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

Chicago, US, 13 – 17 November, 2023

Agenda Item: 7.3.1

Source: Huawei, HiSilicon

Title: Report of [POST124][036][NES] 38.331 CR (Huawei)

Document for: Discussion and decision

# 1 Introduction

This document is the report of the following discussion:

* [POST124][036][NES] 38.331 CR (Huawei)

Intended outcome: Agree to CR

Deadline: 2 weeks (December 1st 10:00 UTC)

Please provide your comments by Thursday November 30th 10:00 UTC to allow 24h for the rapporteur to update the CR before the deadline.

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

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# 2 RRC CR for NES

The post-RAN2#124 RRC CR for NES, a document for providing comments and the most recent RAN1 parameter list are provided in the discussion folder. Changes from the previously endorsed CR are made as user “RAN2\_124”. 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.

Concerning the *positionInDCI-cellDTRX* parameter, after checking with RAN1 we understand that it should be signalled per serving cell and not included in the *cellDTRX-DCI-config* IE, which is signalled per cell group. Therefore, it was moved to the *ServingCellConfig* IE.

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| **Company** | **Detailed comments** | **Rapporteur response** |
| vivo | Issue 1: related to NES cell bar feature.  For the below text in section 5.2.2.4.1:  2> if the access is not for NTN or the UE is not capable of NTN or the UE is not capable of NES cell DTX/DRX; and  It is unclear whether the below UEs will consider it fulfils this condition:  The UE only support cell DTX (which means the UE is not capable of Cell DRX);  The UE only support cell DRX (which means the UE is not capable of Cell DTX).  In our understanding, if the UE neither support cell DTX or cell DRX, the UE considers it fulfils this condition (i.e., legacy UE). If this is the case, then we suggest the following:  “2> if the access is not for NTN or the UE is not capable of NTN or the UE is not NES-capable UE”.  And we can add the definition of NES-capable UEs in section 3.1 like:  **NES-capable UE:** a UE that supports NES Cell DTX/DRX as specified in clause 4.2.6 in TS 38.306 [24]. |  |
| Nokia | For above we would still prefer to directly refer to UE capability IE instead – Probably we don’t need “NES capable” definition for now but no strong view. Anyway we should refer to UE capability |  |
| Ericsson | We think the current way captured in the CR is good enough, but if something really needs to be added then we would also prefer UE capability IE reference rather than “NES capable” definition. |  |
| vivo | Issue 2: related to NES cell bar feature.  For the below text in the Running CR:  2> if *cellBarredNES* is absent in the acquired *SIB1* and the *cellBarred* in the acquired *MIB* is set to *barred*:  The condition *“*the *cellBarred* in the acquired *MIB* is set to *barred”* is not needed here as this condition will anyway be satisfied, according to the below note in the running CR:  NOTE 2: A UE capable of NES cell DTX/DRX should acquire SIB1 to determine the cell barring status when the *cellBarred* in MIB is set to *barred*. |  |
| Nokia | For above we agree with ViVo |  |
| Ericsson | We also agree with the above proposal for Issue 2 from Vivo. |  |
| vivo | Issue 3: related to NES cell bar feature.  For the below filed:  cellBarredNES-r18 ENUMERATED {notBarred}  Since there is only one codepoint, whether it should be ENUMERATED {true}? |  |
| Nokia | We prefer current coding (this is aligned with existing parameters) – if changed to TRUE then name of parameter needs to be changed to cellNotBarred-r18 |  |
| Ericsson | We also prefer the current coding, change it to TRUE can be confusing since the name of the field is actually “cellBarredNES”. |  |
| vivo | Issue 4: related to NES cell bar feature.  For the filed description of cellBarredNES-r18:  ***cellBarredNES***  Value *notBarred* means that the cell is allowed for UEs supporting NES cell DTX/DRX. If not present, the UEs supporting NES cell DTX/DRX shall follow the MIB *cellBarred* indication. This field is only applicable to UEs supporting NES cell DTX/DRX.  There is only one codepoint, so from ASN.1 precoding perspective, the UE will only check whether this field is present or not. So, we suggest to change the wording of the first sentence as follows:  “If present, the cell is allowed for NES-capable UEs.”  The last sentence seems not needed. |  |
| Nokia | Looks good proposal to us.  In addition the “if not present” sentence seems unnecessary addition – Isn’t this clear from procedural text already?  Also last sentence about applicability is not needed and could be removed – it just confuses reader as it seems to imply that procedural description is not ensuring this. |  |
| vivo | Issue 5: related to NES CHO feature.  For the filed description of nesEvent:  ***nesEvent***  Indicates the event is an NES-specific CHO event and the CHO execution condition is only considered to be satifisfied if indication from lower layers is received indicating the applicability of NES-specific CHO event. This field can only be configured for event A3, A4 and A5.  Suggest the below rewording and clarification:  *“*Indicates the event is an NES-specific CHO event and the event ~~CHO execution condition~~ is only considered to be satisfied ~~satifisfied~~ if indication from lower layers is received indicating the applicability of NES-specific CHO event and the related entry condition(s) is fulfilled. This field can only be configured for event A3, A4 and A5.” |  |
| Nokia | Looks good proposal to us |  |
| Fujitsu | Issue 6: poweroffset-r18  According to the parameters list:  *Note 3: A sub-configuration always contains at least one of 1) and 2).*  In RAN1, either parameter 1 or 2 can be included in CSI-ReportSubConfig-r18. And if parameter 1 (CSI report config) is included, 1a or 1b is also indicated. It does not intend that parameter 2 (power offset) is mandatory, shown in the current 38.214.  - A sub-configuration can be configured with a power offset provided by [*powerOffse*t].  But in the current RRC CR, the powerOffset-r18 is mandatory if the CSI-reportSubConfig is configured. Hence, it should be fixed as follows:  powerOffset-r18 INTEGER(0..23) OPTIONAL, -- Need R |  |
| Nokia | Agree with above optionality – in 38.214 it is also written “if a sub-configuration indicates a power offset [powerOffset],…” So it seems optionality is required |  |
| Fujitsu | Issue 7: Field description of nesEvent  As nesEvent is configured only for conditional events, it would be clarified in the field description.  ***nesEvent***  Indicates the event is an NES-specific CHO event and the CHO execution condition is only considered to be satifisfied if indication from lower layers is received indicating the applicability of NES-specific CHO event. This field can only be configured for cond event A3, A4 and A5. |  |
| Apple | Issue 1: Procedure text of CHO in section 5.3.5.13.4:  “2> if event(s) associated to all *measId*(s) within *condTriggerConfig* for the applicable cell are fulfilled, and none of the event(s) is configured with *nesEvent*:  3> consider the applicable cell, associated to that *condReconfigId*, as a triggered cell;  3> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5;  2> if event(s) associated to all *measId*(s) within *condTriggerConfig* for a target candidate cell within the stored *condRRCReconfig* are configured with *nesEvent* and fulfilled:  3> consider the target candidate cell within the stored *condRRCReconfig*, associated to that *condReconfigId*, as a triggered cell;  3> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5;”  We are not sure whether it is necessary to separately specify the case of the case of 2 NES events and case of 2 normal events. Please note that previous part has specified whether one event configured with *nesEvent* is fulfilled or not. And the case of 2 NES events and case of 2 normal events share the same “AND” operation. Thus, we think above two parts can be simplified like below:  2> if one of the events associated to the *measId*s within *condTriggerConfig* for a target candidate cell within the stored *condRRCReconfig* is not configured with *nesEvent*, and the other event associated to the *measId*s within *condTriggerConfig* for a target candidate cell within the stored *condRRCReconfig* is configured with *nesEvent*, and at least one of them is fulfilled:  3> consider the target candidate cell within the stored *condRRCReconfig*, associated to that *condReconfigId*, as a triggered cell;  3> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5;  2> if event(s) associated to all *measId*(s) within *condTriggerConfig* for the applicable cell are fulfilled~~, and none of the event(s) is configured with~~ *~~nesEvent~~*:  3> consider the applicable cell, associated to that *condReconfigId*, as a triggered cell;  3> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5; |  |
| Nokia | Looks quite fine proposal to us. seems to simplify procedural text nicely |  |
| Apple | Issue 2: IE *CellDTXDRX-Config*  The IE *CellDTXDRX-Config* is type of need Mbut twoIEs within it (*cellDTXDRXconfigType-r18 and CellDTXDRX-Config)* are mandatory. Then, if *CellDTXDRX-Config* is absent, it is not clear what value the two IEs (*cellDTXDRXconfigType-r18 and CellDTXDRX-Config)* should take. |  |
| Nokia | Don’t they keep the values they were configured before? Maybe I don’t understand the issue though.  Nevertheless is it clear why some parameters within *cellDTXDRX-Config* are optional and some not? How were they decided? Would there ever be situation where some of the parameters is not configured – so should all be mandatory? Or is is likely that we have some detla configuration? |  |
| Ericsson | We think all IEs should anyway be mandatory (except for cellDTXDRXactivationStatus-r18) – the gain of using delta only for a field a few field wrapped in a SetupRelease structure should be quite small anyway. |  |
| Apple | Issue 3: field description of referenceCell  ***referenceCell***  Indicates the reference cell, i.e. the cell which provides the timing reference and AGC source for the SSB-less SCell. If the reference cell is an SCell or PSCell, it should be an activated SCell or activated PSCell.  We think there are two issues:   1. We think the highlighted part can be updated with the terminology in RAN4 LS, i.e., for the concerned serving cell if neither *absoluteFrequencySSB* nor SMTC configuration is configured. 2. Since the type is “need S”, the UE behavior when this IE is absent should be included in field description. |  |
| Nokia | Agree above. RAN4 LS indicated UE behaviour in case of absence as well” . RAN4 will define “by default cell” as reference cell if the indication is not provided”. So it seems to be sufficient to refer to RAN4 spec in case of absence. |  |
| Ericsson | We agree with Nokia on the comment above that reference to RAN4 specification should be sufficient. |  |
| Apple | Issue 4: field description of ***port-subsetIndicator***  We are wondering whether below RAN1 agreement needs to be captured:  “• For report of N CSI(s) in one SP-CSI report where each CSI corresponds to one sub-configuration, the maximum value of N is no larger than 4 for semi-persistent CSI reporting on PUCCH.” |  |
| Nokia | No strong view – if nothing in RAN1 specs on this then maybe good to have something in RAN2 |  |
| Xiaomi | ***nesEvent***  Indicates the event is an NES-specific CHO event and the CHO execution condition is only considered to be satifisfied if indication from lower layers is received indicating the applicability of NES-specific CHO event. This field can only be configured for event A3, A4 and A5.  🡺  The highlight part should be “CondEvent A3, CondEvent A4, CondEvent A5” |  |
| Nokia | *Looks good proposal from Xiaomi* |  |
| Xiaomi | 3> else:  4> if ~~indication concerning NES-specific CHO execution condition~~ NES mode indication is received from lower layers, indicating that the NES-specific CHO execution condition is enabled; and  4> if the entry condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*:  5> consider the event associated to that *measId* to be fulfilled;  ***🡺here we can used the indication in DCI directly.*** |  |
| Nokia | Do we have RAN1 CR available – is there indication coming now. Anyway tend to agree with Xiaomi but it can be difficult to finalize this unless we have RAN1 CR which shows how the indication is sent. |  |
| Xiaomi | cellDTXDRXactivationStatus-r18 ENUMERATED {activated, deactivated}  this IE should be optional need R, because other parameters in CellDTXDRX-Config can be modified, but this IE should be not included again. |  |
| Nokia | If this is need R then what happens if absent – what is the status? Shouldn’t it be need M if this is optional? But maybe even every parameter being mandatory is one good option |  |
| Ericsson | The need code for cellDTXDRXactivationStatus-r18 could simply be Need N, which is the same as used for scellState since this is a one shot configuration. By the way, the fact that it is a one shot configuration could be clarified in the field description e.g “ this field is only used upon setup of cell DTX/DRX configuration”. |  |
| Xiaomi | referenceCell-r18 ServCellIndex OPTIONAL -- Need S  🡺  this IE should be conditional present IE, it can be configured only if the absoluteFrequencySSB is not present.  ***referenceCell***  Indicates the reference cell, i.e. the cell which provides the timing reference and AGC source for the SSB-less SCell. If the reference cell is an SCell or PSCell, it should be an activated SCell or activated PSCell.  🡺it is not clear whether the activated scell can be in dormancy.  🡺it is also not clear whether the SSB-less SCell or reference cell can be Async SCell. If so, some text is need in the field description. |  |
| Ericsson | On the first change suggested above by Xiaomi, we agree that it could be good to clarify the use of the field referenceCell.  On the second aspect raised above (i.e. applicability of referenceCell field), we understand those details should be up to RAN4 to specify, if any. |  |
| Xiaomi | CSI-ReportSubConfig-r18 ::= SEQUENCE {  reportSubConfigId-r18 CSI-ReportSubConfigId-r18,  portSubsetIndicator-r18 CHOICE {  p2 BIT STRING (SIZE (2)),  p4 BIT STRING (SIZE (4)),  p8 BIT STRING (SIZE (8)),  p12 BIT STRING (SIZE (12)),  p16 BIT STRING (SIZE (16)),  p24 BIT STRING (SIZE (24)),  p32 BIT STRING (SIZE (32))  } OPTIONAL, -- Need R  nzp-CSI-RS-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OF NZP-CSI-RS-ResourceIndex  OPTIONAL, -- Need R  powerOffset-r18 INTEGER(0..23)  }  NZP-CSI-RS-ResourceIndex ::= INTEGER (0..maxNrofNZP-CSI-RS-ResourcesPerSet-1-r18)   1. According to RAN1 RRC parameters below, the red highlight paramters are missing.      1. The type 1 and type 2 for SD can not configured together. i.e., portSubsetIndicator-r18 and nzp-CSI-RS-ResourceList-r18 cannot be configured together.   portSubsetIndicator-r18 CHOICE {  p2 BIT STRING (SIZE (2)),  p4 BIT STRING (SIZE (4)),  p8 BIT STRING (SIZE (8)),  p12 BIT STRING (SIZE (12)),  p16 BIT STRING (SIZE (16)),  p24 BIT STRING (SIZE (24)),  p32 BIT STRING (SIZE (32))  } OPTIONAL, -- Need R  nzp-CSI-RS-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OF NZP-CSI-RS-ResourceIndex  OPTIONAL, -- Need R   1. In the field description of powerOffset , the text for “the power offset after calculation should be (-8,15)” is needed. |  |
| Xiaomi | maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18 INTEGER ::= 8 -- Maximum number of CSI report subconfigurations per CSI report configuration  maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-1-r18 INTEGER ::= 7 -- Maximum number of CSI report subconfigurations per CSI report  -- configuration minus 1  🡺  For periodical case, the L is 4, not 8. The below is RAN1 agreement. |  |
| Xiaomi |  |  |
| Xiaomi |  |  |
| Sharp | Issue 1  “NOTE 2: A UE capable of NES cell DTX/DRX should acquire SIB1 to determine the cell barring status when the *cellBarred* in MIB is set to *barred”*  Does it mean if *cellBarred* in MIB is set to *notBarred*, the NES UE should follow it and doesn’t need to further check *cellBarredNES* in *SIB1*? If it is yes, then the field description on the *cellBarred* in MIB (This field is ignored by UEs supporting NES cell DTX/DRX if *cellBarredNES* is configured in SIB1) seems a bit conflict with this NOTE. |  |
| Sharp | Issue 2  In the 5.3.5.13.4 Conditional reconfiguration evaluation, applicable cell is defined at the beginning and used in the following description. Then suggest to change “target candidate cell” to “applicable cell” to align the legacy terminology. |  |
| Sharp | Issue 3  Considering DCI 2\_9 is group common DCI for all the UEs in a cell, there is a case that DCI 2\_9 with the bit indicating entering NES mode has be sent in a cell and just then the UE connects to NW. However, the UE cannot consider the event associated to that measId to be fulfilled based on the current running CR, and the UE cannot conditional handover to other cell. |  |
| Qualcomm | Issue 1: UE supports NES Cell DTX/DRX should refer to 38.306 UE capability as mentioned by vivo and Nokia above. No strong view on the exact capturing of that as long as a single capability can determine what the UE has to do with respect to MIB |  |
| Qualcomm | Issue 2:  1> if the UE supports NES cell DTX/DRX and it is in RRC\_IDLE or in RRC\_INACTIVE, or if the UE supporting NES cell DTX/DRX is in RRC\_CONNECTED while *T311* is running:  2> if *cellBarredNES* is absent in the acquired *SIB1* and the *cellBarred* in the acquired *MIB* is set to *barred*:  A suggestion here is not to have MIB and SIB1 reads in the same indentation level. Since UE is required to do this branch in SIB1 only if MIB is set to barred, example:  1> if the UE supports NES cell DTX/DRX and it is in RRC\_IDLE or in RRC\_INACTIVE, or if the UE supporting NES cell DTX/DRX is in RRC\_CONNECTED while *T311* is running; and   1. cellBarred in the acquired MIB is set to *barred*:   2> if *cellBarredNES* is absent in the acquired *SIB1*: |  |
| Qualcomm | Issue 3: Suggest to add a note to 5.3.5.13.3 encapsulating this agreement: Common understanding is that L1 signalling is not triggering new measurements  Currently to me, it is not very clear that the spec. as is or as Apple proposed cannot be misunderstood to mean if only NES-CHO is configured, UE will start measurement after receiving indication from lower layers. If it is clear to rapp & other companies then fine not to add anything.  Also agree with Apple above that specifying (NES only, Normal only and NES+Normal) and repeating all procedural text may be written more concisely. |  |
| Qualcomm | Issue 4: It would make more sense if positionInDCI-cellDTRX is configured as part of cellDTXDRX-Config-r18 |  |
| OPPO | Issue 1: IE *CellDTXDRX-Config*  We are not sure of the reason to define IE cellDTXDRXactivationStatus as mandatory and prefer to define it as optionally. Note that the initial state of PDCP duplication is also configured by RRC, which is defined as optional IE. We understand that similar logic can be reused here. |  |
| Ericsson | We also agree with OPPO on the issue 1 above that this field should be optional. |  |
| OPPO | Issue 2: IE *CellDTXDRX-Config*  As “need M” is used for cellDTXDRX-onDurationTimer, we understand the last sentence for the field description of this IE (i.e. If this field is absent, the UE shall apply the stored value of this parameter) may not be needed, since the UE behaviour is clear by Table 6.1.2-1.  Similar concern to cellDTXDRX-CycleStartOffset and cellDTXDRX-SlotOffset |  |
| OPPO | Issue 3: field description of referenceCell  Since “need S” is used for referenceCell, the description of UE behaviour is needed for the case that the IE is absent. We can refer to the R4 spec for this case. |  |
| OPPO | Issue 4: a new RRC parameter [cellDTXDRX-L1activation] introduced by RAN1  As RAN1 already agrees to have the IE mentioned (by the agreement below in R1#115), we are trying to understand whether RAN2 will update the RRC spec in this version accordingly.   * Introduce a new RRC parameter [cellDTXDRX-L1activation], that indicates configuration of L1 based cell DTX/DRX activation/deactivation for each serving cell. |  |
| OPPO | Issue 5: cellbarred  We wonder whether the last sentence in the field description of IE cellBarred still needs to be kept, since the UE behaviour is clear if we follow the procedure defined in clause 5.2.2.4.1 and clause 5.2.2.4.2 and no need to emphasise anything more. |  |