3GPP TSG-RAN WG3 Meeting #122 R3-237872

**Chicago, US, 13-17 Nov, 2023**

**Agenda Item: 24.2**

**Source: Huawei**

**Title: Summary of offline discussions on CB: # EnergySaving**

**Document for: Discussion and approval**

# 1 Introduction

**CB: # R18ES**

**- Discuss the open issues above**

**- Provide TPs if agreeable**

(moderator - HW)

Summary of offline disc [R3-237872](file:///C%3A%5CUsers%5CERANISI%5CAppData%5CLocal%5CTemp%5CMicrosoftEdgeDownloads%5C53f43fac-7ce2-4bed-8a77-590684a2417e%5CInbox%5CR3-237872.zip).

# 2 List of proposals to be discussed at online session

Inter-node beam activation

Proposal 1: For network energy saving cause for SSB deactivation, the cell level cause value is signalled from the DU to the CU, and the CU to DU, and Xn. Specifically,

- Over XnAP, the network saving cause is included in the Coverage Modification Cause IE.

- Over F1AP, the network saving cause is included in the Coverage Notification Indication IE in the gNB-DU Configuration update response message, and the CCO Assistance Information IE in the gNB-CU configuration update request message.

Proposal 2: The following TPs are agreed.

* TS 38.423 TP in R3-237891 (revision of R3-237227)
* TS 38.473 TP in R3-237894 (revision of R3-237516)
* TS 38.300 TP in R3-237892 (revision of R3-237662)
* TP 38.470 TP in R3-237890 (revision of R3-237226)
* TP 38.420 TP in R3-237893 (revision of R3-237619)

Proposal 3: The R18 NES WI is completed.

# 3 Discussion

The following provides agreements/open issues after online discussion.

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| Paging enhancements**Confirm the support of the paging enhancement (including subset of beam list) for RRC inactive UE for RAN paging within the gNB.** Work on stage 2 TP considers to add texts on paging fallback case.**No support the paging enhancement for RRC idle UE at this release.****No reply LS is needed to SA2.****No support for the XnAP RAN paging support for RRC inactive UE at this release****For TP for TS38.470, highlight the paging enhancement for RRC inactive UE, and delete the editor’s note**Cell DTX/DRX**Cell DTX/DRX configuration exchange over Xn is not supported in R18.**Inter-node beam activationProposal 1: For network energy saving cause for SSB deactivation * Over XnAP, the network saving cause is included in the Coverage Modification Cause IE
* Over F1AP, the network saving cause is included in the Coverage Notification Indication IE in the gNB-DU Configuration update response message, and the CCO Assistance Information IE in the gNB-CU configuration update request message
* The Beam level cause value is signalled from the DU to the CU, and the CU to DU, and Xn.

Nok: Need more time to check the direction from CU to DU**Change the presence of SSBs Activated List in the Tabular to be “0..1” in the CELL ACTIVATION RESPONSE message for XnAP.**For TS 38.300, move the inter-node beam activation section into intra-system energy saving sectionTo have TP for TS 38.420. Two options for the SSB deactivation for the CU/DU case:* Option 1: The gNB-CU controls deactivating SSBs due to Network Energy Optimization and sends request to the DU, then the DU makes final decision.
* Option 2: The DU itself determines deactivating SSBs without assistance information from the CU.

ZTE: Prefer Opt2, not ready to accept that CU to control the SSB level configurationSS, E///, Nok: Prefer Opt1, CU has full picture, CU just send the cell list towards DUHW, CATT: Both options have pros and cons**CU sends the allowed cell list towards DU as assistance information to help UE make the final decision on deactivating SSBs. The assistance information is optional.** |

## 3.1 Paging enhancements

There are some comments to further the check the stage 2 TP.

* **Confirm the support of the paging enhancement (including subset of beam list) for RRC inactive UE for RAN paging within the gNB.**
* Work on stage 2 TP considers to add texts on paging fallback case.

The TP author can put the TS 38.300 TP under the draft folder, so that people can make comments/revisions directly.

Question: If you have any further comments, please provide your comments below.

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| **Company** | **Comment** |
| Ericsson | In principle fine with what we said discussed during offline. Will check |
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Moderator summary:

* The stage 2 TS 38.300 TP can be agreed.

## 3.2 Inter-node beam activation

The proposal discussed online is copied below.

Proposal 1: For network energy saving cause for SSB deactivation

* Over XnAP, the network saving cause is included in the Coverage Modification Cause IE
* Over F1AP, the network saving cause is included in the Coverage Notification Indication IE in the gNB-DU Configuration update response message, and the CCO Assistance Information IE in the gNB-CU configuration update request message
* The Beam level cause value is signalled from the DU to the CU, and the CU to DU, and Xn.

There are some online comments that the energy cause value from the CU to the DU (included in the CCO Assistance Information IE in the gNB-CU configuration update request message) needs to be further checked. Also, there are comments to either have an end-to-end solution or have nothing related to the energy saving cause value.

Question: For the above proposal, please provide your comments below.

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| **Company** | **Comment** |
| Ericsson | In our view, to support it, we would need to have the three components in place as we early discussed:DU->CU (F1)CU->CU (Xn)CU -> DU(F1) |
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Moderator summary: the proposal can be agreed

Proposal 1: For network energy saving cause for SSB deactivation, the Beam level cause value is signalled from the DU to the CU, and the CU to DU, and Xn. Specifically,

- Over XnAP, the network saving cause is included in the Coverage Modification Cause IE

- Over F1AP, the network saving cause is included in the Coverage Notification Indication IE in the gNB-DU Configuration update response message, and the CCO Assistance Information IE in the gNB-CU configuration update request message

There are some comments to check the stage2 TPs.

* For TS 38.300, move the inter-node beam activation section into intra-system energy saving section
* To have TP for TS 38.420.

The TP author can provide and upload the TPs into the draft folder, so that people can comment/revise directly.

Question: if you have any other further comments, please provide your comments below.

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| **Company** | **Comment** |
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Moderator summary:

* The stage 2 TPs can be agreed.

## 3.3 NES CHO

For network energy saving conditional CHO, currently RAN3 is not indicated as the impacted WGs in the NES WID in RP-230566.

There are two related proposals at this meeting as follows.

* Proposal 1: In TS 38.401, update the CHO procedure to specify that a L1 signalling is used to trigger the evaluation of execution condition of NES CHO.
* Proposal 2: In TS 38.473, the source gNB-CU can indicate to the source gNB-DU that the UE is configured with NES-specific CHO configuration(s) via a NES CHO indicator.

Question: Please provide your comments below.

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| **Company** | **Comment** |
| Ericsson | We think RAN3 spec should not be impacted by this. |
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Moderator summary:

* This issue can be contribution driven since RAN3 is not the impacted WG.

## 3.4 TPs/LS

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| Stage 3 TPs | XnAP: HuaweiF1AP: Ericsson |
| Stage 2 TPs | TS 38.300 TP: ZTETS 38.470 TP: HuaweiTS 38.420 TP: CATT |

## 3.5 Completion of NES WI

**Proposal:** The R18 NES is completed in RAN3.

Question: if you have **different** view, please provide your comments below.

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| **Company** | **Comment** |
| Ericsson | Agree |
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# 4 References

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| [R3-237145](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237145.zip) | Reply LS on paging (RAN2(Huawei)) | LS in |
| [R3-237226](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237226.zip) | (TP to BLCR for TS 38.473, 38.401, 38.470 and 38.300) Finalizing network energy saving techniques (Huawei, Deutsche Telekom) | OtherResp in [R3-237733](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237733.zip) |
| [R3-237227](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237227.zip) | (TP to BLCR for TS 38.423) Finalizing network energy saving techniques (Huawei) | other |
| [R3-237327](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237327.zip) | Discussion on network energy saving (Samsung) | discussion |
| [R3-237328](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237328.zip) | Introduction of Network Energy Saving for Paging IDLE UE (Samsung) | CR1037r, TS 38.413 v17.6.0, Rel-18, Cat. B |
| [R3-237398](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237398.zip) | (TP to BL CR for TS 38.423) Cell DTRX in Network Energy Saving (Ericsson) | other |
| [R3-237451](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237451.zip) | (TP to TS 38.423) Discussion on Paging in Subset of Beams and Inter-node Cell DTX/DRX Configuration (Nokia, Nokia Shanghai Bell) | other |
| [R3-237452](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237452.zip) | (TP to TS 38.473) Beam deactivation decision and signalling for energy saving (Nokia, Nokia Shanghai Bell) | other |
| [R3-237460](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237460.zip) | Open issues on NES techniques (Qualcomm Incorporated) | discussion |
| [R3-237516](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237516.zip) | Introduction of Network Energy Saving (Ericsson) | Otherok |
| [R3-237660](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237660.zip) | Discussion on network energy saving (ZTE) | discussion |
| [R3-237661](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237661.zip) | TP to BL CR of XnAP for Cell DTX-DRX (ZTE) | other |
| [R3-237662](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237662.zip) | TP to BLCR of 38.300 for network energy saving (ZTE, Samsung, Ericsson, Qualcomm Incorporated) | other |
| [R3-237618](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237618.zip) | (TP to NES BL CR for TS38.423) Discussion on inter-node beam activation and cell DTXDRX for NES (CATT) | OtherLate contribution |
| [R3-237619](file:///C%3A%5CUsers%5Cp_hanfeng%5CDesktop%5C3GPP-Chicago%5CRAN3-122%5CDocs%5CR3-237619.zip) | TP to NES BLCR for TS 38.420 (CATT) | OtherLate contribution |