Tab. X**: Other general issues

**Proposed conclusion N Bla**

# Conclusion & recommendation

This document includes a report of [AT109e][066][R16] R16 LTE RRC coordination. The report summarises the discussion regarding class 2 issues and includes the following proposals that RAN2 is requested to agreed:

**Proposal 1 N016: Do not use prefix gwus for subfields of GWUS related IEs e.g. GWUS-TimeParameters, GWUS-ResourcePerGapConfig**

**Proposal 2 H114: Some further discussion required (although Huawei proposal to adopt the simplified structure and move PUR-Config subfields pur-TimeAlignmentTimer and pur-RSRP-ChangeThreshold seemed fine)**

**Proposal 3 Change H162 to class 3 issue**

**Proposal 4 Change H163 to class 3 issue**

**Proposal 5 N010: Change field highSpeedConfigSCell-v16xy into a Boolean, optional need ON and update field description accordingly**

**Proposal 6 H157: For lte-M, cover when UE shall include field within procedural specification (and remove statements from field descriptions. Change to class 3 issue (i.e. to reflect that detailed wording will be agreed in WI session)**

**Proposal 7 N011: Maintain structure bandwidthReducedAccessRelatedInfo-v16xy (as removal does not seem to simplify/ reduce specification). Condition may be updated to reflect extension is included only if original field is present**

**Proposal 8 S006: Add the F1AP information by non-critical extension of the a regular critical extension of the ULInformationTransfer message i.e. stating that when F1AP information is included, dedicatedInfoType contents is invalid and to be ignored by the network**

**Proposal 9 S003, S006, B002, S046: Continue discussions regarding the signalling of the V2X information defined in NR together so that a consistent and future proof approach is taken**

**Proposal 10 Q601: Maintain IE VictimSystemType-v16xy and move optional to this level. Apply the new victim system (Navic) also applies for AffectedCarrierFreqCombInfoMRDC, as shown.**

# References

[1] R2-2003234 ASN.1 Review file (LTE, Word) Samsung

[2] R2-2003827 ASN.1 Review RIL (LTE, Excel) Samsung