3GPP TSG-RAN WG2 Meeting #109bis-e draft R2-2003786

Online, 20 – 30 March 2020

**Agenda item: 7.2.4**

**Source: Huawei (rapporteur)**

**Title: Summary of [AT109bis-e][314][NBIOT] ASN.1 review of NB-IoT (Huawei)**

**WID: NB\_IOTenh3-Core, LTE\_eMTC5-Core**

**Document for: Discussion and Decision**

# 1 Introduction

An offline discussion has been set up to progress the ASN.1 review for WI specific issues:

* [AT109bis-e][314][NBIOT] ASN.1 review of NB-IoT (Huawei)

Status: Starts Monday April 20th at 7:00 UTC

Scope: ASN.1 WI specific issues discussion

Intended outcome: progress the ASN.1 review and conclude as much as possible, report in R2-2004049

Deadline: 27-04-2020, 10:00 UTC

The document discusses RIL class 3 and 4 issues that have not been concluded by the rapporteur, i.e. status different from PropAgree, PropReject, and PropNoAct.

The document is organised by topic as follows

* PUR related issues
* GWUS related issues
* NB-IoT specific issues

It is assumed that the following topics are handled in the corresponding email discussion for eMTC [AT109bis-e][416][eMTC] ASN.1 review for eMTC (Qualcomm):

* MT-EDT
* Coexistence with NR
* Connection to 5GC
* eMTC specific

Note that it is recommended to refer to the ASN review file [2] for the details of the proposed changes, as RIL extraction does not reflect the text formatting (e.g. strike out, underline…).

# 2 Discussion

## 2.1 PUR related issues

### RIL Z603

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| Z603 | 4 | [R2-2003278](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003278.zip) | TDoc | v21: Class changed | In RAN2#107 meeting, RAN2 has agreed “The UE may use the D-PUR resource to send RRCConnectionRequest or RRCConnectionResumeRequest to establish or resume RRC connection.” However, the transmission of RRCConnectionRequest message using PUR to establish RRC connection hasn’t been captured in 36.331. | 1> the establishment or resumption request is for mobile originating calls and the establishment cause is mo-Data or mo-ExceptionData or delayTolerantAccess or mt-Access or mo-Signalling; |  | 5.3.3.1c Conditions for initiating transmission using PUR |

**Rapporteur’s comment:**

This looks more like an open issue and should be handled in [AT109bis-e][311][NBIOT] PUR open issues (Huawei)

Conclusion will be captured in this document.

Conclusion:

### RIL H085

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H085 | 4 | None | DiscMail | v21: Class changed | UP tranmsission using PUR and resumption a suspended RRC connection in 5G should be handled the same as UP-EDT | v05: Change 1: 1> except for UP-EDT, UP transmission using PUR and resuming a suspended RRC connection in 5GC, , upon integrity check failure indication from lower layers concerning SRB1 or SRB2; or 1> upon an RRC connection reconfiguration failure, in accordance with 5.3.5.5; or 1> upon an RRC connection reconfiguration failure, in accordance with TS38.331 [82], clause 5.3.5.5. Change 2: NOTE: For UP-EDT, UP transmission using PUR, and resuming a suspended RRC connection in 5GC, integrity check failure indication from lower layers is handled in accordance with clause 5.3.3.16. | Rap: general intention seems fine but may require some discussion regarding wording/ details Qualcomm v17: We think “except for UP-EDT” should be replaced by “except when resuming an RRC connection after early security reactivation in accordance with conditions in 5.3.3.18”. Similar for the NOTE. | 5.3.7.2 Initiation |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL N001/ H098

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| N001 | 4 | None | DiscMail | v22: Class changed | This name is very difficult to comprehend, especially if H098 is agreed. Since this is about whether UE preference for the PUR scheduling, name could be e.g. “noL1-ACK-Needed-r16” to better indicate UE indicates it doesn’t require DL L1 ACK for the UL using PUR. | Use “noL1-ACK-Needed-r16” for the field name. | Qualcomm v17: Do not agree to have “no” in the name. Because what the field is saying is L1 ack is sufficient, not the other way around. Can be discussed along with H098. Rap: Agree this is best concluded with H098. Name seems somewhat matter of taste i.e. could reflect if RRC acknowledgment is needed, or be general with 2 values indicating the ACK options (rrc, l1) | PURConfigurationRequest |
| H098 | 4 | None | DiscMail | v21: Class changed | Application layer has no understanding of L1 Ack, propose to remove the last sentence in the description. | v07: remove "i.e. …" | Rap: Seems to require some discussion. May be appropriate to instead refer to MAC. May be better to defer | PURConfigurationRequest |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL Z606

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| Z606 | 3 | None | DiscMail | v11 | The current subPRB-Allocation-r16 is defined in ce-ModeB, that is not aligned with description of the related RAN1 parameter ce-PUSCH-SubPRB-Config “When the UE supports the “PUSCH sub-PRB allocation in CE mode A/B” feature, the PUR configuration includes whether the feature is enabled or disabled”. So this parameter needs to be moved out of ce-ModeB. Moreover, there has no sub PRB configuration in PUR-Config, so we assume even this feature is enabled by subPRB-Allocation-r16, it cannot be used for PUR. R15 sub-PRB configuration is provided in dedicated signalling so it also cannot be used by UE in IDLE. Therefore, we suggest to provide sub-PRB configuration in PUR configuration and this can be used as implicit enable indication. | pur-GrantInfo-r16 CHOICE { ce-ModeA SEQUENCE { ... }, ce-ModeB SEQUENCE {  subPRB-Allocation -r16 BOOLEAN, numRUs-r16 BOOLEAN, prb-AllocationInfo-r16 BIT STRING (SIZE(8)), mcs-r16 BIT STRING (SIZE(4)), numRepetitions-r16 BIT STRING (SIZE(3)) } } OPTIONAL, -- Need ON ce-PUSCH-SubPRB-Config-r16 CHOICE { release NULL, setup SEQUENCE {  locationCE-ModeB-r16 INTEGER (0..5) OPTIONAL, -- Cond CE-ModeB  sixToneCyclicShift-r16 INTEGER (0..3),  threeToneCyclicShift-r16 INTEGER (0..2) } } OPTIONAL -- Need ON pur-PUSCH -FreqHopping-r16 BOOLEAN, … | Rap: It seems QC assumes that current signalling is sufficient: ModeA: codepoint 00 of num-Rus-r16 indicates full-PRB and other values indicated subPRB, and ModeB: 1 bit flag subPRB-Allocation-r16 in DCI indicates this. Hence the parameter is not common in the current ASN.1. Furhermore, whether the feature is enabled/disabled for CE Mode A or B is clear from the CHOICE value of pur-GrantInfo-r16 set to ce-ModeA or ce-ModeB. It does not make sense to include the GRANT for BOTH mode A and B at the same time. Then, there is no point of including subPRB info for Mode B if grant is actually for mode A (or vice versa) | – PUR-Config |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H115

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H115 | 3 | None | PropTDoc | v11 | Most parameters have no field description. Need to be added | v07: Add the missing descriptions | Rap: Suggest Huawei to prepare paper with TP | – PUR-Config |

**Rapporteur’s comment:**

This looks more like an CR issue and should be handled in [AT109bis-e][408][eMTC] 36.331 CR (Qualcomm)

Conclusion will be captured in this document.

Conclusion:

### RIL H122/ H125

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H122 | 4 | None | DiscMail | v18 | There is no need for a condition, this is dedicated signalling and the field is not conditional to any other one. We normally rely on correct network behaviour. | v07: Remove the Editors'note | Rap: Seems that eMTC decided otherwise i.e. introduced a condition. Conclude together with H125 Rap2: Class 4 used for issues for common session on eMTC and NB-IoT (same for H125) | – RRCConnectionResume-NB |
| H125 | 4 | None | DiscMail | v15 | There is no need for a condition for newUE-Identity-r16 , this is dedicated signalling and the field is not conditional to any other one. We normally rely on correct network behaviour. | v07: Remove the Editors'note. A condition on dedicatedInfoNAS-r16 could be useful to avoid that this becomes implicitly applicable to MO-EDT, which was not agreed in Rel-15 | Rap: Conclude together with H122 | – RRCConnectionSetup-NB |

**Rapporteur’s comment:**

Only handle the need for a condition for ‘newUE-Identity-r16 here.

The need for a condition for dedicatedInfoNAS-r16 can be handled with N009 in [AT109bis-e][416][eMTC] ASN.1 review for eMTC (Qualcomm)

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

## 2.2 GWUS related issues

### RIL H108/ H109

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H108 | 4 | [R2-2003250](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003250.zip) | TDoc | v11 | Same issue applies to gwus-Config-NB in 6.7.3.2 'timeOffset-eDRX-Short is always present in wus-Config-r15 / GWUS-TimeParameters-r16 then a WUS resource shall always be configured for the gap. Thus OPTIONAL Need OR is not correct There are two options. 1) parameter is defined as MP and the fallback configuration is described in ta CHOICE structure 2) parameter is defined as need OP, there is NO CHOICE structure, and the fallback configuration is described in the fleld decription | v07: See Tdoc |  | – GWUS-Config |
| H109 | 4 | [R2-2003250](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003250.zip) | TDoc | v22: Class changed | This issue also applies to gwus-Config-NB in 6.7.3.2 1. timeOffset-eDRX-Long is present , then a WUS resource for the gap should be configured.  2. parameter is defined as OPTIONAL Need OR but default configuration in absence is defined in the field descriotion 3. two different ways of implementing default configuration iare used for the same parameter, the CHOICE structure and | v07 1) change Need OR to Cond TimeOffset 2. for default configuration there are the same two options as for gwus-ResourceConfig-eDRX-Short. 1) parameter is defined as MP if timeoffset is present and the fallback configuration is described in the CHOICE structure 2) parameter is defined as need OP if timeoffset is present ,there is NO CHOICE structure, and the fallback configuration is described in the fleld decription Tdoc will be submitted to the meeting |  | – GWUS-Config |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H104

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H104 | 3 | None | DiscMail | v11 | Should probably add parameter powerBoost and numDRX-CyclesRelaxed to GWUS-TimeParameters-r16 | v07:See description | Qualcomm v19: numDRX-CyclesRelaxed is currently provided separately as it applies to both R15 and R16 therefore it does not need to be included in GWUS-TimeParameters-r16. Similar comment applies to powerBoost-r15 provided in wus-Config-v1560. | – GWUS-Config |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H105/ H106

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H105 | 3 | None | DiscMail | v11 | We don't use 'group WUS' in RAAN2 spec for the resource. This is the RAN1 language to distinguish the rel-15 and rel-16 feature | v07: remove all occurrences of the word 'group' in the description | Rap: Should be concluded together with H106 | – GWUS-Config |
| H106 | 4 | None | DiscMail | v21: Class changed | GWUS-Config-NB:gwus-CommonSequence Parameter is defined as ENUMERATED {legacyWUS, groupWUS} but is unclear what legacyWUs and groupWUS mean. In my understanding: legacyWUS is Rel-15 WUS and groupWUS is rel-16 GWUS so we think it may be better to align with RAN2 terminology {wus, gwus} | v07: 1) Change enumerated value to "wus" and "gwus".  2) gwus-CommonSequence Presence of the field indicates common WUS sequence is configured. Value legacyWUSwus indicates the common WUS sequence for the shared WUS resource is the legacy WUS sequence, value groupWUSgwus indicates the common WUS sequence for the shared WUS resource is the group WUS sequence, see TS 36.211[21]. 3) Same changes in 6.7.3.2 gwus-Config-NB | Rap: seems desirable to agree and consistently use some clear terminology (should be consistent with H105) | – GWUS-Config |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H107

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H107 | 4 | None | DiscMail | v21: Class changed | gwus-GroupAlternation is Enumerated {True}, This is the presence that enables hopping. Also Hopping is not defined, better use 'alternation' | v07 Presence of the field eEnables hoppingWUS group alternation between thetwo or more WUS resources for the gap type, see TS 36.304 [4]. Same chang in 6.7.3.2 gwus-Config-NB. |  | – GWUS-Config |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H110

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H110 | 4 | None | DiscMail | v22: Class changed | gwus-ProbaThreshList-r16 and gwus-GroupsForServiceList-r16 are defined as OPTIONAL need OR. There is no need to specify the absence case. It is not clear what happens in only one of the two parameters is configured or if they don't have the same of entries. Same issue in 6.7.3.2 gwus-Config-NB. | v07 It is proposed 1) to define the parameters as OPTIONAL-- Cond probabilityBased and remove the sentence 'If this field is absent, paging probability based WUS group selection is not configured' 2) clarify in the field description of gwus-GroupsForServiceList that E-UTRAN includes the same number of entries and in the same order in gWUS-GroupsForServiceList and gwus-ProbThreshList. gWUS-GroupsForServiceList Number of WUS groups for each paging probability group, see TS 36.304 [4]. The first entry corresponds to the first probability group, second entry corresponds to the second paging probability group, and so on. E-UTRAN includes the same number of entries and in the same order in gWUS-GroupsForServiceList and gwus-ProbThreshList. Any WUS group from the list of WUS groups defined in the numWUS-GroupsPerResourceList that are not assigned to a probability group is considered to be part of the list used for UE ID based group only list. Total number of WUS groups in this list cannot be more than total number of WUS groups in gwus-NumGroupsList. If this field is absent, paging probability based WUS group selection is not configured. gwus-ProbThreshList Paging probability thresholds corresponding to the paging probability groups, see TS 36.304 [4]. If this field is absent, then paging probability based WUS group selection is not configured. Cond probabilityBased: The field is mandatory present if paging probability based WUS group selection is configured; otherwise the field is not present, and the UE shall delete any existing value for this field. | Rap: Somewhat related to R2-2003184, although that addresses parameter gwus-NumGroupsList while this comment concerns parameter gwus-GroupsForServiceList Qualcomm v19: The issue stems from the fact that number of paging probability thresholds (1, 2 or 3) are common for all WUS configurations while gwus-GroupsForServiceList can be configured on per GAP type. Basically the concern is how to handle the case where the number of enteries in gwus-GroupsForServiceList are different from the number of entries in gwus-ProbThreshList. Seems this would be clear from 36.304 TP where the mapping of group WUS to paging probability set is defined and we don’t see the need to make this any clearer in 36.331. Basically, it boils down to this: - If gwus-ProbThreshList has more enteries than in gwus-GroupsForServiceList then all extra entries in gwus-ProbThreshList are not assigned any group WUS. - If gwus-GroupsForServiceList has more enteries than in gwus-ProbThreshList then all extra entries in gwus-GroupsForServiceList are ignored. | – GWUS-Config |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

## 2.3 NB-IoT specific issues

### RIL H081, H086

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H081 | 3 | None | DiscMail | v11 | earlyContentionResolution is only included in RRCConnectionResume for EPC | v05: Change to "2> if the UE is connected to EPC. set earlyContentionResolution to TRUE;" | Rap: seems that issue requires discussion Qualcomm v17: agree that this indication is only for EPC, but need to also clafiry that for 5GC, the suppor tis mandatory without indication. | 5.3.3.3a Actions related to transmission of RRCConnectionResumeRequest message |
| H086 | 3 | None | DiscMail | v11 | earlyContentionResolution is only included in RRCConnectionReestablishment for EPC | v05 2> if the UE is connected to EPC, set earlyContentionResolution to TRUE; | Rap: Resolve together with H081 | 5.3.7.4 Actions related to transmission of RRCConnectionReestablishmentRequest message |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H094

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H094 | 3 | None | DiscMail | v11 | ANR is not applicable to UE using the CP optimisation but when UE is in RRC\_IDLE, it is difficult to decide using or not the CP CIOT optimisation. | v05: We propose to remove the sentence as it clear in TS 36.300. | Rap: understand this may require some further checking, also of what’s is/ would be captured in stage 2 | 5.6.24.0 General |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H095 / Z607 / H146

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H095 | 3 | None | DiscMail | v11 | If the carriers for ANR measurements are not signalled explicitly, the UE selects two carriers from SIB5 to perform the measurements. | v05 3> for each of the two carrier frequenciesy signalled in selected from SystemInformationBlockType5-NB: | Qualcomm v19: proposal intent is ok but what if SIB5 only has 1 carrier. So it should be for each of up to two … | 5.6.24.1 Initiation |
| Z607 | 3 | None | DiscMail | v22 | According to field description of carrierFreqIndex, such value of INTEGER (1..2) means only the first two carriers in interFreqCarrierFreqList can be assigned. But we understand any two carriers of interFreqCarrierFreqList can be assigned. So we assume the value range of such index should be 1~8, e.g., (1.. maxFreq). | carrierFreqIndex-r16 INTEGER (1.. maxFreqANR-NB-r16maxFreq), | Relates to H095; conclude togethe | – ANR-MeasConfig-NB |
| H146 | 3 | None | DiscMail | v22 | RAN2 has agreed max two carriers to be measured | v08: Change the field description anrCarrierList List of NB-IoT carriers to be measured for ANR. If the field is absent, the UE selects two of the carriers in interFreqCarrierFreqList in SystemInformationBlockType5-NB are to be measured. | ZTE (LuTing): We may have no specific discussion on the scenario that anr-CarrierList is absent. Is it really needed to measure two carriers in SIB5? Per our previous understanding, in this case, UE only needs to measure the serving frequency and no need to measure other frequencies. Similar comments to H095. Relates to H095; conclude togethe | – ANR-MeasConfig-NB |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H096

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H095 | 3 | None | DiscMail | v11 | If the carriers for ANR measurements are not signalled explicitly, the UE selects two carriers from SIB5 to perform the measurements. | v05 3> for each of the two carrier frequenciesy signalled in selected from SystemInformationBlockType5-NB: | Qualcomm v19: proposal intent is ok but what if SIB5 only has 1 carrier. So it should be for each of up to two … | 5.6.24.1 Initiation |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H228/ H229

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H229 | 3 | [R2-2003251](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003251.zip) | TDoc | v14 | multiTBConfig configuration implies configuration of two harq Processes. This is not specified . | v08: See Tdoc |  | – PhysicalConfigDedicated-NB |
| H228 | 3 | [R2-2003251](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003251.zip) | TDoc | v14 | multiTBConfig contains configuration for both UL and DL, which are independent of each other. It would have been better to separate . | v08: see Tdoc |  | – PhysicalConfigDedicated-NB |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H118

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H118 | 3 | None | ToDo |  | The same message is used for 5GS | Change "CIoT EPS" to "CIoT EPS/5GS" |  | – RRCConnectionReestablishment-NB |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

### RIL H148 (flagged)

Extract of the RIL:

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| **ID** | **Class** | **Tdoc** | **Status** | **Proposed Conclusion** | **Description** | **Proposed Change** | **Comments** | **Section** |
| H148 | None | PropReject |  | v11 | nrsrqResult should be removed as there is no measurements required defined for inter-frequency cell in TS 36.133 | remove nrsrqResult | Rap: It seems 36.133 section 9.1.22.7 covers Inter-frequency Absolute NRSRQ Accuracy for UE Category NB1 | – RRCConnectionReestablishment-NB |

**Companies’ view:**

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| **Company** | **Do you agree (yes/no)** | **Comments** |
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Conclusion:

# 3 Conclusion

TO BE COMPLETED

# 4 List of referenced documents

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3. [R2-2003827](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Inbox/R2-2003827.zip) “LTE RIL v22” Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 F TEI16
4. [R2-2003278](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003278.zip), “Capture RRC setup using PUR”, ZTE Corporation, Sanechips
5. [R2-2003250](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003250.zip) [H108][H109] TP on WUS sugnalling for per gap configuration Huawei, HiSilicon
6. [R2-2003251](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003251.zip) [H228][H229] TP on multipe TB schedullng in NB-IoT Huawei, HiSilicon