**3GPP TSG-RAN WG2 Meeting #131** **R2-250xxxx
Bengaluru, India, August 25-29, 2025**

**Agenda item: 8.5.1**

**Source: InterDigital (Rapporteur)**

**Title: [POST131][111][NES] 38.321 CR (InterDigital)**

**Document for: Discussion and Decision**

# Introduction

This document collects the comments received during the following email discussion on the MAC CR for the R19 NES work item:

**[POST131][111][NES] (InterDigital)**

 **Scope:** Update NES 38.321 CR (including this meeting agreements also).

 **Intended outcome:** 38.321 CR in R2-2506222 to be agreed.

**Deadline:** Short email discussion

## Contact information:

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| Company | Delegate Name | Email |
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# Discussion on TS 38.321 running CR

The following CR was endorsed in RAN2#131 as a baseline:

R2-2505792 Introduction of network energy saving enhancements to TS 38.321 InterDigital CR Rel-19 38.321 18.6.0 2110 - B Netw\_Energy\_NR\_enh-Core

**Endorsed and considered as baseline for further discussion.**

In the CR draft uploaded to this email discussion, the endorsed CR is updated to capture these agreements:

* SIB 1 request is supported for both SUL and NUL.
* Option 1b (a same featureCombinationPreamblesList-r17 applies to both legacy and additional RACH, and R2 keep the conclusion, allow mixing of CE feature and non-CE feature in the same RACH-ConfigCommon, and clarify in the MAC spec that if CE is applicable for random access procedure and RACH-ConfigCommon associated with selected random access resource set includes additional RO, UE does not use additional RO configured in this RACH-ConfigCommon.) is agreed.
* TP in R2-2505789 is baseline for MAC update.

For ease of tracking, the following two changes are added to the endorsed version to capture these agreements:

In section 5.1.1b:

1> if the Random Access procedure was initiated by SI request, SIB1 request, reconfiguration with sync, beam failure recovery, LTM Cell Switch, a PDCCH order for an LTM candidate cell, or a PDCCH order with the *PRACH association indicator field* in DCI set to 1; or

1> if Msg1 repetition is applicable for the current Random Access procedure:

2> PRACH occasions configured by *addlRACH-Config-Adaptation* in *RACH-ConfigCommon* of a set of Random Access resources are not applicable for this Random Access procedure.

1> else:

2> PRACH occasions configured by *addlRACH-Config-Adaptation* in *RACH-ConfigCommon* of a set of Random Access resources are applicable for this Random Access procedure, if available (as specified in TS 38.213 [6] and 38.212 [9]).

In section 5.15.1:

1> if *initialDownlinkBWP-RedCap* is configured:

2> if the Random Access procedure was initiated for SI request or SIB1 request (as specified in TS 38.331 [5]) and the Random Access Resources for SI request have been explicitly provided by RRC, and if the selected carrier is SUL carrier:

3> monitor the PDCCH on the BWP configured by *initialDownlinkBWP*.

2> else:

3> monitor the PDCCH on the BWP configured by *initialDownlinkBWP-RedCap*.

Companies can provide comments and suggestions to the uploaded draft CR in this table. Please do not add changes, suggestions, or comments directly to the draft CR document.

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| Company + Issue Number (e.g., ID001) | Issue | Comments and proposed changes |
| Sharp 001 | For the addition in section 5.15.1, the RedCap UE behaviour is for RRC\_IDLE/INACTIVE mode and *initialDownlinkBWP-RedCap* is included in SIB1, then when the UE requests OD-SIB1, the *initialDownlinkBWP-RedCap* has not been derived or was invalid. | The addition in section 5.15.1 could be removed.[Rapp]: Please refer to the comment under Eri005 |
| Sharp 002 | Description on how to handle On-demand SSB Activation/Deactivation MAC CE when MAC entity receives it is missing.RRC layer applies corresponding RRM measurement procedures based on OD-SSB status, and physical layer needs to know OD-SSB status to decide how to receive SSB, so the MAC entity should indicate to RRC layer and physical layer when the MAC CE is received. | Add a subsection to describe how to handle On-demand SSB Activation/Deactivation MAC CE.5.18.x On-demand SSB Activation/DeactivationThe network may activate and deactivate the configured on-demand SSB by sending the On-demand SSB Activation/Deactivation MAC CE described in clause 6.1.3.x. The MAC entity shall:1> if the MAC entity receives an On-demand SSB Activation/Deactivation MAC CE:2> indicate to upper layers the information regarding the On-demand SSB Activation/Deactivation MAC CE;2> indicate to lower layers the information regarding the On-demand SSB Activation/Deactivation MAC CE.[Rapp]: added in v2. |
| ERI 001 | The cover page should include the CR numbers for the mega capability CRs, i.e., 38.306 and 38.331 | [Rapp]: added in v3. |
| ERI 002 |  |  |
| ERI 003 | The name of the parameter *ra-SIB1PreambleStartIndex* should be replaced with *sib1-RA-PreambleStartIndex* to align with the 38.331 CR.  | [Rapp]: name replaced in v3. |
| ERI 004 | The name of the parameter *rsrp-SIB1ThresholdSSB* should be replaced with *sib1-rsrp-ThresholdSSB* to align with the 38.331 CR.Should *rsrp-ThresholdSSB-SUL* also be captured in this section? | [Rapp]: name replaced in v3. |
| ERI 005 | Regarding Sharp’s first comment above: isn’t it possible that a RedCap UE might have acquired OD-SIB1 at some point earlier in time and this is now about a new request? Then shouldn’t we capture the highlighted part as proposed by the rapporteur?One should also consider the following update in that case:if the Random Access procedure was initiated for SI request or SIB1 request (as specified in TS 38.331 [5]) and the Random Access Resources for SI request or SIB1 request have been explicitly provided by RRC, and if the selected carrier is SUL carrier: | [Rapp]: I have re-added it, for that possibility that UE already has a previous SIB1. In any case it does do no harm, as the else branch afterwards (when the UE does not have *initialDownlinkBWP-RedCap* configured) results in selecting  |
| ERI 006 | The name of the parameter *addlRACH-Config-Adaptation* should be replaced with *addlRACH-Config-Adapt* to align with the 38.331 CR. | [Rapp]: name replaced in v3. |
| ERI 007 | Same as above for: *ra-AssociationPeriodIndexSib1* => *sib1-RA-AssociationPeriodIndex* | [Rapp]: name replaced in v3. |
| ERI 008 | Same as above for: *ra-ssb-OccasionMaskIndexSib1* => *sib1-RA-SSB-OccasionMaskIndex* | [Rapp]: name replaced in v3. |
| ERI 009 | Please check for similar others above. |  |
| ERI 010 | The highlighted part should not be italic:1> if the Random Access procedure was initiated by SI request, SIB1 request, reconfiguration with sync, beam failure recovery, LTM Cell Switch, a PDCCH order for an LTM candidate cell, or a PDCCH order with the *PRACH association indicator field* in DCI set to 1; or | [Rapp]: fixed in v3. Thank you! |

# Open Issue List

MAC Issue 1: RA-RNTI for PRACH adaptation (described in LS R1-2506587)

Additional open issues.

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| OPPO | For the issue touched by Sharp001 and ERI005:1> if *initialDownlinkBWP-RedCap* is configured:2> if the Random Access procedure was initiated for SI request or SIB1 request (as specified in TS 38.331 [5]) and the Random Access Resources for SI request have been explicitly provided by RRC, and if the selected carrier is SUL carrier:3> monitor the PDCCH on the BWP configured by *initialDownlinkBWP*.2> else:3> monitor the PDCCH on the BWP configured by *initialDownlinkBWP-RedCap*.1> else:2> monitor the PDCCH on the BWP configured by *initialDownlinkBWP*.There seem some unclear point to support OD-SIB1 request / response via Redcap-specific BWP:1) Currently there is no Redcap-specific OD-SIB1 request configuration specified in SIBx, is this paragragh to hint there might be OD-SIB1 response may rely on PDCCH configured in Redcap-specific initial DL BWP?2) If so, i.e., when *initialDownlinkBWP-RedCap* is configured (after SIB1 acquisition), UE is supposed to rely on PDCCH configured on *initialDownlinkBWP-RedCap*. Then from network perspective, upon reception of a SIB1 request, it has no idea whether it is from a UE has acquired SIB1, or a UE has not. And then it is hard to decide which PDCCH to use for response, the one for *initialDownlinkBWP* or the one for *initialDownlinkBWP-RedCap*.[Rapp]: added MAC issue 2. |
| Offino | DRX section 5.7 of TS 38.321 defines the RNTIs for UE’s PDCCH monitoring. In our understanding, the new RNTI for SSB burst periodicity adaptation (i.e., *adap-ssbPeriodicityIndication-RNTI*) should also be added here (as otherwise the UE would be expected to monitor *adap-ssbPeriodicityIndication-RNTI* also during OFF duration/inactive time of the DRX cycle which would increase the UE’s power consumption).[Rapp]: I have summarized this as MAC issue 3. For this one, I will propose capturing this part of the miscellaneous corrections rapporteur CR as follows:5.7 Discontinuous Reception (DRX)The MAC entity may be configured by RRC with a DRX functionality that controls the UE's PDCCH monitoring activity for the MAC entity's C-RNTI, CI-RNTI, CS-RNTI, INT-RNTI, SFI-RNTI, SP-CSI-RNTI, TPC-PUCCH-RNTI, TPC-PUSCH-RNTI, TPC-SRS-RNTI, AI-RNTI, SL-RNTI, SL-CS-RNTI, SL-PRS-RNTI, SL-PRS-CS-RNTI, SL Semi-Persistent Scheduling V-RNTI, cellDTRX-RNTI, and *adap-SSBPeriodicityIndication-RNTI*. When using DRX operation, the MAC entity shall also monitor PDCCH according to requirements found in other clauses of this specification. When in RRC\_CONNECTED, if DRX is configured, for all the activated Serving Cells, the MAC entity may monitor the PDCCH discontinuously using the DRX operation specified in this clause; otherwise the MAC entity shall monitor the PDCCH as specified in TS 38.213 [6].This follows the same conclusion as the cell-DTX-RNTI monitoring with C-DRX in R18. Note that R1 also agreed that:

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| **Agreement**For adaptation of SSB in time-domain, for DCI 2\_9-based SSB burst periodicity adaptation for an SCell, * The DCI is scrambled a new RNTI,
	+ Same search space and DCI size as that of cell DTX/DRX DCI if gNB configures both
 |

Since the same search space is used for monitoring both the DCI with cell DTX/DRX RNTI (cellDTRX-RNTI) and the DCI with adap-SSBPeriodicityIndication-RNTI, the same monitoring behavior as that of cell DTX/DRX DCI makes sense during C-DRX. |
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# Conclusion

The running CR is updated considering the comments above. The approved version is in R2-2506571

In addition, the rapporteur has identified the following two open issues for MAC that can be addressed in company contributions:

**MAC Issue 1**: RA-RNTI for PRACH adaptation (described in LS R1-2506587)

**MAC issue 2:** whether "initialDownlinkBWP-RedCap" can be configured before SIB1 request procedure (e.g. acquired by UE earlier) and can be used for PDCCH monitoring. If so, can the network know that for a redcap UE performing an OD-SIB1 request.

Further, the rapporteur proposed capturing a resolution for the following open issue part of the miscellaneous corrections rapporteur CR. Companies need not address this in their contribution.

**MAC Issue 3**: Monitoring adap-SSBPeriodicityIndication-RNTI during C-DRX