3GPP TSG-RAN WG2 Meeting #115 Electronic R2-210xxxx

Online, Aug 16th – Aug 27th, 2021

**Agenda item: 5.4.1.1**

**Source: Apple**

**Title: Draft-Summary of [AT115-e][039][NR15] Connection Control III (Apple)**

**Document for: Discussion and Decision**

# 1 Introduction

This document is a report on the following email discussion:

* [AT115-e][039][NR15] Connection Control III (Apple)

Scope: Determine agreeable parts in a first phase, for agreeable parts agree on CRs. Treat R2-2107617, R2-2107618, R2-2107619, R2-2107770, R2-2107771, R2-2107772, R2-2107838, R2-2107839, R2-2108616, R2-2108617, R2-2108373, R2-2108374

Intended outcome: Report, agreed CRs if applicable

Deadline: Schedule 1

The deadline Schedule 1 for this email discussion is copied from Chair notes:

* A first round with Deadline for comments Thursday Aug 19 1200 UTC to settle scope what is agreeable etc
* A Final round with Final deadline Thursday Aug 26 1200 UTC. to settle details / agree CRs etc. Additional check points etc if needed are defined by the Rapporteur.
* In case some parts of an email discussion need more time, doesn’t converge, need on-line treatment etc Rapporteur please contact chair.

This document summarizes the following contributions from Agenda Item 5.1.4.1 Connection control:

RRC Release

R2-2107617 Discussion on RRC handling of NAS triggers not subject to UAC Apple discussion Rel-15 NR\_newRAT-Core

R2-2107618 T302 check when NAS triggers RRC connection resume Apple CR Rel-15 38.331 15.14.0 2734 - F NR\_newRAT-Core

R2-2107619 T302 check when NAS triggers RRC connection resume Apple CR Rel-16 38.331 16.5.0 2735 - A NR\_newRAT-Core

R2-2107770 Discussion on timer expiry after RRCRelease reception NEC discussion Rel-15 NR\_newRAT-Core

R2-2107771 Clarification on timer expiry after RRCRelease reception NEC CR Rel-15 38.331 15.14.0 2737 - F NR\_newRAT-Core

R2-2107772 Clarification on timer expiry after RRCRelease reception NEC CR Rel-16 38.331 16.5.0 2738 - F NR\_newRAT-Core, LTE\_NR\_DC\_CA\_enh-Core

R2-2107838 Correction on the Release Cause for RRC\_INACTVE UE vivo CR Rel-15 36.331 15.14.0 4700 - F NR\_newRAT-Core

R2-2107839 Correction on the Release Cause for RRC\_INACTVE UE vivo CR Rel-16 36.331 16.5.0 4701 - A NR\_newRAT-Core

Other

R2-2108616 Adding RRC processing delay for HO from E-UTRA to NR Huawei, HiSilicon CR Rel-15 38.331 15.14.0 2784 - F NR\_newRAT-Core

R2-2108617 Adding RRC processing delay for HO from E-UTRA to NR Huawei, HiSilicon CR Rel-16 38.331 16.5.0 2785 - A NR\_newRAT-Core

R2-2108373 Correction on plmn-IdentityList ZTE Corporation, Sanechips CR Rel-15 38.331 15.14.0 2772 - F NR\_newRAT-Core

R2-2108374 Correction on plmn-IdentityList(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.5.0 2773 - A NR\_newRAT-Core

# 2 Contact Points

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

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
| Apple(rapporteur) | Zhibin Wu | zhibin\_wu@apple.com |
| Qualcomm | Mouaffac Ambriss | [mambriss@qti.qualcomm.com](mailto:mambriss@qti.qualcomm.com) |
| Ericsson | Antonino Orsino | antonino.orsino@ericsson.com |
| MediaTek | Felix Tsai | chun-fan.tsai@mediatek.com |
| CATT | Jing Liang | liangjing@catt.cn |
|  |  |  |

# 3 Discussion

It has been noticed that [1-3] are not about RRC Release, so the rapporteur makes a separate section for those documents.

## 3.1 RRC Resume by NAS triggers

This topic is from the following contributions[1][2][3] which discuss the issue on whether AS layer need check T302 timer running when upper layer trigger RRC resume w/o providing access category and access identity.

[1] R2-2107617 Discussion on RRC handling of NAS triggers not subject to UAC Apple discussion Rel-15 NR\_newRAT-Core

[2] R2-2107618 T302 check when NAS triggers RRC connection resume Apple CR Rel-15 38.331 15.14.0 2734 - F NR\_newRAT-Core

[3] R2-2107619 T302 check when NAS triggers RRC connection resume Apple CR Rel-16 38.331 16.5.0 2735 - A NR\_newRAT-Core

**Question 1: Do companies agree with the observation in R2-2107617 [1] that “NAS layer may trigger RRC resume without providing Access Category/Access Identity or requesting access barring check”?**

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Qcom | No | current spec seems to already cover the suggested behaviour by the CR and the changes proposed by the CRs seem unnecessary |
| Ericsson | No | Along Qualcomm’s comment, our understanding is that the current wording in the spec is already clear. On top of this, a smart UE implementation will never trigger multiple RRCResumeRequest. Further, even if the problem raised by the CR existing (we believe it doesn’t), this can be easily solved by UE implementation without the need to introduce any NBC change at this point. |
| MediaTek | Maybe | We prefer to check with CT1 first to confirm whether the observations are TRUE. |
| CATT | Maybe | We share the same view as MediaTek, maybe we can first check with CT1 |
| Huawei, HiSilicon | No | We also prefer to leave it to UE implementation. |

**Question 2: If Answer to Q1 is yes, which option do you prefer for RAN2 to handle the T302 timer checking issue for this access trigger?**

***Option 1: RAN2 confirm that T302 check is not needed for NAS layer triggers which are not subject to UAC check.***

***Option 2: RAN2 informs CT1 that NAS procedures which are not subject to UAC shall not be triggered when AS layer informs upper layer “access barring is applicable for all access categories except categories ‘0’ and ‘2’ and then CT1 can consider update its specification correspondingly.***

***Option 3: RAN2 agrees to add T302 check in RRC resume procedure for the case when UAC is not invoked.***

***Option 4: Other (please specify)***

|  |  |  |
| --- | --- | --- |
| Company | Choice | Comments |
| MediaTek |  | Suggest to confirm the issue first the discuss the solution. One alternative is just to leave it to UE implementation. |
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**Question 3: If the answers to Q2 is Option 3, do companies agree with fixing the issue as suggested by CR R2-2107618/R2-2107619?**

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| --- | --- | --- |
| Company | Yes or No | Comments |
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## 3.2 RRC Release

This topic is from the following contributions[4-8].

[4] R2-2107770 Discussion on timer expiry after RRCRelease reception NEC discussion Rel-15 NR\_newRAT-Core

[5] R2-2107771 Clarification on timer expiry after RRCRelease reception NEC CR Rel-15 38.331 15.14.0 2737 - F NR\_newRAT-Core

[6] R2-2107772 Clarification on timer expiry after RRCRelease reception NEC CR Rel-16 38.331 16.5.0 2738 - F NR\_newRAT-Core, LTE\_NR\_DC\_CA\_enh-Core

[7] R2-2107838 Correction on the Release Cause for RRC\_INACTVE UE vivo CR Rel-15 36.331 15.14.0 4700 - F NR\_newRAT-Core

[8] R2-2107839 Correction on the Release Cause for RRC\_INACTVE UE vivo CR Rel-16 36.331 16.5.0 4701 - A NR\_newRAT-Core

In [4-6], the timer expiry problem has been raised during the period between *RRCRelease* message reception and the actual RRC Release procedure.

**Question 4: Do companies agree with the proposal in [4] R2-2107770, as below?**

***Proposal 1: RAN2 confirm that:***

1. ***If T380 expires after RRCRelease reception, the UE should not initiate RRC Resume procedure.***
2. ***If T319 expires after RRCRelease reception, the UE should not perform the procedure upon going to RRC \_IDLE.***
3. ***If T316 expires after RRCRelease reception, UE should not initiate RRC re-establishment procedure.***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| QCOM | No | Should be left to UE implementation |
| Ericsson | No | In this paper the argument is that several timers are stopped upon reception of RRCRlease message. However, in the procedure part, these timers are actually not immediately stopped upon the reception of RRCRelease message, but 60 ms needs to be waited from the moment the RRCRelease message was received or optionally when lower layers indicate that the receipt of the RRCRelease message has been successfully acknowledged, whichever is earlier.  Nevertheless, the values for the timers are not really in the order to 60ms or lower, but rather in the scale of minutes, as shown below for T380.  SuspendConfig ::= SEQUENCE {  […]  t380 PeriodicRNAU-TimerValue OPTIONAL, -- Need R  […]  }  PeriodicRNAU-TimerValue ::= ENUMERATED { min5, min10, min20, min30, min60, min120, min360, min720}  Hence, T380 would never expiry while these 60ms is ongoing. Further, in theory, the timer would not even be started before these 60ms, as the UE does not really apply the message until this time is elapsed. |
| MediaTek | See comment | There is indeed small time period between receiving *RRCRelease* and go into connected mode, so we are fine to confirm P1. However, it seems not necessary to specify this transition in SPEC, it could just leave to UE implementation. |
| CATT | See comment | Left to UE implementation is one solution. If majority think the correction is needed, we can follow the majority. |
| Huawei, HiSilicon | No | Also prefer to leave it to UE implementation |

**Question 5: Do companies agree with the CR R2-2107771/R2-2107712?**

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| --- | --- | --- |
| Company | Yes or No | Comments |
| MediaTek | No |  |
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In[7][8], it has been proposed to fix the problem that the release causes for RRC\_INACTIVE UE resuming the RRC connection procedure are inconsistent in TS 36.331.

**Question 6: Do companies agree with the CR R2-2107838/R2-2107839?**

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| --- | --- | --- |
| Company | Yes or No | Comments |
| QCOM | Yes |  |
| Ericsson | Yes | It would not harm to agree on it. |
| MediaTek | Maybe | It does not really change any UE (external) behavior in our understanding |
| CATT | Yes |  |
| Huawei, HiSilicon | Yes | Acceptable to us. |

## 3.3 RRC Processing Delay

This topic is from the following contributions [9-10]

[9] R2-2108616 Adding RRC processing delay for HO from E-UTRA to NR Huawei, HiSilicon CR Rel-15 38.331 15.14.0 2784 - F NR\_newRAT-Core

[10] R2-2108617 Adding RRC processing delay for HO from E-UTRA to NR Huawei, HiSilicon CR Rel-16 38.331 16.5.0 2785 - A NR\_newRAT-Core

The CR from [9][10] proposes to add the RRC processing delay for the cases of HO from E-UTRA/(NG)EN-DC to NR in TS 38.331.

**Question 7: Do companies agree with R2-2108616/R2-2108617?**

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| --- | --- | --- |
| Company | Yes or No | Comments |
| Qcom | Yes |  |
| Ericsson | Maybe | There is no functional change, and this is purely editorial. Can be merged in the Rapporteur’s CR. |
| MediaTek | Yes | And suggest to put it in Rapporteur’s CR. |
| CATT | Yes |  |
| Huawei, HiSilicon | Yes | Proponent |

## 3.4 PLMN-IdentityList

This topic is from the following contributions [11][12]

[11 R2-2108373 Correction on plmn-IdentityList ZTE Corporation, Sanechips CR Rel-15 38.331 15.14.0 2772 - F NR\_newRAT-Core

[12] R2-2108374 Correction on plmn-IdentityList(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.5.0 2773 - A NR\_newRAT-Core

The CR from [11][12] propose Modify the field name *plmn-IdentityList* of IE *PLMN-IdentityInfoList* to *plmn-IdentityInfoList* in NR RRC spec.

**Question 8: Do companies agree with the CR R2-2108373/R2-2108374?**

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | No | The change is not needed as the procedural text to which the CR is pointing is clearly referring to the PLMN-ID of SIB1. However, if companies are eager to pursue this change, I believe that can be included in the Rapporteur’s CR. |
| MediaTek | Yes | We think it is indeed good to avoid duplicated field name although not a must. We also suggest to put it in Rapporteur’s CR. |
| CATT | Yes | It can be more clear |
| Huawei, HiSilicon | Yes | Editorial. Can be merged to rapporteur CR. |
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# 4 Conclusion

TBD.

# 5 References

[1] R2-2107617 Discussion on RRC handling of NAS triggers not subject to UAC Apple discussion Rel-15 NR\_newRAT-Core

[2] R2-2107618 T302 check when NAS triggers RRC connection resume Apple CR Rel-15 38.331 15.14.0 2734 - F NR\_newRAT-Core

[3] R2-2107619 T302 check when NAS triggers RRC connection resume Apple CR Rel-16 38.331 16.5.0 2735 - A NR\_newRAT-Core

[4] R2-2107770 Discussion on timer expiry after RRCRelease reception NEC discussion Rel-15 NR\_newRAT-Core

[5] R2-2107771 Clarification on timer expiry after RRCRelease reception NEC CR Rel-15 38.331 15.14.0 2737 - F NR\_newRAT-Core

[6] R2-2107772 Clarification on timer expiry after RRCRelease reception NEC CR Rel-16 38.331 16.5.0 2738 - F NR\_newRAT-Core, LTE\_NR\_DC\_CA\_enh-Core

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[8] R2-2107839 Correction on the Release Cause for RRC\_INACTVE UE vivo CR Rel-16 36.331 16.5.0 4701 - A NR\_newRAT-Core

[9] R2-2108616 Adding RRC processing delay for HO from E-UTRA to NR Huawei, HiSilicon CR Rel-15 38.331 15.14.0 2784 - F NR\_newRAT-Core

[10] R2-2108617 Adding RRC processing delay for HO from E-UTRA to NR Huawei, HiSilicon CR Rel-16 38.331 16.5.0 2785 - A NR\_newRAT-Core

[11 R2-2108373 Correction on plmn-IdentityList ZTE Corporation, Sanechips CR Rel-15 38.331 15.14.0 2772 - F NR\_newRAT-Core

[12] R2-2108374 Correction on plmn-IdentityList(R16) ZTE Corporation, Sanechips CR Rel-16 38.331 16.5.0 2773 - A NR\_newRAT-Core