**3GPP TSG-RAN WG2 Meeting #110e R2-20xxxx**

**Online, 1st – 12th June 2020**

**Agenda item: X.X**

**Source: MediaTek Inc,**

**Title: [Post109bis-e][939][PowSav] RRC open issues (Mediatek)**

**Document for: Discussion and decision**

# 1 Introduction

This document is to capture open issues and identify solutions as part of the following email discussion:

* [Post109bis-e][939][PowSav] RRC open issues (Mediatek)

 Address stage-3 remaining open issues. Capture identified NEW, if any, stage-3 corrections/issues from ASN.1 review.  Issues that have already been discussed and not pursued should not be brought up again.

      Intended outcome: Agreable proposals and CR for 38.331 addressing open issues

      Deadline: Next Meeting, ASN.1 review schedule

Companies are encouraged to raise new or open issues with the NR and LTE RRC CRs for power savings [1] [2] in this document. Please also note the ASN.1 review plan as outlined in [3]. Specifically, note that each new open issue must be associated with a RIL ID:

* *For any remaining WI specific issues that don’t have an associated RIL#, add a RIL comment to the ASN.1 file*

Issues are to be classified as below:

1. ***Trivial*** *e.g. editorials, commas, colon, misspelling, missing/ double spaces, italics etc.
See procedure for Class 0 and Class 1 issues below.*
2. ***Minor*** *e.g. quite straightforward changes e.g. correction/ addition of specification references or sub-clauses.
See procedure for Class 0 and Class 1 issues below.*
3. ***ASN.1 session******issue*** *e.g. ASN.1 issue e.g. related to need codes, extensibility, alternative encoding, ASN.1/ guidelines, general protocol (consistency) issue or issue affecting more than one WI*
4. ***WI session issue i****.e. an issue that is not purely ASN.1 but has some impact on functionality but only affecting a single WI.*

*Minor editorial issues (spelling error, italics, missing commas, spaces, etc.) are sent to the ASN.1 Review Rapporteur via email and need no RIL.*

# 2 Open issues/RIL for NR Power Saving RRC CR

| **ID** | **Class**  | **Section** | **Description** | **Proposed Change** | **Comments** |
| --- | --- | --- | --- | --- | --- |
| O802 | 3 | 5.7.4.2 | Accoding to RAN2#109e-bis agreement, the configuration of UAI for power saving and the reporting of UAI for power saving is CG-specific. In other word, UE reports UAI for power saving for a cell group only when the UE is configured to report the UAI for power saving for the cell group. In addition, the UAI reporting procedure for MCG and SCG are inpendently. Take the UAI of UE’s preference on DRX parameters for power saving as an example., the following wording highlight yellow should be more clear that UE is configured to provide its preference on DRX parameters for power saving for the cell group.1> if configured to provide its preference on DRX parameters of a cell group for power saving:2> if the UE did not transmit a *UEAssistanceInformation* message with *drx-Preference* for the cell group since it was configured to provide its preference on DRX parameters for power saving; or2> if the current preference on DRX parameters of the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *drx-Preference* for the cell group and timer T346a is not running:3> start timer T346a with the timer value set to the *drx-PreferenceProhibitTimer*;3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide its preference on DRX parameters of the cell group for power saving;  | 1. For UE’s preference on DRX parameters for power saving, change the following wording as below.

1> if configured to provide its preference on DRX parameters of a cell group for power saving:2> if the UE did not transmit a *UEAssistanceInformation* message with *drx-Preference* for the cell group since it was configured to provide its preference on DRX parameters of the cell group for power saving; or2> if the current preference on DRX parameters of the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *drx-Preference* for the cell group and timer T346a is not running:3> start timer T346a with the timer value set to the *drx-PreferenceProhibitTimer*;3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide its preference on DRX parameters of the cell group for power saving;2. For UE’s preference on the maximum aggregated bandwidth for power saving, the same change as above.3. For UE’s preference on the maximum number of secondary component carriers for power saving, the same change as above.4. For UE’s preference on the maximum number of MIMO layers for power saving, the same change as above.5. For UE’s preference on the minimum scheduling offset for cross-slot scheduling for power saving, the same change as above. |  |
| O803 | 3 | 5.7.4.3 | For the overheating UAI, the reported maximum number of MIMO layer is for each serving cell. We have not discussed this is for each DL BWP. | For UAI for overheating, remove “ and each DL BWP” as below.3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR1:4> include reducedMaxMIMO-LayersFR1 in the OverheatingAssistance IE;4> set reducedMIMO-LayersFR1-DL to the number of maximum MIMO layers of each serving cell ~~and each DL BWP~~ operating on FR1 the UE prefers to be temporarily configured in downlink;4> set reducedMIMO-LayersFR1-UL to the number of maximum MIMO layers of each serving cell ~~and each DL BWP~~ operating on FR1 the UE prefers to be temporarily configured in uplink;3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR2:4> include reducedMaxMIMO-LayersFR2 in the OverheatingAssistance IE;4> set reducedMIMO-LayersFR2-DL to the number of maximum MIMO layers of each serving cell ~~and each DL BWP~~ operating on FR2 the UE prefers to be temporarily configured in downlink;4> set reducedMIMO-LayersFR2-UL to the number of maximum MIMO layers of each serving cell ~~and each DL BWP~~ operating on FR2 the UE prefers to be temporarily configured in uplink; |  |
| O804 | 2 | 6.2.2 | Accoding to RAN2#109e-bis agreement, reporting a ‘feature’, the all parameters that the UE has a preference for are included. Parameters that are not included are interpreted as the UE having no preference for those parameters. So we think the following parameters should be defined as “optional” since UE may not have preference on a parameter for both DL and UL simultaneously. * reducedBW-FR1-DL-r16
* reducedBW-FR1-UL-r16
* reducedBW-FR2-DL-r16
* reducedBW-FR2-UL-r16
* reducedMIMO-LayersFR1-DL-r16
* reducedMIMO-LayersFR1-UL-r16
* reducedMIMO-LayersFR2-DL-r16
* reducedMIMO-LayersFR2-UL-r16
 | Define the following parameters as “optional”.MaxBW-Preference-r16 ::= SEQUENCE { reducedMaxBW-FR1-r16 SEQUENCE { reducedBW-FR1-DL-r16 ReducedAggregatedBandwidth OPTIONAL, reducedBW-FR1-UL-r16 ReducedAggregatedBandwidthOPTIONAL. } OPTIONAL, reducedMaxBW-FR2-r16 SEQUENCE { reducedBW-FR2-DL-r16 ReducedAggregatedBandwidthOPTIONAL, reducedBW-FR2-UL-r16 ReducedAggregatedBandwidthOPTIONAL, } OPTIONAL}MaxMIMO-LayerPreference-r16 ::= SEQUENCE { reducedMaxMIMO-LayersFR1-r16 SEQUENCE { reducedMIMO-LayersFR1-DL-r16 INTEGER (1..8) OPTIONAL, reducedMIMO-LayersFR1-UL-r16 INTEGER (1..4) OPTIONAL } OPTIONAL, reducedMaxMIMO-LayersFR2-r16 SEQUENCE { reducedMIMO-LayersFR2-DL-r16 INTEGER (1..8) OPTIONAL, reducedMIMO-LayersFR2-UL-r16 INTEGER (1..4) OPTIONAL } OPTIONAL} |  |
| O805 | 3 | 6.2.2 | In the field description for the following fields, it states that the reported value can only range up to the current active configuration when indicated to address power savings.* reducedBW-FR1-UL
* reducedBW-FR1-DL
* reducedBW-FR2-UL
* reducedBW-FR2-DL
* reducedCCsDL
* reducedCCsUL
* reducedMIMO-LayersFR1-DL
* reducedMIMO-LayersFR1-UL
* reducedMIMO-LayersFR2-DL
* reducedMIMO-LayersFR2-UL

we have discussed the issue on whether UE can indicate any preferred value within its capability for maximum aggregated bandwidth, number of carriers, MIMO layers and minimum scheduling offset, but has not reach conclusion. | Remove the following field description.The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings.The maximum number of downlink SCells can only range up to the current active configuration when indicated to address power savings.The maximum number of uplink SCells can only range up to the current active configuration when indicated to address power savings.The maximum number of downlink MIMO layers can only range up to the current active configuration when indicated to address power savings.The maximum number of uplink MIMO layers can only range up to the current active configuration when indicated to address power savings. |  |

# 3 Open issues/RIL for LTE Power Saving RRC CR

| **ID** | **Class**  | **Section** | **Description** | **Proposed Change** | **Comments** |
| --- | --- | --- | --- | --- | --- |
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# 3 Conclusion

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# 4 References

1. R2-2003125 - CR for 38.331 for Power Savings
2. R2-2003126 - CR for 36.331 for Power Savings
3. R2-2003869 - Rel-16 ASN.1 review plan, phase 2