3GPP TSG-RAN WG2#124 R2-23XXXXX

Chicago, US, 13 – 17 November, 2023

Agenda Item: x.xx.x

Source: Huawei, HiSilicon

Title: Report of [POST123bis][021][NES] 38.331 Running CR (Huawei)

Document for: Discussion and decision

# 1 Introduction

This document is the report of the following discussion:

* [POST123bis][021][NES] 38.331 Running CR (Huawei)

Scope:

- Review running CR

- Identify open issues

- Get inputs for subset of open issues (focus more detailed open issues that would help with CR finalisation).

 Deadline: long (Oct. 27th 1000 UTC)

The intention of this discussion is to provide a running RRC CR for NES and discuss the remaining open issues that need resolving to finalise the CR.

 **Please provide your comments by Thursday October 26th 10:00 UTC to allow 24h for the rapporteur to prepare a summary and update the CR.**

Companies providing input to this email discussion are requested to leave contact information below.

|  |  |  |
| --- | --- | --- |
| **Company** | **Delegate name** | **Email address** |
| Apple | Peng Cheng | pcheng24@apple.com |
| Nokia | Jarkko Koskela | jarkko.t.koskela@nokia.com |
| Xiaomi  | Shukun Wang | Wangshukun3@xiaomi.com |
| Samsung | Byounghoon Jung | bh14.jung@samsung.com |
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# 2 Running RRC CR for NES

The running RRC CR for NES is provided in the discussion folder. Please don’t change the CR text or insert comments to the CR file. Please use the table below for comments and suggestions on procedures or wording changes for clarity of the CR tdoc. If you want to highlight several issues please use numbers, i.e. “issue 1)”, “issue 2)” etc. so it is easier for the rapporteur to respond.

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| **Company** | **Detailed comments** | **Rapporteur response** |
| Apple | Description of ***cellDTXDRX-CycleStartOffset:******cellDTXDRX-CycleStartOffset****cellDTXDRX-Cycle* in ms and *cellDTXDRX-StartOffset* in multiples of 1 ms.*cellDTXDRX-Cycle* is an integer multiple of *drx-longCycle* of all UEs in a cell or vice versa.We think it is weird to use "all UEs in a cell" because such description is from NW perspective but TS 38.331 is actually from UE perspective. Maybe it can be modified to:" The configured *cellDTXDRX-Cycle* is an integer multiple of configured *drx-longCycle* ~~of all UEs in a cell~~ or vice versa." |  |
| Nokia | 1. “capable of NES cell DTX/DRX” – maybe we could refer to UE capability here i.e. “the UE does not support XXX” to be exact and avoid misinterpretation
2. NOTE2 in 5.2.2.4.1 is not needed as behaviour is captured in SIB1 reception, right?
3. “perform cell reselection to other…” is not needed in 5.2.2.4.2 as the behaviourr is described in 38.304 which is already referred from previous bullet

5.3.5.13.3 – “if one event within” – I guess we should not limit that only a event can be associated with NES trigger? Thus maybe follow similar wording as for regular CHO e.g. “if event(s) associated to all *measId*(s) within *condTriggerConfig* for a target candidate cell within the stored *condRRCReconfig* are fulfilled and associated conditional event is configured with *NEScondExecutionCond*”. 1. Then existing bullet for regular CHO “2> if event(s) associated to all *measId*(s) within *condTriggerConfig* for a target candidate cell within the stored *condRRCReconfig* are fulfilled:”- Shouldn’t there be limitation not to be triggered if event is associated with N*EScondExecutionCond? e.g. by adding in the* end “and associated conditional event is not configured with N*EScondExecutionCond*:”
2. L1 trigger bullets “3>” Not following logic here. Could you elaborate how do you consider this works? Shouldn’t this be so that while condition is fulfilled and L1 trigger is received then UE triggers CHO execution? Then what happens if L1 trigger is received no cell fulfllls the criterion? Shouldn’t re-establishment be started in that case?
3. Instead of adding NEScondExecutionCondinto condReconfigToAddMod wouldn’t it be simpler to add it directly to CondTriggerConfig. Then there is no need to configure measId as it is directly linked to event.
 |  |
| Xiaomi  | 1. In “*CondReconfigToAddModList*”:

NEScondExecutionCond-r18 INTEGER (1..2) should be changed as “NEScondExecutionCond-r18 SEQUENCE (SIZE (1..2)) OF MeasId”1. In section 5.3.5.13.4 Conditional reconfiguration evaluation

2> for each *measId* included in the *measIdList* within *VarMeasConfig* indicated in the *condExecutionCond* or *condExecutionCondSCG* or *NEScondExecutionCond* associated to *condReconfigId:*or *NEScondExecutionCond is missing*1. In section 5.3.5.13.4 Conditional reconfiguration evaluation

More events as legacy CHO should be allowed.I am confused with the L1 command for NES CHO,Option 1: L1 command will trigger the CHO configuration evaluation or execution?Option 2: CHO configuration evaluation is performed once receive the configuration, only when NES CHO meeting the condition and L1 command is received, then perform CHO execution?Which understanding is correct??1. For “*ServingCellConfigCommon*” to configure cellDTXDRX-Config

In this case, how to configure the PCell’s cellDTXDRX?I also confused with this configuration, in my understanding, the agreement we made in last RAN2 meeting means to configure the cell DTX/DRX in MAC configure, and at most two cell DTX/DRX will be configured and one serving cell will associate one of them. If no, how to restrict the at most “two” cell DTX/DRX? |  |
| Samsung | **Issue 1) definition of NES UE w.r.t. barring.** We believe that the agreement is barring ‘at least cell DTX/DRX’, not limiting the barring for only cell DTX/DRX. Hence, if we maintain the current modification, along with the future RAN2 progress, there could be possibility of having multiple NES barring behaviors and parameters in the RRC w.r.t. additional features of NES, such as spatial/ power/ bw domain etc. So we suggest 1. to maintain the architecture on cell barring as the previous version, with simply adding a note that this is at least for UE supporting cell DTX/DRX.
2. or just delete ‘(not) supporting cell DTX/DRX’ from the current version and adding a note that this is at least for UE supporting cell DTX/DRX.

**Issue 2) NEScondExecutionCond.** We understand the proposed CR for CHO triggering is using one condReconfigId to handle both NES CHO (if NEScondExecutionCond indicated) and regular CHO (if NEScondExecutionCond not indicated). However, the proposed architecture cannot specify a case if a network wants to configure a single condReconfig having two MeasId conditions as a condExecutionCond for the NES CHO, so we have a concern that this is the intended behaviour. Instead, we propose NEScondExecutionCond to be a simpler flag of on/off, such as ‘ENUMERATED {true}’ Then, we can also eliminate the second bullet “3>” for regular CHO.**Issue 3) L1 trigger signal reception**Here we understand ‘L1 trigger signal’ = ‘one bit in the received DCI2-9 that indicates to trigger NES CHO’.In general RRC does not specify received L1 signal directly, so we propose to change as follows: ‘if the L1 trigger signaling is received’ 🡪’if the NES CHO triggering is indicated by lower layers’. Here the ‘NES CHO triggering’ denotes the ‘RAN2 agreed one bit in the received DCI2-9 that indicates to trigger NES CHO’ and may include this detail as a Note. **Issue 4) Architecture of NES CHO trigger config.** With the above changes, the bullets of “3>” could be simplified as: 3> if the NES CHO triggering is indicated by lower layers and the event configured with *NEScondExecutionCond* is fulfilled; 4> consider the target candidate cell within the stored *condRRCReconfig*, associated to that *condReconfigId*, as a triggered cell;4> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5; |  |
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# 3 Identified open issues

The rapporteur identifies the following open issues that need resolving to finalise the CR:

## 3.1 CHO agreement implementation in RRC

In [3] the rapporteur identified a following open issue:

**Issue 4-2: Configuration details for the NES specific CHO execution condition (e.g. whether to add a new offset/threshold or flag to existing CHO events, or add a separate list of MeasIds for NES CHO events).**

RAN2 has agreed to have the NES specific CHO execution condition. How to implement it in the configuration is not decided. At RAN2#123-bis the following options were discussed:

* add a new offset/threshold
* add a flag to existing CHO events
* add a separate list of MeasIds for NES CHO events

After the discussion at RAN2#123-bis, the following was recommended:

=> **the rapporteur will recommend something simple** in email discussion and get company inputs if there are any issues

Thus, the rapporteur has implemented the TP from [4], which was discussed online and had support from other companies. As per Chair’s guidance please indicate in the table below only if you have a real concern and have identified a serious issue with what has been implemented.

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| **Company** | **Comments** |
| Nokia | Simplest seems to be to have this just per CondTriggerConfig – this allows maximum flexibiliyt wihtout needing any measId mapping etc.. |
| Xiaomi  | Agree with Nokia |
| Samsung | We suggest that NEScondExecutionCond to have just a simple flag, ‘ENUMERATED {true}’. It is not clear whether each condition A3 to A5 should be modified to have additional parameters. It may affect existing UE implementations and we are reluctant to ruin existing conditions that may have various thresholds for various functions in the future. Conditions A3 to A5 are already configurable with different threshold values. |
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## 3.2 SSB-less SCell for inter-band CA implementation in RRC

In [3] the rapporteur identified a following open issue:

**Issue 2-1: SSB-less SCell operation impact on the RRC specification.**

Currently only impact identified for inter-band SSB-less is in the *absoluteFrequencySSB* field (“same frequency band” is currently mentioned). For further 331 spec impacts more discussion is needed. The rapporteur did not identify any RAN4 agreement related to RAN2 specs.

Companies are invited to comment or provide TPs for this issue to the table below and by contribution to RAN2#124.

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| **Company** | **Comments** |
| Apple | RAN4 sent LS to RAN2 in R4-2317307, which asks RAN2 to design signalling to support indication of which cell is the reference cell. Although RAN2 has not discussed this issue, we assume the signaling should be RRC signaling with spec change in TS 38.331. Because RAN2 has not discussed the LS, we think it is expected to be difficulty to discuss it in post-meeting email discussion. Thus, we suggest Rapporteur to list it as one open issue of RRC.  |
| Nokia | Likely we need to signal timing reference – RAN4 did not indicate how that is done. Maybe something to be discussed in future meeting. But you could add a editor’s note about open issue? |
| Xiaomi  | Agree with Apple and we can discuss it in next meeting online.  |
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## 3.3 RAN1 parameter list implementation in RRC

In [3] the rapporteur identified a following open issue:

**Issue 5-1: Implementation of RAN1 parameter list.**

The parameter list will be implemented by the RRC rapporteur and reviewed after RAN2 receives the LS. The most recent RAN1 parameter list (R1-2310692) is provided in the discussion folder for reference.

No input to this table is foreseen until the rapporteur provides the TP. Companies can also provide TPs for this issue by contribution to RAN2#124.

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| **Company** | **Comments** |
| Nokia | Will come back later on details of these |
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*[Rapporteur’s summary and proposals]*

# 4 Conclusion

Based on the discussion in the previous sections we propose the following:

**Proposal 1** abc

**Proposal 2** def

# 5 References

1. RP-223540, “New WID: Network energy savings for NR”, Huawei
2. 3GPP TR 38.864 V1.0.0, “Study on network energy savings for NR (Release 18)”
3. R2-2310003, “Discussion on remaining issues of the RRC CR for NES”, Huawei, HiSilicon
4. R2-2310293, “Remaining issues of NES specific CHO enhancement”, Apple