3GPP TSG-RAN WG2 #113bis-e R2-21xxxxx

Electronic, 12th – 20th Apr, 2021

Agenda Item: 5.4.1

Source: Huawei, HiSilicon

Title: Phase 2 discussion of [AT113bis-e][006][NR15] Connection Control II

Document for: Discussion, Decision

# 1 Introduction

This document is to kick off the following email discussion:

* [AT113bis-e][006][NR15] Connection Control II (Huawei)

Scope: Treat R2-2103535, R2-2103536, R2-2104254, R2-2104255, R2-2102715, R2-2103659, R2-2103660, R2-2104267, R2-2104268, R2-2103752, R2-2103753, R2-2103754, R2-2103860, R2-2103861

Phase 1, determine agreeable parts, Phase 2, for agreeable parts Work on CRs.

Intended outcome: Report and Agreed-in-principle CRs.

Deadline: Schedule A

The plan for Schedule A is below:

A first round with **Deadline for comments Wednesday April 14 1000 UTC** to settle scope what is agreeable etc (phase 1)

A pre-final round with **Deadline for any functional and/or scope comments Monday April 19 1800 UTC.** At this point all non-agreeable parts shall be removed/excluded. (phase 2)

A final round (last 24h) for checking and smaller simplification / removal comments only including agreeable parts, with Deadline **EOM** (at this point all outcome documents need to be available in inbox with tdoc numbers).

Additional check-points etc if needed are defined by the Rapporteur. Offline discussion rapporteur must notify chairman / session chair if on-line comeback discussion is needed, if discussion doesn’t converge etc.

# Contact Information

|  |  |
| --- | --- |
| Company | Email |
| Huawei, HiSilicon | caozhenzhen@huawei.com |
| Samsung | sy0123.jung@samsung.com |
| Nokia | amaanat.ali@nokia.com |
| Apple | zhibin\_wu@apple.com |
| Qualcomm | [mambriss@qti.qualcomm.com](mailto:mambriss@qti.qualcomm.com) (Mouaffac) |
| MediaTek | Chun-fan.tsai@mediatek.com (Felix) |
| LGE | stella.choe@lge.com |
| ZTE | liu.yu3@zte.com.cn |
| Ericsson | martin.van.der.zee@ericsson.com |
| CATT | liangjing@catt.cn |
| NTTDOCOMO | tianyang.min.ex@nttdocomo.com |
| Intel | [Sudeep.k.palat@intel.com](mailto:Sudeep.k.palat@intel.com) |
| NEC | hisashi.futaki[at]nec.com |
| vivo | [tingting.zhong@vivo.com](mailto:tingting.zhong@vivo.com) |
| OPPO | duzhongda@oppo.com |

# Discussion

Companies are requested to add their comments on each of the CRs of this email discussion in the questionnaires below.

## Timer

#### Phase I discussion history

[R2-2104254](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2104254.zip) Correction on T325 Google Inc. CR Rel-15 38.331 15.13.0 2563 - F NR\_newRAT-Core

[R2-2104255](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2104255.zip) Correction on T325 Google Inc. CR Rel-16 38.331 16.4.1 2564 - F NR\_newRAT-Core

The reason for changes is:

|  |
| --- |
| After successful completion of the mobility from NR, the UE stops all timers. This means the timer T325 is stopped.  According to current standard, a UE stops deprioritisation of all frequencies or NR signalled by RRCRelease only due to T325 expiry. Since the T325 is stopped and will not expire, the UE will always keep the deprioritisationReq it received from the network. |

**Q2: Do you agree with the problem identified and the changes in R2-2104254,** **R2-2104255?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Nokia | Yes, but | Is this the only timer that needs such handling? There seems to be a need to do something but then the interoperability statement seems incorrect as it says about network implementation and that doesn’t seem right to us. |
| Huawei, HiSilicon | Yes, agree with the issue, but | Maybe the intention should be that the UE should stop deprioritizing NR frequencies when T325 is stopped. |
| Samsung | No | Nothing is broken i.e. deprioritization will be ONLY applied while T325 is running. Also, it has been from LTE so we can live w/o this change. |
| Apple | Yes with comments | Agree with the intention. But the exact change can be further discussed |
| Lenovo | No | Intention of T325 is that it shall not be stopped and let expire. Therefore, no stop conditions were specified in table 7.1.1 and proposed clarification does not make sense. |
| Qcom | Agree with the intention | I can see multiple views … open for discussion |
| MediaTek | No | Similar view as Samsung. Also, this will be a NBC change and is not acceptable to us at this stage. |
| LGE | Agree but | Similar issue was discussed in offline101 of RAN2#113.  We think T325 should keep running even after mobility from NR, so agree with the change to make T325 keep running at that mobility event.  However, the “consequences if not approved” is currently incorrect. |
| ZTE | Yes | Agree. In 38331 chapter 7.1.1 , there is no stop case for T325.  We think the key issue is whether the UE shall continue to use deprioritisationReq when handover to a RAT cell. According to the following red description in 38304, the UE continue to use deprioritisationReq when handover to a RAT cell, so we support this CR.  ------  In case UE receives *RRCRelease* with *deprioritisationReq*, UE shall consider current frequency and stored frequencies due to the previously received *RRCRelease* with *deprioritisationReq* or all the frequencies of NR to be the lowest priority frequency (i.e. lower than any of the network configured values) while T325 is running irrespective of camped RAT. The UE shall delete the stored deprioritisation request(s) when a PLMN selection is performed on request by NAS (TS 23.122 [9]).  ------ |
| Ericsson | Yes |  |
| CATT | Yes | Agree with ZTE |
| Intel | Yes | Actual change should be discussed – is this the only place or whether it should be captured as a general statement? |
| NEC | Agree with intention | regarding the handling of T325, it should be kept running after the HO from NR. The comment from Lenovo looks valid that there is no condition to stop. It would be good to clarify the T325 is the exception for the corresponding text (i.e. UE stop all timers), while it is not sure whether any change is necessary. open for further discussion |
| vivo | comments | Firstly, this case may not exist(i.e., T325 is not started and running based on the start condition). Besides, agree with Intel, the wording needs to be further discussed when T325 is indeed running. |
| OPPO | No | Agree with Lenovo |
| Sequans | Yes |  |
|  |  |  |

**Summary:**

Companies’ views are summaried below:

Yes (including those who agree with the intention): 11

No (including one with comments only): 5

First, there is a majority supporting this CR but it seems that people are not aligned on the consequence of current procedure text in specifications.

According to the information from ZTE, “In case UE receives *RRCRelease* with *deprioritisationReq*, UE shall consider… all the frequencies of NR to be the lowest priority frequency (i.e. lower than any of the network configured values) while T325 is running irrespective of camped RAT”, if T325 is stopped actually the UE will NOT deprioritize the NR frequencies any more. That is to say, the conseuqnce analyzed in the CR, “The UE does not stop deprioritisation of all frequencies or NR signalled by *RRCRelease*”, is not correct, as also commented by LGE.

Therefore, rapporteur would like to first confirm if companies are with the same understanding on the above analysis, and we can then further discuss if the UE should keep T325 running in this mobility case, in phase II discussion..

**Proposal 2a: Further discuss in Phase II if the UE will not deprioritize the NR frequencies if T325 is stopped.**

**Proposal 2b: Further discuss if the UE should keep T325 running in this mobility case, in phase II.**

#### Phase II discussion

According the phase I discussion, it seems that companies are not aligned on UE behaviors based on current specifications. Note that there is a discussion in LTE part on the same issue in AT113bis-e][201][LTE] LTE Miscellaneous R15/16 corrections.

Based on the text specified in TS 38.304 (similar description is also in TS 36.304),

|  |
| --- |
| In case UE receives *RRCRelease* with *deprioritisationReq*, UE shall consider current frequency and stored frequencies due to the previously received *RRCRelease* with *deprioritisationReq* or all the frequencies of NR to be the lowest priority frequency (i.e. lower than any of the network configured values) while T325 is running irrespective of camped RAT. The UE shall delete the stored deprioritisation request(s) when a PLMN selection or SNPN selection is performed on request by NAS (TS 23.122 [9]). |

In the informative table in 7.1.1 for timers in TS 38.331, there is no action for timer stopping.

| Timer | Start | Stop | At expiry |
| --- | --- | --- | --- |
| T325 | Upon reception of *RRCRelease* message with *deprioritisationTimer*. |  | Stop deprioritisation of all frequencies or NR signalled by *RRCRelease.* |

**Q1a: Do you agree with the following observation:**

***Observation 1: Based on current NR specifications, upon successfully completing the inter-RAT handover from NR, T325 is stopped and the UE will stop deprioritisation of all NR frequencies?***

|  |  |  |
| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Apple | No | No timer stop actions are defined in 7.1.1, so I assume the T325 is not supposed to be stopped. |
| Qcom | No | This timer is not meant to be stopped as it’s implicitly stated in the 38.304  ***.. while T325 is running irrespective of camped RAT.***  Therefore UE is not expected to stop the deprioritisation of NR frequencies till the expiry of the timer. |
| vivo | Comments | In our view, we should confirm two questions.  1. We should align the content related T325 stop condition between different parts of TS38.331.  2. whether UE should stop deprioritisation of all frequencies or NR signalled by *RRCRelease* in the successful completion of the mobility from NR case.  Regarding the first issue,  1) In the informative table in 7.1.1 for timers in TS 38.331, because there is no stop condition, so it means that if T325 is running/started, no matter under what conditions UE should not stop it. In other words, there are no possibilities for T325 to be stopped as long as T325 is started.  2) In Section 5.4.3.4, if the T325 is indeed started/running, UE indeed will stop it.  Upon successfully completing the handover, at the source side the UE shall:  1> stop all timers that are running;  Based on 1) and 2), UE’s behavior is inconsistent, so we should confirm the content related T325 stop condition between different parts of TS38.331, i.e. whether this is a stop condition for T325.  Regarding the second issue,  1) If we agree that in the successful completion of the mobility from NR case, UE should stop deprioritisation of all frequencies or NR signalled by *RRCRelease:* Then we need to define the stop condition of T325 and clarify the UE’s behavior is “ when T325 is stopped, UE should stop deprioritisation of all frequencies or NR signalled by RRCRelease”.  2) If we agree that in the successful completion of the mobility from NR case, UE should not stop deprioritisation of all frequencies or NR signalled by *RRCRelease:* Then we need to define the stop condition of T325 for this case and clarify the UE’s behavior is “ when T325 is stopped, UE should not stop deprioritisation of all frequencies or NR signalled by RRCRelease”.  3) If we agree that T325 is irrelevant to the successful completion of the mobility from NR: Then no stop condition is needed to be defined. So, if T325 is already started/running, UE should not stop T325 according to the informative table in 7.1.1 for timers in TS 38.331. Thus, UE only stops deprioritisation of all frequencies or NR signalled by *RRCRelease* after T325 expires. |
| OPPO | No | Agree with Qualcomm |
| NEC | No | our expection is that the UE keeps T325 running as the intention is to use this timer even after mobility from NR in order to deprioritize the NR for a while. This can be assumed from the corresponding text in the informative annex which does not have action for stop. |
| Huawei, HiSilicon | It seems so according to current text | “while T325 is running irrespective of camped RAT” doesn’t mean that T325 should be kept running irrespective of camped RAT. It is just a condition, and the behavior is specified in TS 38.331 which stopped T325 according to current formal text (which has higher priority than the informative text in the table).  Note that the question is to ask about the consequence of current specification, but not the intention. |
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**Q1b: Which option below do you prefer?**

***Option-1: keep the specification not changed;***

***Option-2: clarify that the UE does not stop T325 after successful completion of the inter-RAT mobility from NR.***

|  |  |  |
| --- | --- | --- |
| Company | Preferred option | Comments |
| Apple | Option 2 | It is better to be clarified to avoid confusion |
| Qcom | Option 2 | To align 38.331 with 38.304 |
| vivo | Generally Option 2 | Based on our comments in Q1a, for the second issue, we think it is more reasonable that T325 is irrelevant to the successful completion of the mobility from NR. So no stop condition is needed to be defined, if T325 is already started/running, UE should not stop T325 according to the informative table in 7.1.1 for timers in TS 38.331.  But, the wording may need further discussion. For example, add a NOTE “ if T325 is running, UE does not stop it upon successfully completing the handover” in Section 5.4.3.4. |
| OPPO | Option2 | After 2nd thought, we think some clarification in 38.331 is needed. Currently section 7.1.1 is informative i.e. the collected UE behavior supposes to be align with detail text procedure in section 5 and people should refer to section 5 for R&D and test. Since now there is discrepence, we think text in section 5 should be corrected. |
| NEC | Option 2 | unfortunately, the current spec is not entirely clear, as the procedural text says “stop all timers” and the timer hanlding on T325 is the “informative” annex.. so, clarification is necessary. |
| Huawei, HiSilicon | No strong view |  |
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## Processing delay

#### Phase I discussion history

[R2-2103860](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103860.zip) Clarification on the RRC Processing Delay Apple draftCR Rel-15 38.331 15.13.0 F NR\_newRAT-Core, TEI15

[R2-2103861](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103861.zip) Clarification on the RRC Processing Delay Apple draftCR Rel-16 38.331 16.4.1 A NR\_newRAT-Core, TEI16

The reason for changes is:

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| --- |
| Currently, RRC reconfiguration delay for SCell modification case is 10ms, but in all other CA/DC cases (i.e. SCell addition/release, SCG addition/modification/release), the delay is 16ms.  SCell modification could result in large RRCReconfiguration air-message size (e.g. due to major change in CSI configuration by the network in multiple SCells) considering the large number of SCells that the UE could support. Such large air-message require high processing in RRC and accordingly longer execution time (e.g. longer time for ASN.1 decoding).  In addition, since SCG modification also include the SCell modification, for the SCell modification case, the processing delay should be also 16ms. |

**Q7: Do you agree with the problem identified and the changes in R2-2103860,** **R2-2103861?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Nokia | No, change is NBC + RAN4 checking is required | * + The proposal is NBC and will require checking with RAN4   + Is the change coming from a real field issue that the UE cannot meet the performance? If not, we are not ready to accept to change anything. |
| Huawei, HiSilicon | No | Agree with Nokia. |
| Samsung | Yes | It seems omitted by accident and we are fine with the change. |
| Apple | Yes | Proponent of the CR |
| MediaTek | No strong view | This was intended behavior that only SCell add/release will increase the processing time at the time while we introduced NR processing delay. This follows LTE principle (from RAN4) and is due to additional PCell interruption time caused by SCell add/release.  However, we understand NR reconfiguration is quite flexible, the BW of SCell could be changed by the reconfiguration. So, we are fine with the proposal. |
| LG | No | Unless the change is justified by the RAN4/RAN5, we would like to stick to the current requirement. |
| ZTE | Yes but | First, we should clarify UE’s performance delay in case RRC reconfiguration (scell modification), it is 10ms or 16ms?  Second, if agree with this CR, LTE spec should be modified simultaneously. |
| CATT | Yes | It is acceptable |
| Ericsson | No strong view | In principle we were fine with the change but now we are not sure whether having this now is a good idea. Given that there are different understanding on this issue we prefer to leave things as they are and not have any change.  What is described by Nokia is relevant. |
| vivo | Yes | SCG modification also includes the SCell modification, so we are fine with the changes. |
| OPPO | Yes |  |
|  |  |  |

**Summary:**

Companies’ views are summaried below:

Yes: 6

No: 3

No strong view: 2

Most of companies think the change is acceptable, but some companies think the change is somewhat of NBC nature and not justified by RAN4/5.

Given that the proponent think this change concerns the implementation, rapporteur would like to suggest to further discuss this issue in phase II.

**Proposal 7: R2-2103860/R2-2103861 are further discussed in Phase II.**

#### Phase II discussion

Although there are some negative comments, given that the proponent has concerns on implementation, rapporteur would like to further check if the changes in R2-2103860/R2-2103861 are acceptable to companies or not.

**Q2a: Do you think the changes in R2-2103860/R2-2103861 are acceptable to you?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Ericsson | No | After further checking internally, we agree with the comment from Nokia and we think that we should not such change, unless is justified by some requirement given by RAN4/RAN5.  Since we are adding new requirements are this later stage the change itself is NBC and we prefer to not have it. |
| Apple | Yes | SCG modification also includes the SCG SCell modification case.  According to RRC delay requirement, SCG SCell modification has the 16ms RRC delay requirement, so it’s reasonable the SCell modification for both SCG and MCG should apply the same requirement.  The change should be regarded as the clarification. |
| Qcom | Neutral | But it makes sense the align the requirements instead of having contracdicting requirement |
| vivo | Comments | In our view, it is better to confirm it from RAN4 before we make a decision. |
| OPPO | Yes | We intend to think to align requirement is necessary. |
| Huawei, HiSilicon | No strong view |  |
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**Q2b: If the changes in R2-2103860/R2-2103861 are not agreeable, do you think an LS to RAN4 is needed?**

|  |  |  |
| --- | --- | --- |
| Company | Agree?  (Yes or No) | Comments |
| Ericsson | No | There is no need to open any discussion in RAN4. |
| Apple | Yes | We donot think it’s related to RAN4. But if companies think we should check with RAN4 first, it’d better send out the LS to RAN4. |
| Qcom |  | It’s not like a new requirement that we need to inform the RAN4 about. It’s just rectifying the 38.331 spec. |
| vivo | Yes | SCG modification also includes the SCell modification, so we had better confirm this issue from RAN4. |
| OPPO | Yes | We also fine to check RAN4 if people are reluctant to agree now in RAN2 |
| Huawei, HiSilicon |  | The problem is now it is a bit difficult to understand what can be the question to ask RAN4. |
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# Conclusion

# References

1. [R2-2103535](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103535.zip) Correction on contention resolution timer (R15) Huawei, HiSilicon CR Rel-15 38.331 15.13.0 2512 - F NR\_newRAT-Core
2. [R2-2103536](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103536.zip) Correction on contention resolution timer (R16) Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2513 - A NR\_newRAT-Core
3. [R2-2104254](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2104254.zip) Correction on T325 Google Inc. CR Rel-15 38.331 15.13.0 2563 - F NR\_newRAT-Core
4. [R2-2104255](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2104255.zip) Correction on T325 Google Inc. CR Rel-16 38.331 16.4.1 2564 - F NR\_newRAT-Core
5. [R2-2102715](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2102715.zip) Corrections to initiation upon reception of RAN paging and T380 Expiry Samsung Electronics Co., Ltd CR Rel-15 38.331 15.13.0 2476 - F NR\_newRAT-Core
6. [R2-2103659](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103659.zip) Resume of measurements during the RRC resume procedure Ericsson CR Rel-15 38.331 15.13.0 2524 - F NR\_newRAT-Core
7. [R2-2103660](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103660.zip) Resume of measurements during the RRC resume procedure Ericsson CR Rel-16 38.331 16.4.1 2525 - A NR\_newRAT-Core
8. [R2-2104267](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2104267.zip) Clarification on the abortion of RRC connection establishment Huawei, HiSilicon CR Rel-15 38.331 15.13.0 2566 - F NR\_newRAT-Core
9. [R2-2104268](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2104268.zip) Clarification on the abortion of RRC connection establishment Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2567 - A NR\_newRAT-Core
10. [R2-2103752](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103752.zip) Clarification on SCellIndex and ServCellIndex NTT DOCOMO, INC. discussion Rel-15
11. [R2-2103753](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103753.zip) Clarification on SCellIndex and ServCellIndex NTT DOCOMO, INC. CR Rel-15 38.331 15.13.0 2526 - F NR\_newRAT-Core
12. [R2-2103754](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103754.zip) Clarification on SCellIndex and ServCellIndex NTT DOCOMO, INC. CR Rel-16 38.331 16.4.1 2527 - A NR\_newRAT-Core
13. [R2-2103860](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103860.zip) Clarification on the RRC Processing Delay Apple draftCR Rel-15 38.331 15.13.0 F NR\_newRAT-Core, TEI15
14. [R2-2103861](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113bis-e\Docs\R2-2103861.zip) Clarification on the RRC Processing Delay Apple draftCR Rel-16 38.331 16.4.1 A NR\_newRAT-Core, TEI16