**3GPP TSG-RAN WG2 Meeting #112-e *R2-201xxxx***

**Online, 2–13 November 2020**

**Agenda item: 5.3.1**

**Source: MediaTek**

**Title: Report of [AT112-e][002][NR15] MAC I (MediaTek)**

**Document for: Discussion and Agreement**

# 1 Introduction

This is to summarize the outcome for the following email discussion in RAN2#112-e Meeting [1].

* [AT112-e][002][NR15] MAC I (MediaTek)

 Treat R2-20010621, R2-2010330, R2-2010679, R2-2010680, R2-2009348, R2-2009792, R2-2009793, R2-2010156, R2-2010157, R2-2010165, R2-2010166

 Intended outcome: Intermediate: Determine agreeable parts. Final: For agreeable parts, agreed CRs.

 Deadline: Intermediate deadline(s) by Rapporteur, Final: Discussion stop at Wed Nov 11, 1200 UTC

The rapporteur suggests the following two phases:

* Phase 1: collect companies’ view, by Friday 2020-10-06 12:00 UTC
* Phase 2: rapporteur provide summary report and agreeable CR for review, by Monday 2020-11-09 12:00 UTC

# 2 Contact Information

|  |  |
| --- | --- |
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| MediaTek | Guanyu Lin (guanyu.lin@mediatek.com) |
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# 3 Discussion

## 3.1 Activation of CG and DRX Inactivity Timer

[R2-2010621](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010621.zip) Activation of CG and DRX Inactivity Timer Ericsson discussion NR\_newRAT-Core

The discussion paper proposes to add the following note in clause 5.7 of TS 38.321, v 15.10.0:

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| --- |
| NOTE 1: A PDCCH indicating activation of configured grant type 2 is not considered to indicate a new transmission. |

###### Q1: Companies are invited to provide comments below:

|  |  |  |
| --- | --- | --- |
| Company | Agree as is (from which release);Agree with changes;Disagree | Detailed Comments |
| MediaTek | Agree as is (Rel-15) | We support a clarification for this case. Otherwise, there is a risk of DRX unsync due to different implementation beteeen UE and gNB. |
| Huawei, HiSilicon | Disagree | We think the specification is clear and the PDCCH activating a type 2 configured grant indicates a new transmission. |
| Xiaomi | Agree as is (Rel-15) | The NOTE states the intentded UE behaviours. |
| Samsung | Disagree | We share the view with Huawei. The issue was discussed as said in the contribution, and *drx-InactivityTimer* should be started upon reception of CG Type 2 activation. |
| Qualcomm | Agree as is (Rel-15); Can be considered for Rel-16 too | We support Proposal 1 and adding a note in MAC spec to clarify UE behavior in this case. In addition, we think the same proposal applies to DL SPS, i.e. a PDCCH indicating activation of DL SPS is not considered to indicate a new transmission. So the proposed note can be extended to the following:“Note 1: A PDCCH indicating activation of configured grant Type 2 or DL SPS is not considered to indicate a new transmission.”If agreed, the same note can be added to Rel-16 MAC spec too. |
| ZTE | Disagree | This is a NBC change for R-15. |
| Lenovo | Disagree | We share Samsung’s view that this issue was discussed and that *drx-InactivityTimer* should be started |
| LG | Agree with change (Rel-15) | In UL, S5.4.2 states conditions for triggering a new transmission or a retransmission. PDCCH indicating CG Type2 activation/deactivation does not fall into any of those conditions, which means it is neither a new transmission nor a retransmission. Thus, PDCCH indicating CG Type2 activation/deactivation should not start drx-InactivityTimer.In DL, S5.3.2.2 states the criteria for new or retransmission. According to it, PDCCH indicating DL SPS activation/deactivation is considered as netierh a new transmission nor a retransmission. Thus, PDCCH indicating DL SPS activation/deactivation does not start drx-inactivityTimer.We this the specification is clear that it is PDCCH indicating activation/deactivation of DL SPS or CG Type 2 is neither a new transmission nor a retransmission. But, considering the diverged understanding from companies, it would be helpful to have a clarification.  Suggestion: NOTE 1: A PDCCH indicating activation/deactivation of SPS or configured grant Type 2 is not considered to indicate a new transmission nor a retransmission. |
|  |  |  |

**Conclusion:**

**TBD**

## 3.2 Clarification on LCP restriction for configured grant type 1

[R2-2010330](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010330.zip) Clarification on LCP restriction for configured grant type 1 MediaTek Inc. discussion Rel-15 NR\_newRAT-Core

[R2-2010679](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010679.zip) CR on TS 38.331 for LCP restriction of configured grant type 1 MediaTek CR Rel-15 38.331 16.2.0 2272 - F NR\_newRAT-Core

[R2-2010680](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010679.zip) CR on TS 38.331 for LCP restriction of configured grant type 1 MediaTek CR Rel-15 38.331 16.2.0 2273 - A NR\_newRAT-Core

It’s proposed to add clarification for the filed description of “***configuredGrantType1Allowed*** ” for TS 38.331 v15.11.0 as follows:

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| --- |
| *LogicalChannelConfig* field descriptions |
| ***configuredGrantType1Allowed***If present, or if the capability *LCP-restriction* is not supported, UL MAC SDUs from this logical channel can be transmitted on a configured grant type 1. Otherwise, UL MAC SUDs from this logical channel cannot be transmitted on a configured grant type 1. Corresponds to 'configuredGrantType1Allowed' in TS 38.321 [3]. |

###### Q2: Companies are invited to provide comments below:

|  |  |  |
| --- | --- | --- |
| Company | Agree as is (which CR; from which release);Agree with changes;To capture it in the meeting minutes;Disagree | Detailed Comments |
| MediaTek | Agree as is (Rel-15) | The otherwise behavior (i.e. if the field *configuredGrantType1Allowed* is not present) is not specified in current RRC spec. This may cause an ambiguity whether UE is allowed to use CG type 1:* For the other three LCP restrictions in R15 (i.e., allowedSCS-List, allowedServingCells, maxPUSCH-Duration ), “not configured” means “no restriction”.
* However, the value of *configuredGrantType1Allowed is* ENUMERATED {true} (always true). So, to make this configuration useful (work as an on-off bit), UE should not be allowed to use CG type 1 if *configuredGrantType1Allowed* is not configured

To eliminate the ambiguity, we propose to update the field description for the otherwise behavior. |
| Huawei, HiSilicon | Agree as is (Rel-15) |  |
| Xiaomi | Agree with changes | We think that the UE not supporting the LCP restriction should be allowed to use the CG type-1, and not required to understand the field of configuredGrantType1Allowed. However we think that this should be clearly defined in the MAC specification (e.g. Section “5.4.3.1.2 Selection of logical channels”). |
| Samsung | Agree as is (Rel-15) | It is indeed unclear from the specification, so it is worth to clarify it. For the actual behaviour, the interpretation from MediaTek is sensible. In addition, we think that case 3 in the contribution (i.e. UE does NOT support *lcp-Restriction*, and *configuredGrantType1Allowed* is configured ) seems a wrong configuration, so should not be allowed. |
| Qualcomm | Agree as is (Rel-15);Agree with changes (Rel-16) | We agree with MediaTek’s analysis and think this change is necessary for Rel-15, because otherwise this restriction criterion is useless (by the way, there is a typo in the Rel-15 CR).For Rel-16, because *allowedCG-List* is also introduced, we think some condition needs to be added to its field description too. For example, * If *configuredGrantType1Allowed* is present, only those type-1 CGs included in *allowedCG-List* are allowed for use by the logical channel;

If *configuredGrantType1Allowed* is not present, *allowedCG-List* should not include any type-1 CG. |
| ZTE | Agree as is (Rel-15 and Rel-16) | For R-15, this is indeed an issue which is deserve being addressed.As for Rel-16 according to the Qualcomm’s comments, we think there is no need for us to have such clarification. The current logic of LCH restriction is that UE will determine whether the data from a LCH can be sent for the received UL grant by following the restriction rules one by one. |
| Lenovo | Agree as is (Rel-15) |  |
| LG | Agree with changes (Rel-15) | Case 3 in the paper is a wrong implementation. Otherwise behaviour is to cover the case where *LCP-restriction* is supported but *configuredGrantType1Allowed* is not present. For clarity, it would be better to say in detail instead of 'otherwise'.Suggestion:If present, or if the capability *LCP-restriction* is not supported, UL MAC SDUs from this logical channel can be transmitted on a configured grant type 1. If the capability *LCP-restriction* is supported and *configuredGrantType1Allowed* is not present, UL MAC SDUs from this logical channel cannot be transmitted on a configured grant type 1. Corresponds to 'configuredGrantType1Allowed' in TS 38.321 [3]. |
|  |  |  |

**Conclusion:**

**TBD**

## 3.3 Clarification on configuredGrantTimer

[R2-2009348](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009348.zip) Clarification on configuredGrantTimer Nokia, Nokia Shanghai Bell, Ericsson, LG CR Rel-15 38.321 15.10.0 0926 - F NR\_newRAT-Core

It’s proposed to add the following clarification in clause 5.4.2.1 HARQ Entity of TS 38.321 v15.10.0:

|  |
| --- |
| When *configuredGrantTimer* is started or restarted by a PUSCH transmission, it shall be started at the beginning of the first symbol of the PUSCH transmission. |

###### Q3: Companies are invited to provide comments below:

|  |  |  |
| --- | --- | --- |
| Company | Agree as is (from which release);Agree with changes;Disagree | Detailed Comments |
| MediaTek | Agree as is (Rel-15) | It makes sense to clarify the detailed timing to start the configruredGrantTimer. |
| Huawei, HiSilicon | Agree as is (Rel-15) |  |
| Xiaomi | Agree as is (Rel-15) |  |
| Samsung | Agree as is (Rel-15) | - |
| Qualcomm | Agree as is (Rel-15) | Good to clarify the timing, which currently is missing in the Rel-15 spec. |
| zte | Agree as is (Rel-15) |  |
| Lenovo | Agree as is (Rel-15) |  |
| LG | Agree as is (Rel-15) |  |
|  |  |  |

**Conclusion:**

**TBD**

## 3.4 Clarification on configured grant (re-)initialization

[R2-2009792](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009792.zip) Clarification on configured grant (re-)initialization Nokia, Nokia Shanghai Bell CR Rel-15 38.321 15.10.0 0941 - F NR\_newRAT-Core

[R2-2009793](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009793.zip) Clarification on configured grant (re-)initialization Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.2.1 0942 - A NR\_newRAT-Core

Moved from 6.1.3

Summary of change:

* Clarify in section 5.8 that the configured downlink assignments or uplink grants are configured for a BWP of a Serving Cell.
* Configured downlink assignment and uplink grant related actions are removed from section 5.9.

###### Q4: Companies are invited to provide comments below:

|  |  |  |
| --- | --- | --- |
| Company | Agree as is (from which release);Agree with changes;Disagree | Detailed Comments |
| MediaTek | Agree the first changeDisagree with the second change | We think the first change is correct. For the second change, we think the description in current spec is useful from clarity perspective and thus can be kept as it is.  |
| Huawei, HiSilicon | Disagree | The current specification text clear, and in different sections for SCells and BWPs, the UE behaviors are specified from Cells or BWPs perspective. We don’t see an improvement with the changes. |
| Xiaomi | No strong view | The current specification seems not wrong even without the proposed changes. |
| Samsung | Agree the changes in subclause 5.8 (from Rel-15);No strong view on the changes in subclause 5.8 | We are fine to have the proposed changes in subclaue 5.8 from Rel-15.For the changes in subclause 5.9, from our recollection, the same issue was discussed long ago (more than two years, I think), and then RAN2 decided to leave the text as in the current structure. In that sense, we are a bit hesistant to make these changes (assuming no room for misinterpretation), but are fine to have these changes (only) if majority wants. |
| Qualcomm | Agree with changes (both R15 and R16) | We agree the text in the two sections indeed duplicate and it is not desirable to have duplicated text. Therefore, we are fine with the changes to section 5.9 as is. However, We think a better wording for the first changes to section 5.8.1 and 5.8.2 can be “…(SPS) can be configured by RRC in a dedicated BWP for a serving cell”, because not every BWP can be configured with SPS and it is optional whether a dedicated BWP is configured with SPS. |
| ZTE | No strong view | We think this is not a critical issue. |
| Lenovo | Agree the first change (from Rel-15) |  |
| LG | Agree as is | Good to remove redundancy. |
|  |  |  |

**Conclusion:**

**TBD**

## 3.5 Clarification of timer value zero interpretation in MAC

[R2-2010165](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010165.zip) Clarification of timer value zero interpretation in MAC Ericsson, Samsung CR Rel-15 38.321 15.10.0 0968 - F NR\_newRAT-Core

[R2-2010166](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010166.zip) Clarification of timer value zero interpretation in MAC Ericsson, Samsung CR Rel-16 38.321 16.2.1 0969 - A NR\_newRAT-Core

It’s proposed to clarify in clause 3.1 of TS 38.321 v15.10.0 that a timer value of zero means the timer shall be started and immediately expire.

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| NOTE: A timer is running once it is started, until it is stopped or until it expires; otherwise it is not running. A timer can be started if it is not running or restarted if it is running. A Timer is always started or restarted from its initial value. The duration of a timer is not updated until it is stopped or expires (e.g. due to BWP switching). When the MAC entity applies zero value for a timer, the timer shall be started and immediately expire unless explicitly stated otherwise. |

###### Q5: Companies are invited to provide comments below:

|  |  |  |
| --- | --- | --- |
| Company | Agree as is (from which release);Agree with changes;Disagree | Detailed Comments |
| MediaTek | Agree as is (Rel-15) | We are fine with the change which avoids the risk of wrong timer implementation. |
| Huawei, HiSilicon | Disagree | We think the change is not needed. Even without any clarification, the timer with zero value should be implemented like this according to the existing text. The same case has been already existing since LTE, and there is no case for any misunderstanding. |
| Xiaomi | Agree as is (Rel-15) |  |
| Samsung | Agree as is (Rel-15) | - |
| Qualcomm | Agree as is (Rel-15; Rel-16) |  |
| ZTE | Agree as is (Rel-15) |  |
| Lenovo | Disagree | We don’t see a need for this change. In our understanding the specified handling of timer value of zero in 38.331, 7.1.2 applies to all timers including MAC related timers. |
| LG | Agree as is (Rel-15) |  |
|  |  |  |

**Conclusion:**

**TBD**

## 3.6 Recommended bit rate query handling at MAC Reset

[R2-2010156](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010156.zip) Recommended bit rate query handling at MAC Reset Ericsson CR Rel-16 38.321 16.2.1 0964 - F NR\_newRAT-Core

[R2-2010157](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010157.zip) Recommended bit rate query handling at MAC Reset Ericsson CR Rel-15 38.321 15.10.0 0965 - F NR\_newRAT-Core

It’s proposed to include the cancellation of a triggered Recommended bit rate query in the list of UE actions at MAC reset.

|  |
| --- |
| 5.12 MAC ResetIf a reset of the MAC entity is requested by upper layers, the MAC entity shall:1> …1. cancel, if any, triggered Recommended bit rate query procedure;

1> … |

###### Q6: Companies are invited to provide comments below:

|  |  |  |
| --- | --- | --- |
| Company | Agree as is (from which release);Agree with changes;Disagree | Detailed Comments |
| MediaTek | Agree as is (Rel-15) | The change makes sense – UE should cancel triggered procedures upon MAC reset. |
| Huawei, HiSilicon | Disagree | There is no need to reset the procedure, and actually, the procedure can be continued, which is up to UE implementation. For example, the the Recommended bit rate query has been triggered by upper layers, the procedure is not need to be reset during MAC reset, and the Recommended bit rate query can continue to be in triggered status, and wait for resource to transmit after MAC reset. Note that it is the same case in LTE since long time ago, and there is no such stop procedure and it works well., |
| Xiaomi | Agree as is (Rel-15) |  |
| Samsung | Agree with changes (Rel-15) | We think, in general, all the triggered procedures should be canceled upon MAC reset.Perhaps, RAN2 can capture all these at once, instead of listing all the procedures (also for the future maintenance), e.g.:1> cancel, if any, all the triggered procedure(s) defined in MAC (e.g. SR, BSR, PHR, etc.);  |
| Qualcomm | Agree as is (Rel-15; Rel-16) |  |
| ZTE | Disagree | Share the same view with HW |
| Lenovo | Agree with changes (Rel-15, Rel-16) | OK with the proposed change. However we would have some comments on the cover sheet for the Rel-16 CR. For example ME box should be ticked and category should be CAT A. |
| LG | Agree as is (Rel-15) | Open to discuss Samsung’s suggestion. |
|  |  |  |

**Conclusion:**

**TBD**

# 4 Conclusion

**TBD**

# 5 References

[1] RAN2 112-e Chairman Notes 2020-11-02 0800 UTC.docx