**3GPP TSG RAN WG1 Meeting #106-e R1-21xxxxx**

**E-Meeting, August 16th – August 27th, 2021**

**Agenda Item: 8.9**

**Source: Moderator (Huawei)**

**Title: Summary on Post-106-e-Rel17-RRC-09**

**Document for: Discussion and Decision**

# Introduction

This documents is to collect comments for the RRC parameters of Rel-17 WI: Additional enhancements for NB-IoT and LTE-MTC.

The draft RRC parameter list has been uploaded in the same folder: [Post\_RAN1#106-e\_Rel-17\_RRC\_NB-IoT\_eMTC\_v0.3.xlsx](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_106-e/Inbox/drafts/8.9/RRC/Post_RAN1%23106-e_Rel-17_RRC_NB-IoT_eMTC_v0.3.xlsx).

# Comments

## Support of 16-QAM for unicast in UL and DL for NB-IoT

Please input your comments:

|  |  |
| --- | --- |
| Companies | Comments |
| Ericsson | * For column “M”: What is motivation for having both “Per UE” and “NB-IoT carrier”? It seems that “Per UE” should be enough as a NB-IoT UE is only capable to transmit/receive on one carrier. * For column “K”: When the intention is to enable/disable the feature (e.g., row #2, column K), I’m under the impression that in previous releases “Enabled” has been used as “Value range”, however in this draft “Enable, disable” has been used. We are commenting on this because the new wording may give the impression that the disabling needs to be explicitly indicated, and I would like to know if that was the intention or not. I believe it will up to RAN2 to decide whether the disabling is explicit or if it can be implicitly indicated if the new IE is absent. |
| Qualcomm | Column M should be changed to “Per UE” in all cases.  In Row 7, we should refer to the existing parameter. |
| Lenovo, MotoM | * In Column A, why do we have several WI codes? E.g., [NB\_IOTenh4\_LTE\_eMTC7] * In Row 7 column 9, I am wondering for PUR MCS in PUR configuration. the TBS index for NPUSCH for PUR when 16QAM is configured. If only indicate the TBS index, how does the UE know the modulation type, for example, TBS index =17, do we need additional IE to indicate the modulation type? If not, we should use the MCS index🡪 indicate both the TBS and modulation * In Column G, we hope we can correct some parameter names, although the detail will be confirmed by RAN2, the proposed parameter names in the list will appear in the first version of coming spec. E.g., HARQ-ACK-delay |
| Moderator (Huawei) | @Ericsson, @Qualcomm, the reason to change column M to Per UE is reasonable to me, it will be updated.  @Ericsson, For comment over column K: yes, the intention is that there’s an parameter to enable the feature, without which the feature is disabled. We can follow the legacy to set the value range as Enable to be clear.  @Qualcomm, for the comment on row 7, there was discussion a little bit on this issue at the end of the meeting, there can be options to reuse the legacy field or extend the legacy field. We can add FFS on it, anyway the whole row is already in bracket.  @Lenovo, on comment for row 7, my understanding is that eNB does not need to indicate modulation, as if 16QAM is enabled, then the modulation is 16QAM. And if QPSK is to be configured eNB just does not enable 16QAM.  @Lenovo, typos in column A are corrected.  @Lenovo, could you please elaborate your comment for column G? |
| ZTE, Sanechips | For column O, the redundant bracket ‘]’ for 36.331 is not needed |
| Ericsson v007 | To ZTE: The closing bracket in column “O” seems to be correct. In our understanding the bracket opens in column “A” and closes in column “O” as to emphasize a placeholder, this because of a WA or the need of complementary agreements to confirm what has been drafted. |
| Nokia, NSB | For PUR 16-QAM parameters (row 6 & 7), not sure if this will impact 36.212 as noted in column “C”. |
| ZTE, Sanechips | In order to better understand, for row 6 and 7 in column P, It is better to add a note, e.g., to be discussed, to describe the current situation. |
| Moderator (Huawei) | @Nokia, I didn’t see the impact of rows 6&7 on 36.212 either, we can remove it for now.  @ZTE, rows 6 & 7 have been put in brackets and highlighted in yellow, which means they are still under discussion. If needed, we can also refer to this summary . |
|  |  |

## Support additional PDSCH scheduling delay for introduction of 14-HARQ processes in DL for eMTC

Please input your comments:

|  |  |
| --- | --- |
| Companies | Comments |
| Ericsson | * Same comment about column “M”. * Same comment about column “K”. * For this feature, it seems that as in legacy the name of the parameters should start with the prefix "ce". Although RAN2 will anyway decide on the final parameter names, perhaps is good to add the prefix as to do not give the impression that is not there for a reason. |
| Qualcomm | Column N should be “per UE” |
| Moderator (Huawei) | @Ericsson, prefix “ce” is added for both 14-HARQ processes and max DL TBS.  @Qualcomm, is it intended for column M? |
|  |  |

## Support a maximum DL TBS of 1736 bits as a Rel-17 optional UE capability

Please input your comments:

|  |  |
| --- | --- |
| Companies | Comments |
| Ericsson | * Same comment about column “M”. * Same comment about column “K”. |
| Qualcomm | Same comment as above. |
| ZTE, Sanechips | If maximum DL TBS of 1736 bits is supported for multicast and PUR, corresponding parameters are also needed. |
| Ericsson v007 | To ZTE:  The conclusion for max DL TBS of 1736 bits was “*It is RAN1 assumption that 1736 DL TBS feature is compatible with all other eMTC features applicable for HD-FDD Cat. M1 UEs in CE mode A*”, being the intention to reflect this conclusion as transparent as possible into the technical specifications. I think that for the moment the row that the Moderator has drafted for the “max DL TBS 1736 bits” is sufficient, and we can come back to it e.g., upon having discussed the “UE feature list” (for which we should also find a way to reflect the above in a transparent manner), specially because is not only the potential features that you cited. |
| ZTE, Sanechips | We think we already have the consensus that maximum DL TBS of 1736 bits is supported for multicast and PUR based on that conclusion. Therefore, naturally we should have the corresponding RRC parameters.  RAN2 also have discussed that. More specifically, the following agreement is achieved in RAN2 #115e-meeting:   |  | | --- | | For Max DL TBS of 1736 bits:   * The table 4.1A-1 in TS 36.306 for DL Category M1 needs to be updated to indicate 1736 bits TBS and 43008 soft channel bits. * Max DL TBS of 1736 bits can be supported for PUR. * FFS EDT support. |   Therefore, for maximum DL TBS of 1736 bits in PUR, the RRC parameter is needed to keep alignment with RAN2’s agreement and avoid the unnecessary LS or discussion in RAN1. With the similar motivation, the RRC parameter for maximum DL TBS of 1736 bits in multicast also should be added.  For the other potential features, we are open to discuss and add them. |
| Ericsson v010 | It is unclear whether the conclusion is meant to apply for “connected-mode” features or both “connected-mode and idle-mode” features. I think we missed to discuss that aspect. However, if RAN2 has agreed that “*Max DL TBS of 1736 bits can be supported for PUR*” we can respect that, but nothing has been agreed in RAN2 around multicast, and to us multicast used along with the new DL TBS of 1736 bits does not seem to be a relevant scenario that can provide significant gains as to justify the specification impacts (e.g., there might be very few UEs that implement multicast + larger TBS). Perhaps the larger TBS can be supported for connected mode features + PUR. |
| ZTE, Sanechips | In RAN1 105e meeting, ZTE already raised the issue on supporting the larger TBS for multicast and also we had the corresponding discussion. However, seems that we had the consensus that no need to discuss it due to the conclusion.  The details can be found in [R1-21xxxxx FLS1 TBS1736 DL v006 ZTE-HWHISi.docx](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_105-e/Inbox/drafts/8.9.3/R1-21xxxxx%20FLS1%20TBS1736%20DL%20v006%20ZTE-HWHISi.docx) |
| Moderator (Huawei) | @ ZTE, @ Ericsson, I understand the comments to have further configuration parameters. On the other hand, I could also understand the intention of the conclusion on whether this configuration parameter is needed or not as there’s no impact to DCI fields and etc. If eNB wants to enable max DL TBS, it just schedules TBS larger than 1000 bits as long as UE indicates support it.  As RAN2 has such discussion already, maybe we can leave the details on whether/how max DL TBS is enabled when combined with other features to RAN2. |
| ZTE, Sanechips | When the max DL TBS is supported, the corresponding RRC parameter also may have an impact on the spec, e.g., in TS36.213.  From our understanding, whether a feature can be combined with other features actually also can be determined by RAN1, e.g., 16QAM for PUR. Anyway, if we have any agreement/WA/conclusion indicating the RRC parameter has an impact on RAN1, we think this parameter should be specified at least. |
| Moderator (Huawei) | @ZTE, by “impact to DCI fields and etc”, I mean essential physical layer impact of a feature. For example, for “16QAM for PUR”, some configuration parameter is needed, because if 16QAM is enabled, the TBS range and modulation will be different and to avoid such ambiguity, a higher layer parameter is needed to align the understanding between eNB and UE. However, for max DL TBS, there will be no such ambiguity without the configuration as long as UE indicates its capability of max DL TBS.  Anyway, as you commented below, we can continue the discussion in next meeting to have a clear agreement on whether/how max DL TBS is enabled when combined with other features.  *Anyway, if we have any agreement/WA/conclusion indicating the RRC parameter has an impact on RAN1, we think this parameter should be specified at least.* |

## Others

Please input your comments for any other issues related to RRC parameters:

|  |  |
| --- | --- |
| Companies | Comments |
|  |  |
|  |  |
|  |  |

# Summary